OBI Midterm Review

Management response to recommendations 04/22/21 10:50

OVERVIEW

The mid-term review has been both an opportunity to take a critical look back at our portfolio of activities in order to determine what has worked best as well as a chance to begin to look at the horizon, rearticulating our values and realigning activities for even greater long-term impact.

The IDP model has been widely recognized for its unique take on innovation and the performance of goal-directed science. Furthermore, its nature as a contract-based milestone driven enterprise has facilitated such goal-directed outcomes. This approach involves a keen eye toward evaluation science and metrics-driven outcomes with objective KPIs to ensure that we are having the intended impacts. Given the diversity of our types of programming, though, there will undoubtedly be some differences noted in evaluation by the fact that we also serve very different constituencies, but a hard target towards a clearly articulated set of values and priorities will continue to be a valuable tactic to bring impact and value.

One important perspective noted in the review regarding the independence of Integrated Discovery Program (IDP) leadership highlights what might be the most strategic advantage of the diversity and parlaying that into strength – through coordinated activities and cross-disciplinary investigations as a matter of course embedded into the network and not as an afterthought. Indeed, rearticulating what an IDP could mean beyond a disease-oriented collaborative is part of ongoing strategic dialog. How deliberate the OBI ought to be working, in collaboration with the IDP community to refine outcomes, will be the subject of our strategic planning process going forwards towards renewal.

Extending this thinking into the data domain, the commentary regarding the generalizable opportunity for Brain-CODE or at least a standardized approach to clinical and research data has become a prominent part of our discussion on next-generation data opportunities. As mentioned, the Ontario Health Data Platform (OHDP) is one such possible scalable solution and perhaps an opportunity for generalizable scale – but its early days yet. The goal, though, is not specifically which platform is used, but to what use data can be applied. As a result, we are undertaking a comprehensive overview and integration of data science capabilities throughout the organization and our network. A model of federation and interoperable resources ought to be the goal, with provincial, national and international borders becoming secondary considerations, while, of course maintaining state-of-the-art privacy and security standards as a key principle

Finally, we restate our goal of improving the lives of people with brain disorders while also generating economic prosperity. We have had success in bringing new products to market and thereby giving patients access to new treatments and technologies as proof points of the OBI model.

Taken together, we thank the external reviewers for their thoughtful recommendations and are completely aligned with what they view as the greatest opportunities for OBI to make even deeper inroads toward improving the brain health and generating economic prosperity.

RECOMMENDATIONS AND RESPONSES

Developing a Learning Health System

Integrated Discovery Programmes (IDPs) for Integrating Research and Care

***Recommendation 1*:** Support more rapid evolution of the IDP portfolio. The quality and international competitiveness of science outputs and the impacts on patient care and economic development of Ontario varied across the IDPs. It was not clear that funding for proposed activities was uniformly matched to the track records for delivery.

More frequent reviews of IDP objectives, leadership and achievements need to be transparently linked to funding to allow available resources to reward success and progressively limit investment where returns are lower or longer term.

MANAGEMENT RESPONSE

OBI will work collaboratively with the IDPs to ensure activities are meeting stated objectives and acknowledge performance with increased funding support for strategic opportunities.

OBI has implemented a performance management framework for the IDPs to help align their programmatic activities with IDP and OBI goals. Described further below, this framework also guides discussions held at quarterly meetings to assess activities and new opportunities to assist the programs in their objectives. OBI also organized for external scientific advisors to attend each IDP annual workshop held in autumn to review the program's work and provide strategic advice on future directions. The IDPs have incorporated advice from their external advisors in planning their priority activities for the upcoming year. Further, OBI worked collaboratively with the IDPs in the formulation of their milestones to ensure alignment with strategic priorities.

OBI has commenced realignment of funding between programs to reflect performance and supporting opportunities that may deliver greater impact in Ontario. For example, OBI reallocated some IDP under-funding resulting from activity disruption by the COVID-19 pandemic toward whole genome sequencing for POND's non-autism cohort and provided funding to support CONNECT clinical sites with REB submissions. In effort to evaluate and demonstrate the value of the programs' data assets, OBI is increasing resource investment to support cross-IDP collaborations focusing on the analysis of multidimensional datasets. Participation in such opportunities may expand the competitiveness of the programs' individual and collective scientific outputs.

Looking forward, OBI plans to recompete its programs for renewal to ensure ongoing excellence and competitiveness.

***Recommendation 2**:* The annual report highlights a wide range of key performance indicators (KPI) for OBI as a whole. Translation of these to individual IDPs for evaluation of their contributions may be confounded by the complexity of the indicators, differences between the KPIs and their specific objectives. The KPI could be simplified and focused on the objectives for each IDP. For example, on directly clinically relevant research able to guide changes in policy or care, demonstrating how this research addresses needs expressed by patients or carers and linked to support for entrepreneurial development and commercialisation for scale, impact and sustainability. A focused set of KPIs with

meaningful quantitative (or structured qualitative) metrics should be used to evaluate performance of each individual IDPs on a biannual basis.

MANAGEMENT RESPONSE

OBI will identify and incorporate program-specific measures to evaluate relevant progress towards IDP objectives.

The performance indicators generated and measured in the IDP snapshot were created to address a recommendation from the previous external review about the non-uniform implementation of the OBI model across IDPs. The work undertaken to date outlined the dimensions of activity required for an IDP to be successful, and established metrics to assess performance in these areas. Since its implementation there have been observable improvements in specific aspects of the IDPs performance related to program management (reporting, leveraging). It helped assess the activities and emergent outputs of a collaborative network such as data sharing within the program and with the international research community, engagement with patient and industry partners, and translational outputs. By measuring these activities and bringing observations forward for discussion with the IDP leadership we have helped ensure that each IDP is implementing the OBI framework in a uniform manner. However, in this approach OBI has not tailored measurement to be specific to the uniqueness of each IDP, their stated goals, or measured the resulting impacts of these activities.

The next steps of performance management will build on the current approach of collaboratively developing program-specific milestones for each IDP and outlining specific measures to track and manage performance over the year(s). Where appropriate, these can include target-based metrics (i.e. patient recruitment, healthcare practitioners engaged) or time/event-based qualitative measures. These performance measures can link to specific outputs valued by OBI to better demonstrate the contributions of the IDPs to the overall impact of the OBI system.

***Recommendation 3**:* Currently IDPs have independent leadership and set their own strategy within the OBI portfolio. The advent of the COVID pandemic highlighted the opportunity for OBI to provide a framework for responding to rapidly emerging healthcare needs in new ways, informed by science. For example, the way that the CAN-BIND IDP responded through their COVID-19 coping resource centre provides an example to emulate and expand. There is an opportunity for OBI to direct and incentivise *targeted* responses to healthcare emergencies or new priorities with cross-network, cross-IDP leadership. Demonstration of an ability to rapidly coordinate an internationally unique, cross-institutional collaborative effort could attract new resources to OBI and its successful IDPs.

MANAGEMENT RESPONSE

It is integral that the outputs of OBI's network reflect the needs and priorities that support the brain health of all Ontarians. While OBI funding was intended to provide a stable base for long-term collaborative research projects, emergencies like the COVID-19 pandemic highlight the need to be responsive to new problems that demand research to ensure responses are evidence-informed. As a first step, OBI has begun providing the IDPs with more direction regarding their annual programmatic milestones to reflect emerging priorities, advances in science and underserved needs, such as the continuation of COVID-19 related research, working with the Ontario Centre of Excellence for Mental Health, developing quality improvement initiatives (e.g., hip surveillance in children with cerebral palsy)

and designing and implementing studies using digital health biomarkers. As mentioned previously, the reallocation of funding towards CONNECT to support clinical sites coming online for its multi-centre study will address the increased priority the province of Ontario is placing on concussions research and care. With collaboration as a core principle shaping OBI's work, integrating programming with like-minded organizations is also key to addressing emerging problems. OBI is engaging other funding agencies to align priorities, resources and expertise to launch cross-network platforms, such as ONDRI's partnership with Canadian Longitudinal Study on Aging (CLSA).

As stated above, the need to be responsive to emerging priorities has been highlighted by the COVID-19 pandemic. OBI is internalizing this lesson as part of its renewal planning and is devising plans for a distinct funding arm to disburse funding to emerging opportunities that would allow for a nimble response to new priorities while preserving a team science approach.

Information and Analytics

Recommendation 1*:* The data for researchers to use for innovations in learning healthcare development that is captured in Brain-CODE itself remains limited largely to OBI-related studies. The model adopted with CAMH for research-care integration is well-aligned to OBI objectives, but not clearly scalable, as it has depended on a rather unique alignment of a quaternary referral centre's research and care mission with that of OBI. Nonetheless, if OBI is to genuinely foster a learning healthcare system, proof of principle for a more generalisable model is needed.

The bulk of healthcare takes place outside quaternary research-care institutions (e.g., CAMH). Far more data to inform clinical practice becomes available with routine care than can be generated through formally designed, prospective studies. Resourcing to enable data governance issues to be addressed in ways that would move toward province-wide integration of pseudonymised electronic healthcare with or within Brain-CODE is needed. OBI and ICES have formalized an agreement to link Brain-CODE data with ICES health administrative data. If this was achieved, it could provide a single portal for secure interrogation of these data that would provide a critical resource to MOH and be potentially commercially exploitable in ways that support both Brain-CODE (as a data processor) and contributing hospitals (as data owners). This would provide a tangible foundation for a learning health system and provide a basis for demonstration of value that would support an argument for adoption as part of routine care. These (admittedly challenging) activities should be singularly prioritised and resourced.

MANAGEMENT RESPONSE

Connecting Brain-CODE to the wider provincial healthcare system is of significant importance to OBI. OBI has successfully completed three pilot linkages between Brain-CODE and ICES involving over 9,000 participants. OBI subsequently signed an agreement with ICES to develop a crosswalk linkage that more effectively links study participants from Brain-CODE with their respective records at ICES. This work has begun in earnest and has been prioritized for completion this year. This linkage will facilitate new opportunities to exploring research and health systems utilization data with several IDPs developing plans to leverage this backbone linkage as documented in their FY21-22 milestones.

Further to this, OBI continues to be involved in the development of the Ontario Health Data Platform (OHDP). OHDP is a federated high-performance computing environment for secure, accurate, and privacy-protective linkage of large health data sets that are currently held across various organizations to allow for big data analytics, including machine learning, that will strengthen evidence for Ontario's ongoing response to COVID-19 and its related impacts. Indoc Research, OBI's partner in the technical operations and development of Brain-CODE, is a key member managing the development of OHDP. In parallel, OBI members are providing support to the governance structure of OHDP, with the Brain-CODE Governance Policy being used to help guide the OHDP framework. This involvement in OHDP will ultimately lead to greater analytics partnerships with other entities in the healthcare area.

Finally, OBI regularly undertakes data sharing agreements with external partners to facilitate data access for discovery. This mechanism is available to external researchers as well as companies. For example, OBI has worked with an American company (Creare LLC) who creates concussion related treatments and tools to access our concussion data holdings. Another recent example includes sharing de-identified imaging and clinical data sets from our depression program with collaborators at the University of Pennsylvania for an international project examining the neuroanatomical substrates of major depressive disorder. These examples speak to how OBI can work with partners across the spectrum on the sharing of data.

***Recommendation 2**:* Currently, while data is available from Brain-CODE, the value of the included datasets for the general research community is uneven. Prioritisation of investments of core resources is needed to create an explicit platform development strategy that makes clear what *should* be supported for engineering into the database and what *should not* and *why*. Choices need to be made given limited resources.

MANAGEMENT RESPONSE

OBI will continue to prioritize and execute key platform development activities to keep Brain-CODE competitive and current with analytics needs.

A five-year Brain-CODE Strategy has been developed that includes priority areas such as analytics, security and privacy of data, as well as platform operations and development. Each priority area includes key items, each with a five-year goal and annual milestones to achieve the stated goal. Decisions are made on an annual basis with the Informatics Service Group, Indoc Research, on which development and operations items should be prioritized.

One key item for focus has been the advancement of the analytics capabilities of Brain-CODE. To that effect, OBI has secured an external service provider to create a "OBI Centre for Data Analytics" strategy that will contextualize Brain-CODE in the broader data ecosystem, identify where the greatest alignment and impact can be achieved, and provide the organization with a go-forward plan to ensure that Brain-CODE continues to be a significant and impactful resource.

Recommendation 3: Software development and platforms are developing far faster than a limited publicly supported team can keep pace with. There is a high risk that the platform could rapidly become outdated. The Brain-CODE development team should focus on meeting high-value needs of research or commercial partners within OBI that demand bespoke solutions, while partnering with large platform providers to maintain core capabilities or working with entrepreneurs on new components. Innovation

for bespoke solutions that show value could be exploitable and these, along with data access, might support sustained relationships with large platform providers. For example, partnerships such as that with DNAStack provide an example of the way in which a focused effort with OBI can attract commercial partners with similar interests. A secondary consequence of maintaining a state-of-the-art hosting environment in this way could be that hospitals could be better incentivised to share data.

MANAGEMENT RESPONSE

OBI will continue to form partnerships with informatics initiatives to leverage development opportunities to maintain Brain-CODE's advantage in the broader data analytics ecosystem.

OBI continues to be involved in national and international informatics initiatives which help it keep pace with trends in informatics and analytics. Examples include involvement in the development of the Canadian Open Neuroscience Platform (CONP) - a pan-Canadian initiative for the sharing of neuroscience data. Similarly, OBI is currently involved in two Innovation Supercluster Initiatives: (1) the Healthcare to Homecare (HTH) Consortium that is using Brain-CODE to produce clinical grade outcome measures underlying chronic health conditions using novel wearable sensor devices, (2) A DNAStack-led Consortium, the Autism Sharing Initiative (ASI), that is developing a patient-centered research platform allowing for connections between pre-existing autism research databases. Involvement in CONP, HTH, and ASI ensures that we are keeping pace with software development and informatics platform.

Growing a Competitive Neurotechnology Cluster

Recommendation 1*:* A substantial increase in focus and commitment to support for entrepreneur *management* training would be of value. Provision of interns to start-ups and existing companies can provide direct value to the ecosystem and increase skills/breadth of experience of the interns. Improving the human resources available for all industry sector partners could be done. For example, by linking programmes between large industry and SMEs for intern rotations that could leverage support from the former to make a programme more easily sustained.

Leveraging OBI networks to support development of start-ups and to prepare entrepreneurs to better scale up and sell products to other members in industry were identified as of potential value in interviews. OBI has made some effort to address this issue by reaching out to organizations like the Ontario Bioscience Innovation Organization (OBIO) to make resources for elements of this available for entrepreneurs. Establishing a large network of experts, from pharmaceutical companies, other industries and policy professionals, to help refine strategies for procurement and integration of new products into the healthcare system.

MANAGEMENT REPONSE

OBI supports this recommendation and will continue its plans to evaluate and evolve its intern and entrepreneur management training programs in support of improving the brain health of Ontarians through the deployment of clinically validated neurotechnology.

OBI has refocused its internship program to facilitate the validation of neurotechnologies, both in the clinic and in the community, to provide direct value to Ontario's commercialization ecosystem and increase the skills and breadth of experience for interns. Additionally, interns have the opportunity to

apply to and complete both internal and external opportunities to round out training and experience. OBI has also initiated a pilot for partnerships between OBI portfolio companies and community partners to conduct end-user testing of emerging neurotechnology which will be supported by the internship refresh. Previous partnerships between OBI portfolio companies and community organizations such as that between Awake Labs and Community Living, and Resili and Mood Disorder Association of Ontario (now Hope+Me) have proved instrumental in the development of new products that support people with brain disorders and their caregivers. Continuing these partnerships will help entrepreneurs generate real-world evidence of product efficacy that can be used to inform procurement and/or adoption. Results of this pilot will inform whether OBI will build this into their suite of commercialization offerings to help companies scale and be procured into the healthcare system.

OBI has recently completed focus groups with its portfolio companies to better understand their current and future needs and interests to prioritize training opportunities, which will be available to all new and past ONtrepreneurs. Some topics identified include working with the pharmaceutical industry, regulatory processes, and best practices for working with community partners. OBI will leverage existing partnerships to offer training sessions on these topics in the next 18 months. In parallel, OBI is building relationships with organizations that conduct health technology assessments and/or are actively involved in the adoption process to seek advice on relevant outcome measures that can be used to inform procurement/adoption. OBI will leverage its internship program to build relationships with these organizations in effort to define procurement processes for its companies.

Additionally, OBI is planning to scale its commercialization programs nationally to leverage the strengths of other provinces and reinforce the Ontario neurotech cluster. Scaling nationally will help OBI ensure it attracts both new training opportunities for its entrepreneurs to take advantage of, and bring the best innovations back to Ontario, to benefit the brain health of Ontarians.

Recommendation 2*:* Scaling up production and manufacturing are arguably two of the greatest challenges for OBI related start-ups. Many firms have failed to realize their potential, particularly for devices and hardware, due to lack of access to manufacturing expertise – despite Ontario's strong manufacturing skill base. There is a need to further develop a pathway for scaling-up production in order to realize OBI's potential. One approach to consider is SOSV, the start-up accelerator, which focuses on designing products for successful manufacturing within specific technologies at an early stage of investment. OBI should consider extending its entrepreneurial support programs to providing or sourcing expertise in product manufacturing and engineering to assess product feasibility.

MANAGEMENT RESPONSE

OBI supports this recommendation and will continue to engage external partners to provide the necessary product development capabilities to support OBI portfolio companies.

OBI has developed plans to address the issues raised in this recommendation. OBI will continue to direct NERD funds towards Contract Manufacturing Organizations (CMO) and Contract Research Organizations (CRO) in Ontario to support OBI portfolio companies achieve critical product development milestones whilst driving economic impact within the province . Manufacturing de-risking is a critical step for many companies to secure follow-on funding from investors; OBI will provide support in matching the right manufacturer with its companies in addition to de-risking to manage this process and ensure company

success. Further, directing these funds to Ontario-based CMOs/CROs also strengthens the manufacturing ecosystem in Ontario to further attract companies to the neurotech cluster.

To further support successful product design and manufacturer selection, OBI is pursuing additional partnerships with accelerators and follow-on investors in the next few year similar to the co-funding partnership with SOSV for NeuroQore. OBI will identify investors based in Canada and the USA to match the appropriate opportunities to its companies' needs, with the aim of attracting and developing investor relationships to sustain future cluster growth.

Lastly, leveraging the manufacturing and engineering capabilities of other provinces will increase capacity for OBI's portfolio companies to develop and scale their products. Aligned with its plans to nationalize its commercialization programs mentioned above, OBI has started the process of expanding manufacturing contacts to improve access for its companies to these capabilities and support a national ecosystem for neurotechnology development.

***Recommendation 3**:* Streamline the process for commercializing OBI discoveries. The ecosystem is poised for take-off and there is a great entrepreneurial "hunger" in the province that could be leveraged for development of a thriving neurotech sector. One limiting factor is that the university technology transfer process remains highly differentiated and difficult to navigate with "a lot of strings attached." The Open Science Structural Genomics Consortium, with the University of Toronto as a member, offers a new model that might remove roadblocks related to intellectual property licensing. Another limitation is that current seed funding is directed to the partner organization rather than the company itself, creating the need for negotiations and milestones – too many hurdles for a small amount of funding.

MANAGEMENT RESPONSE

OBI supports this recommendation and will continue to work with tech transfer offices to support start-ups emerging from OBI's IDP research programs and from the Ontario neurotech cluster.

OBI is taking a leadership role in selecting the best opportunities primed for commercialization and negotiating company-IDP partnerships to realize these innovations. To streamline these partnerships, OBI will negotiate contractual agreements with companies and leverage its existing institutional agreements to manage associated milestones. OBI will continue to work with the technology transfer offices to bundle technology for commercialization, as demonstrated with Awake Lab licensing Holland Bloorview's anxiety meter algorithm to incorporate into their wearable device. Further, OBI will leverage data stored in Brain-CODE to support the generation and validation of algorithms. This will accelerate commercialization opportunities as companies looking to use Brain-CODE data will negotiate their development milestones with OBI and own any generated IP. Brain-CODE data can also be used to generate a case for bundling technology, such as EEG algorithms for epilepsy or depression.

OBI agrees with the recommendation to direct seed funding to companies. As investments in NERD companies begin to realize and the program gains self-sustainability, OBI will have gain flexibility in directing funding to companies to support their development.

Improving Brain Health

Recommendation 1: Although dementia alone places an annual economic burden on Canada exceeding that of cancer, Ontario government support for OBI and brain health remains substantially lower than the support for cancer. This reflects multiple factors, local and global. The reviewers recommend that OBI should undertake a study, which examines the perceptions the public and lawmakers have of brain diseases, their social, healthcare and economic costs, and opportunities emerging for their better management. The latter can be expressed in terms of potential to improve the health of Ontario's citizens and to provide economic opportunities (e.g., through services or technology). These data could be used by OBI for targeted education of lawmakers and the general public (not just disease-focused interest groups). Such an effort, along with ensuring that these groups are aware of successes arising from the "team science" approach fostered through OBI networks, would provide strong arguments for continued (enhanced) funding for OBI.

MANAGEMENT RESPONSE

OBI will undertake a comprehensive examination of the impact of brain disorders in Ontario.

OBI will work with the Institute for Clinical Evaluative Sciences (ICES) to renew a previous report examining the prevalence, incidence, and direct costs of brain disorders in Ontario. This report may also explore the occurrence of comorbid brain disorders and the emergent problems from comorbidity. These data can also be complemented with information from other sources identifying other indirect costs of brain disorders (such as caregiver burden). Together, these data will provide an estimate of the direct and indirect burden of brain disorders facing Ontario. OBI will use this information to help raise awareness among stakeholders and the general population about the importance and societal benefit of improving brain health and build up advocacy and business cases for OBI's role in addressing these needs.

The data collected will also useful to help identify areas of urgency and opportunity where a team science approach can be deployed. Engaging our key stakeholders in academia, industry, and the community around these opportunities will help focus our efforts towards challenges facing the brain health community, such as emergency room usage for individuals with epilepsy, delayed diagnosis in children with cerebral palsy. Emergent problems from co-morbid brain disorders may inform future cross-program collaboration between OBI's IDPs using the multidimensional data sets housed in Brain-CODE, further exemplifying OBI's team science approach.

Recommendation 2*:* OBI has developed and consistently tracked metrics for assessing commercialization efforts, including total number of companies supported, progress towards commercial goals and follow-on investment. Similar metrics might be established to assess the impact of the IDPs outside of academia should be obtained. This may be expressed broadly in common terms (e.g., numbers of patients engaged, new treatments or new business activity generated), but also should be described in short, memorable salient case studies, focused on individuals who feel the impact.

MANAGEMENT RESPONSE

OBI will continue to collect and amplify stories of impact resulting from its programs to demonstrate the value of its model of brain disorder research.

OBI has developed a series of metrics that assess the impact of IDPs outside of academia. These are captured in the IDP snapshot, where examples include patient and public engagement, knowledge translation, industry partnerships. With the knowledge that stories are more memorable than metrics, OBI will continue to work with the IDPs to capture the person-centred impact narratives emerging from their team science approach that creates value outside of academia. This collection will take place both formally through the regular metrics collection process and informally. Stories and metrics are actively shared through the platforms maintained by OBI and IDPs (quarterly newsletter, public annual reports, website, blogs, podcasts, webinars). We also make efforts to extend our reach by leveraging OBI and partner social media channels to disseminate this information and draw in new audiences.

The Challenge of Sustainability

Recommendation 1: To enable both sustainability and up-scaling projects, we recommend consideration of a range of strategies, e.g.:

1. *Partnering with industry for joint investments* to expand catalytic activities, e.g., talent development or start up innovation.
2. Enabling OBI to take convertible *equity in start-ups* that it supports, a small fraction of which may realise value in the future that could be recycled for sustaining the effort.
3. Leveraging the OBI Brain-CODE as a healthcare data portal to provide *a service for addressing real-world healthcare data queries and modelling* both for public and private partners.
4. Negotiating *an IP management position across institutions in collaborative* (who would retain IP in accordance with their local processes) for OBI network supported emerging IP. This would enable more efficient licensing of IP generated across institutions. Service components of IP management could be used by OBI to support its management role in the longer term. One option to consider is an open science model.

MANAGEMENT RESPONSE

1. OBI agrees with the recommendation to partner with industry and has several partnership agreements completed or in development. OBI recently partnered with Pfizer to co-fund OBI's internship program and is actively seeking new opportunities to partner with multinational enterprises (MNEs) to expand similar offerings. OBI is actively exploring opportunities with other large pharmaceutical companies, for example Roche. Of particular interest is our capability to test and validate digital biomarkers using real world evidence. OBI is also scouting partnership opportunities with MNEs (e.g., Telus, Manulife) to accelerate the scale-up of validated technologies by deploying them to their clients so that they get into the hands of Ontarians.

2. This recommendation aligns with OBI's recent conversion of its NERD program to include investment funding into OBI portfolio companies, with the aim of setting up the program towards self-sustainability; at the time of this response, returns from some of these investments are already materializing. Future NERD funding will be expected to have a return on investment to support program sustainability and OBI will continue to actively seek follow-on investors to ensure company success. OBI is also in the early stages of engaging co-funding partners such as the Centre for Aging and Brain Health Innovation (CABHI) through its proposed national neurotech ecosystem. As a first step in this partnership, we will announce the 2021 cohort of ONtrepreneurs at CABHI's Summit in March 2021.

3. OBI's approach to sustainability includes ensuring that it is embedded within and in service to broader initiatives in Ontario, Canada and on an international scale. Brain-CODE's impending linkage with ICES will enable queries that capture links between research and health systems data and identify real-world healthcare needs to be addressed. Such needs could inform future challenges in OBI's potential emerging priorities granting arm. OBI's involvement with the development of the Ontario Health Data Platform (OHDP), as mentioned earlier, may also allow for future healthcare related analytics partnerships.
4. From OBI's contract with the Ontario government, OBI has the capability to determine whom is "best able to commercialize any IP generated from OBI funding." In keeping with this agreement, OBI seeks to support partnerships between industry and research institutes through its current process of signing partnership agreements on behalf of the IDPs. This ability to initiate partnerships may extend to signing agreements involving the consolidation of IP within its network with other funders or industry partners. Proceeds from these partnerships would be redistributed back to the institutions to support ongoing OBI-related activities. Additionally, advancing the use of Brain-CODE with industry partners would drive self-sustainability of Brain-CODE funding as well as realize the potential impact of the stored data.