ONC’s core metrics
Reported to Canada Foundation for Innovation

- Standard indicators
- Facility-specific indicators
Standard indicators

Operations
- User access
- Optimal use
- User satisfaction

Research & Tech Development
- Advancement of research

Benefits to Canada
- Training of Highly Qualified People
- Tech transfer

Facility-specific indicators
- Facility reliability
- Active collaborations
- Informing policy development
- Indigenous community engagement
Tools for assessing user counts

Google Analytics
- Geographic distribution
- Users accessing data via websites

Oceans 2.0 Database Searches
- Registered users
- Application Programming Interface (API) users

Targeted Annual Survey
- Sector composition
“optimal use”

Open-ended metric — up to facility to define.

Our definition:

*Average number of active data streams divided by average full-time equivalent staff count.*

How is this definition helpful?

*Shows effort (across the org.) required to support data streams.*

*Ratio increases with efficiency/productivity improvements.*

*Helps indicate impacts of staffing shortages.*

Past Quarter

Average sensors producing data: 8585
Average monthly FTE: 130

Data streams/FTE: 66
User satisfaction survey

“Overall, how satisfied are you with the __________ provided by Ocean Networks Canada?”

- Infrastructure & Instrumentation
- Quality of Data
- Online Tools & Access to Data

“Overall, how responsive has Ocean Networks Canada been to your questions or concerns about our service?”

Measured on 7-point scale via annual surveys sent to the scientific community. Reported to funding agency as aggregated percentages.
Advancement of research

Number of peer-reviewed scientific contributions. Includes:

- *Peer-reviewed journal articles*
- *Peer-reviewed conference proceedings/presentations/posters*
- *Book sections*
- *Masters and Ph.D. theses*
- *Published data sets and data summaries with DOIs*
Highly qualified people (HQP)

Number of HQP trained at the facility or who used data from the facility for their training, including:

- Undergraduate students
- Masters students
- Ph.D. students
- Postdoctoral fellows
- Research associates
- Technicians

Apples, oranges, bananas, kumquats

- Long vs. short timeframes
- Multiple vs. Single engagements
- Principal vs. supplementary data source
Tech transfer

Aggregated total number of:

- *Technical reports (including proposals, feasibility studies, summary reports)*
- *Patents*
- *Licenses*  
  Very few patents.
- *Spin-offs*  
  Very few spin-offs.

Many licenses and reports to government entities.

Example:
Some Performance Metrics
Some Performance Metrics

Peer-Reviewed Literature 2010 - 2019
(Data Retrieved August 2019)

- Journal Articles per Year
- Cumulative Citations (Dimensions)
- Power Trendline (Article Growth)
Standard indicators

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Facility reliability

What we wanted:

*Ratio of received to expected data volumes for each instrument, summed for all instruments that are connected.*

So our current working definition is:

*Ratio of non-compromised to total deployed instruments (including both scientific and engineering) over the time period.*

(Very difficult to compute.)
Active collaborations

Sum of:
- Memoranda of Understanding (MOUs)
- Research agreements
- National/international projects that use the observatory

*(Fairly straightforward, although challenging to track.)*
Informing policy development

Number of civil servants, NGO representatives, elected officials engaged.

*(Something we do a lot of!)*
Indigenous community engagement

Number of active partnerships with Indigenous communities.

(Matches a major area of focus for the current Canadian Government.)

ONC had 18 such active partnerships last fiscal year.
Conclusions

• Funder-required metrics not always well conceived.
  • (One size usually does not fit all.)
  • Metrics should be objective, repeatable, and meaningful
• Imprecise by definition
  • Transparency and consistency are important
• Devil is in the details: context and interpretation
  • “Just because we can doesn’t mean we should.”
• Recommend: trial & repeated refinement