Act on Climate

EC4 Advisory Board

Sharing Sessions Summary

March 2022

RIEC⁴ Advisory Board

Facilitated Discussions

How do we track progress toward our climate goals?

1. Which categories should we discuss?

2. How might we track progress in each category?

3. What else should we consider?

Act on Climate Public Sharing Sessions on Climate Dashboard:

How do we track our progress toward our climate goals?

Sessions on March 24, 25, and 28, 2022

RIEC⁴

What categories should we discuss?

March 24th Session

- Greenhouse gas emissions
- Climate justice and equity
- Resilience and adaptation
- Economic considerations
- Education, outreach
- Workforce development

March 25th Session

- Greenhouse gas emissions
  - Electric Sector
  - Housing
  - Consumption of Goods
  - Transportation
  - Food
- Climate justice and equity
- Resilience and adaptation

March 29th Session

- Greenhouse gas emissions
  - Emissions inventories, collaboration, frequency
- Climate justice and equity
  - Metrics specific to EJ Communities
- Resilience and adaptation
- Buildings
- Other categories: housing, land use, development, transportation
- Opinions of Rhode Islanders, particularly those in EJ Communities; role of social science methods in tracking

Tracking Progress: Greenhouse Gas Emissions

By emission type

CO_2 CH_4 N_2O F-
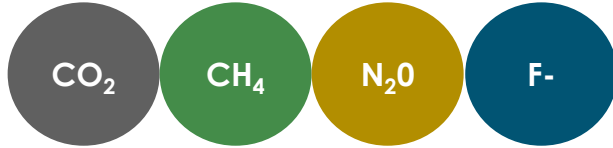
In summary
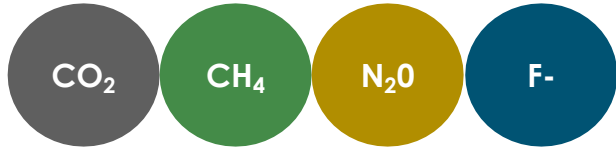
Total Emissions ($MMTCO_2e$)

By sector

What metrics might we use?

- By sector
- Key metrics within each sector (for example: state fleet electrification, private vehicle electrification, weatherization, etc.)
- Measurement by sector should keep in mind which sectors can take which actions ← this will help us gain insight into the efficacy of our strategies
- By sector is helpful too: different ways to sort sectors
- Alternative sectors: housing, transportation, food, buildings
- By fuel type, especially for thermal sector

- By building stock
- For buildings (in aggregate and by building types or characteristics) – consider building emissions linkages with land, water, etc.
- Buildings transcend sectors, sources, emission types

- CO2 and Methane are important, as well as total emissions in
- By source and by emission type (similar to by sector but provides insights about strategies and impacts)
- Public health and related impacts (costs AND benefits of our strategies)

- High level summary data

- By sink (water use, land use, land use patterns, etc.)
- Disaggregate sources and sinks by sector
- By source/sink

- Electrification – metrics that can help us understand our progress, environmental implications
- Tracking leading indicators of progress – e.g. number of electrified vehicles, heating systems, renewables, efficiency, etc.

Tracking Progress: Greenhouse Gas Emissions

By emission type

CO_2 CH_4 N_2O F-

In summary

Total Emissions (MMTCO$_2$e)

By sector

What are the pros and cons of these metrics?

- Make sure to include the date of any data shown – what can we do to reduce lag?
- What's the right frequency of reporting?

- Include explanations for folks who want additional details
- Top-level metrics with the opportunity to drill down for more
- It's helpful to be able to drill down AND see the whole information for folks who want it
- Use dashboard as a communication tool to connect to additional relevant resources

- Balance between ideal metrics and data availability
- Balance between insight and administrative costs
- Consider administrative burden – should be worth the insights gained from reporting!

- Show trends in addition to snapshot
- Understand trends and correlations
- Indicators should contrast progress with where we need to be
- Track in relationship to goals
- Tone should be realistic and objective: reality benchmarking against where we need to be
- Convey what our targets are

- Dashboard should track lowest hanging fruit and immediate action
- Put data in context of actions: for example, how well are we offsetting increased electricity consumption with renewable energy resources?
- Facts and trends in each category AND the interconnectedness between categories
- Follow and build off best practices of IPCC, CDC, other recognized, vetted, and accepted frameworks
- Consider value of existing frameworks like the Carbon Disclosure Project (CDP), ACEEE scorecards for energy efficiency, C40 Cities Initiative

- How should we handle Scope 3 emissions? (the idea that our consumption of goods also causes emissions, out of your control (kind of))

Tracking Progress: Greenhouse Gas Emissions

By emission type

CO_2 CH_4 N_2O F-

In summary

Total Emissions (MMTCO$_2$e)

By sector

"For supply-chain issues, which are real, it may be that a dashboard may need a big note, about how we are just measuring local emissions, not upstream and downstream emissions from what we consume. Studies in Oregon and San Francisco show that counting upstream emissions from products roughly doubles emissions in state." – Timmons Roberts **Account for emissions**

"How or [can] we measure GHG emissions in the supply chain of various sectors." – James Celenza **Account for emissions**

"Following on kens remarks on bldg. sector can --or should-- we assess GHG for building materials e.g. cement, brick, wood, steel, plastics etc.." – James Celenza **Account for emissions**

"Also for transportation sector, it is frustrating actual harmful emissions data isn't easier to come by (I assume it's not, other than from mostly models...)" – Russell Holt **Transparency**

"I think we can come up with the perfect dashboard that lays exactly the pieces of information that everyone wants to see. But at the end of the day it has to be information that we can collect and deliver, otherwise it is going to be somewhat meaningless." – Amy Rainone **Dashboard**

"I'm really interested to know when we could see currency of the data. For example, I see that the last formal report by the state on our GHG emissions is on the DEM site, and it's 2017s' data....there's a disparity of the time which is the last official GHG relative to 1990 is 2017. So, we're really 5 years behind that." – Tom Clemow **Transparency**

"Buildings should be a separate category, but the energy use, water use, waste of each building can be totaled in the aggregate of energy, water, waste categories, and vehicle miles traveled related to buildings and the land use patters, and others" – Kenneth Filarski **Accounting for emissions**

Bold Red text** = How I categorized the comment into SmartComment
Basically, this is my interpretation of the comment within a broad(ish) category –

Tracking Progress: Climate Justice and Equity

Quantitative measures

Qualitative measures

Lived experience

What metrics might we use?
- How much spending on innovation goes toward historically overburdened communities?
- Where is investment in energy efficiency and clean energy going? Track environmental justice neighborhoods. Measure across communities, municipalities, schools, …
- Clean energy investments by type and location

- Who are we consulting in administrative processes? Who is participating in our public processes?
- How do underserved and overburdened communities feel about how the state is doing?
- What metrics do communities who have been historically marginalized want to track?

- Local air pollution, transportation metrics

- How should we capture emissions from supply chains and from consumption of goods?
- How should we track lifecycle emissions of materials?
- Scope 3 emissions are 'highest hanging fruit'
- Emissions of delivering clean energy technologies (e.g. transport of electric vehicles to be sold in state)

- In what cases should we take a regional reporting approach? A national reporting approach?

- Priority of reducing source emissions rather than relying on netting

- Progress on tree equity score

Tracking Progress: Climate Justice and Equity

Quantitative measures

What are the pros and cons of these metrics?
- Need to understand the rate at which we progress
- benchmarking against where we need to be
- Convey what our targets are
- Indicators should contrast progress with where we need to be

- Align dashboard with statutory requirements of 2021 Act on Climate – consider letter of the law
  Set expectations for what needs to be measured and what will be measured
- Tone should be realistic and objective: reality

- Connect to public health outcomes (e.g. asthma)

- Connect to demographics

Qualitative measures

- Visualization of information is important – mapping, trends, etc.
- Stories of people, their experiences, their hopes, their visions

- Put data in context of actions: for example, how well are we offsetting increased electricity consumption with renewable energy resources?

- Include information about what we are *not* reporting in the dashboard
- Make sure the data presented and the presentation of the data is accessible, transparent, relevant for the audience (e.g. language, visual representation, figures, etc.)

- Provide link to Health Department's environmental public health tracking network (or CDC's portal)

Lived experience

Tracking Progress: Climate Justice and Equity

Quantitative measures

Qualitative measures

Lived experience

"The State spends a lot of money on economic development. You know, the have got this obsession with innovation. And what I would like to see is the tracking of how much of that innovation expenditures goes to non-traditional communities." – Greg Gerritt **Climate Justice and Equity**

"Yeah, this just came to me. There's good to be multi hundred million dollars in new school construction and renovation. The premise, with this new with new school design, whether you using lead for schools' carbon neutral northeast collaborative for high performance schools is that the schools which are having Cleaner HPA systems, a lot more day lighting, wonderful colors are just psychologically better, is that will improve both teaching and learning under students. Now one way that we can measure climate justice and equity is to test that architectural design and high-performance green building standards premise against the performance or with the performance of children across the state in all the schools in all you know in you know from South Providence Olneyville, Barrington, Little Compton, whatnot had to see. You know what is the correlation between the so-called improved facilities which supposedly again, is to raise the learning capacity of you know, the people there, so it'd be interesting to see is as to how these dollars invested actually come out and in better educational outcomes for those populations that are typically at the bottom. You know does a school investment actually make sense from a climate justice and equity standpoint." – Kenneth Filarski **Climate Justice and Equity**

"So I heard Kenneth talk about the difference in different communities and a proposal that I put together that addresses stakeholder engagement and stakeholder mapping can be used across our 39 different municipalities to identify what are the priorities in Barrington and what are the priorities in fall river or in Gloucester, Foster, they're all going to have different priorities. stakeholder mapping that can comprehensively report what stakeholders across the state are saying could be included in the dashboard. But stakeholder mapping specific to each municipality is going to tease out the priorities, whether they are climate education or improvements in public transportation that are going to be unique across all our policies that needs to be tracked I think." – Magnus Thorsson **Dashboard**

"Right and if we're going to address communities that have been underserved, we're not going to get the answers for that if we look at it collectively as a state. We need to talk to people on the ground, and those are the people that are dealing with the issues daily they are going to be the one who can better identify what needs to be addressed." - Magnus Thorsson **Climate Justice and Equity**

"I would also just say you know, and this isn't a metric necessarily but I, you know, and some of the comments I think a couple of folks with the tree equity and I and Nessa with you know the recognition of the importance of open spaces, also with an equity lens is to understand kind of the interconnection between climate, could be adaptation mitigation and what it means for quality of life in neighborhoods so maybe the live experience. So I think Nessa mentioned like urban gardens so the amount of urban gardens and Providence, for example, isn't really going to mitigate all that much carbon there it's they're very small in nature, and that you know but, there are also other services that come along with those urban gardens like food access and access to outdoor area and pollinator habitat, etc, and so to kind of at least understand with these metrics, especially with the justice that many of this is interrelated." - Dawn King **Whole Systems Thinking**

Tracking Progress: Climate Justice and Equity

Quantitative measures

Qualitative measures

Lived experience

As Representative Carson called to our attention, Act on Climate states that its dashboard "shall track both emissions reductions and sources of energy consumed by the state." The brief paragraph about the dashboard also requires that it will "foster public transparency by developing public metrics and an online public dashboard."

One might argue that the requirement for tracking emissions reductions and sources of energy consumed does not in fact prevent other public metrics from being developed and tracked as well as emissions and energy sources. However, as the lead sponsor in the house of representatives, Rep Carson can certainly speak authoritatively about the intent of this section of the law.

That said, our three recent sharing sessions entitled "How do we track our progress toward our climate goals?", sponsored by the EC4 Advisory Board, revealed wide-ranging interests in identifying and tracking many aspects of the unparalleled efforts that Rhode Island is planning – the complete conversion of our energy economy from fossil fuels to renewable energy sources. Our expansive concerns are really focused on making decarbonization successful, relatively swift, and fair for all Rhode Islanders. I believe that the discussions, and support from Advisory Board Chair Dormody are essential for planning a successful transition. This is much more than planning an emissions reductions dashboard.

Those who crafted the text of 2021 Act On Climate were certainly providing guidance and encouragement to go way beyond a simple dashboard. The EC4 is charged with assessing, integrating, and coordinating climate change efforts throughout state agencies, not only reducing emissions but strengthening community resilience and infrastructure, preparing for the effects of climate change, including vulnerability assessments and programs for public protection. The plans must include an equitable transition for environmental justice populations and others most vulnerable to the effects of climate change and its impacts. Recruiting, training, and retaining a climate workforce that represents all Rhode Islanders is clearly stated.

Specifically, Act On Climate calls for identification and communication of strategies to prepare for the impacts of climate change and its consequences and its effects on Rhode Islanders – strategies that incentivize businesses, institutions, and industry to adapt to climate change. I believe we must recognize this as a major effort at social engineering (in the best of senses). We must thoroughly understand how the people of Rhode Island feel about decarbonization and help them find comfort and enthusiasm for its importance. We must provide the compelling information about why this transition is essential, and how beneficial it will be for Rhode Islanders of today and the future. Without becoming apocalyptic, we must make sure that everyone understands what happens if we fail to adapt successfully.

To be successful, we must communicate far more than emissions reductions and sources of energy. To communicate successfully, we must listen to Rhode Islanders and understand their concerns. However and wherever we gather this evolving body of knowledge is not vital. It is knowledge of the people and for the people. Knowledge which must be shared effectively. Please continue to explore the socioeconomic, justice & equity, and civic–collaborative essential aspects of this undertaking. Surely we can do this without trying to hang them on a dashboard. -- *Peter Trafton* **Climate Justice and Equity**

Tracking Progress: Resilience and Adaptation

Quantitative measures

Qualitative measures

Lived experience

What metrics might we use?
- Track participation in programs

- Local agriculture and food security

- Costs of damages; who bears the costs of damages
- Avoided costs and costs of inaction due to investments
- Trends in building back (costs, savings, location, updated practices) → design and planning tools
- Investments in hazard mitigation, resilience, adaptation – expected savings (or avoided costs) e.g. from National Institute of Building Science
- Damages ($) due to impacts of climate change

- Leveraging external funding
- Change in property value

- Susceptibility to natural hazards, likelihood of risks

- What communities have hazard mitigation plans?
- Municipalities with up-to-date vulnerability assessments and disaster mitigation plans
- Hazard mapping
- Show climate risks and ability to respond

- Land change due to climate impacts like sea level rise
- Number of homes in flood risk zones
- Rhode Islanders with emergency warning system
- Infrastructure protected from sea level rise and storm
- surge
- Percent of shorelines managed for erosion prevention
- Land lost at the coast

- Work with municipalities – building municipal resilience and climate adaptation
- Do communities have the resources they need to be resilience hubs? What about critical infrastructure

Tracking Progress: Resilience and Adaptation

Quantitative measures

Qualitative measures

Lived experience

What are the pros and cons of these metrics?

- Geographic and temporal trends
- How are we adapting? Structural versus non-structural, natural versus developed lands
- Gaps analysis – metrics to understand how we're closing the gaps identified for each community/geography
- How can we apply environmental social governance (ESG) reporting/regulations to inform metrics, strategies, etc.?
- "Top of the iceberg" with more information "down below"

Tracking Progress: Resilience and Adaptation

Quantitative measures

Qualitative measures

Lived experience
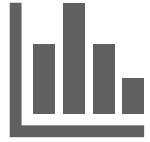
"I was thinking that in RI, my impression is that more of the coastal communities have been looking at the issues more than inland. We are a small state, so we all need to take actions. Granted, different ones." – Pam Rubinoff **Individual/Local Action**

"We need to be able to follow what each state agency is doing (at present) and what they are planning for mid-term. Not easy to squeeze into a true dashboard, but oh so important to be able to follow easily and transparently." – Peter Trafton **Transparency**

"Regular measurement and on-going (timeframe) kind of changes. It's not every year, it may be every month, is important to react to. And then the ability to go up and down in terms of transparency whether it's at a building level, a neighborhood, or a county within the state, different levels of consolidation. You're able to drill down whether it's sector or state and maybe assign targets or reductions within each of those different categories." – David Witek **Strategic Planning**

As we're reducing greenhouse gases and tracking production that we're also monitoring air quality throughout the state at different tracking our monitoring locations which we should do more of but also if there's a way to include indicators on the dashboard of how that how progress on that goal of reducing local air pollution is sort of correlating to reducing greenhouse gases, because, you know there's obviously a very impactful local and even indoor air quality metric that we could be finding as we make these transitions so. – Hank Webster **Dashboard**

"So, the first one, in my opinion, would be to do a gap analysis. And we can learn from field ecology, where we do an analysis of ecology, we take parties representation, and we finally examine it and then we make inferences for the rest of the studies subject. If we were to do graph analyses and do similar metrics that we can apply to whether it's on a municipal level or on a county level. We need to have the gap analysis to push them we've done a good job of assessing coastal impacts that we haven't fully explored other things that are going to be in we may have, we may have great coastal resources today, but we can't get out of town, we have to look at it holistically. So a gap analysis would be a brilliant beginning, and again I say we have we have methodology from the business sector, the SEC just approved ESG regulation for publicly traded companies that we can apply to a municipality that's going to enable us to better put a finger on what we need to do what is, what is the requirement for making our community more resilient and what can we adapt to what do we need to adapt to again unique for each and every one of the 39 municipalities in stage." **–** Magnus Thorsson **Modeling**
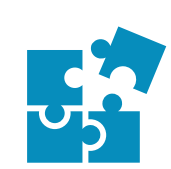
Tracking Progress: Economic Considerations

Quantitative measures

Qualitative measures

Lived experience

What metrics might we use?

- How are we integrating climate considerations into economic development plans, goals, targets, etc. and reporting out/measuring?

- Progress on what we *haven't* done or what we've avoided

- Public investment versus private

- Bringing innovation and clean energy businesses to Rhode Island

- "Putting climate at the heart of economic development"

- Economic growth with*out* emissions growth

What are the pros and cons of these metrics?

- Differential impacts of climate on industry – who wins? ← can inform strategy to help others benefit too

Tracking Progress: Economic Considerations

Quantitative measures

Qualitative measures

Lived experience

"The State spends a lot of money on economic development. You know, the have got this obsession with innovation. And what I would like to see is the tracking of how much of that innovation expenditures goes to non-traditional communities." – Greg Gerritt **Climate Justice and Equity**

"I've been reading a lot of stuff from Commerce RI and they're talking about where they see the future of the economy. Very little of it, other than wind turbines, is about climate. So, we need to figure out how much are we actually developing as a climate smart economy, as a climate adaptions economy, and what resources are going there." – Greg Gerritt **Decarbonization Technology**

"I was just on a webinar last night about recreational fishing boats, and the issues of climate change. I wonder if there are ways to look at winners and losers of climate change. And thinking about how we can turn more into winners. Where people can benefit some of the changes, or that we are changing some of the jobs to start to benefit from some of the changes that will be happening." – Pam Rubinoff **Beyond metrics**

Tracking Progress: Education, Outreach, Workforce

Quantitative measures

Qualitative measures

Lived experience
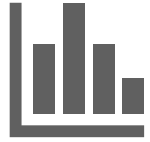
What metrics might we use?

- Track agency actions – what is each agency doing to address climate?

- 'Climate note' akin to 'fiscal note'

- What role is there for forward-looking metrics that can inform strategies to prepare for the future?

- Integration of training across organizations, collaboration: how might we track levels of collaboration?

What are the pros and cons of these metrics?

- How can a dashboard provide insight into how climate goals are embedded into agency-specific and state-level strategic plans *and planning processes*?

Quantitative measures
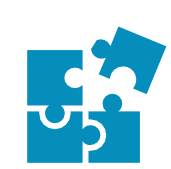
Qualitative measures

Lived experience

"From my perspective, these climate goals have to simply be embedded into every strategic plan for everything that we're doing as a state. I just don't know how else we get there. This has to become the filter through which everything else we consider." – Laura Bartsch **Strategic Planning**

"So what we need to do in terms of workforce development, because there's a delicate dance between how much time you have to train people, educate them, for the jobs that are existing now but might be there. That's a very difficult timing in terms of not only funding, but training." – Kenneth Filarski **Education**

"As we're reducing greenhouse gases and tracking production that we're also monitoring air quality throughout the state at different tracking our monitoring locations which we should do more of but also if there's a way to include indicators on the dashboard of how that how progress on that goal of reducing local air pollution is sort of correlating to reducing greenhouse gases, because, you know there's obviously a very impactful local and even indoor air quality metric that we could be finding as we make these transitions so." – Hank Webster **Transparency**

Tracking Progress: Emissions – Consumption of Goods

Quantitative measures

Qualitative measures

Lived experience

What metrics might we use?

- How should we capture emissions from supply chains and from consumption of goods?

- How should we track lifecycle emissions of materials?

- Emissions of delivering clean energy technologies (e.g. transport of electric vehicles to be sold in state)

- In what cases should we take a regional reporting approach? A national reporting approach?

- Scope 3 emissions are 'highest hanging fruit'

What are the pros and cons of these metrics?

- Put data in context of actions: for example, how well are we offsetting increased electricity consumption with renewable energy resources?

- Indicators should contrast progress with where we need to be

- Tone should be realistic and objective: reality benchmarking against where we need to be

- Convey what our targets are

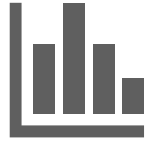- Include information about what we are *not* reporting in the dashboard
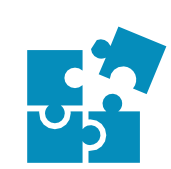
Tracking Progress: Emissions – Transportation

Quantitative measures

Qualitative measures

Lived experience

What metrics might we use?

- Argonne National Lab has a model called GREET which reports out greenhouse gases, carbon monoxide, nitrous oxide, particulate matter, tire and brake wear, VOCs and Sox → Metrics may extend past greenhouse gases to include pollutants, costs, safety, etc.

- Electric vehicle charging infrastructure

- Number of stations online (versus broken), average time a broken station is offline while being fixed

- Vehicle miles traveled

What are the pros and cons of these metrics?

Tracking Progress: Emissions – Electric Sector

Quantitative measures

Qualitative measures

Lived experience

What metrics might we use?

- Impacts of strategic electrification of heating and transportation sectors (e.g. additional electricity consumption and emissions impact): how do short-term emissions differ from long-term emissions as we build out renewables?

- Renewable energy as a percentage of electricity consumption

- Pipeline of new electric supply and retiring supply

- In-state versus out of state renewables

- Regional fuel mix

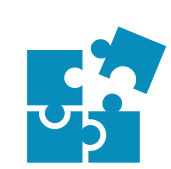- Electrification projects that are coupled with renewable energy projects

What are the pros and cons of these metrics?

- Metrics related to energy storage

- Incentives and programs available, participation, by whom

- Renewable energy projects, community renewables, excess renewable electricity generated

Tracking Progress: Buildings

Quantitative measures

Qualitative measures

Lived experience

What metrics might we use?

What are the pros and cons of these metrics?

- Building rating systems (e.g. energy ratings, certifications)

- Emissions manifest in/around buildings, so buildings provide an integrated strategy and indicator for emissions reduction (and other climate/environmental/policy objectives, too)

- Buildings can be approached both individually and in aggregate

- Example: Providence building energy tracking and disclosure

Additional Feedback: 3/30 AB Meeting

- Workforce development / workforce transition (get deeper on these issues) – there should be regular reporting on this – who and how are people being impacted). (Pat)
- Comment: Equity and justice are key ideas (incorporating into everything we do) – don't need to "separate" it out…. rather, work it into other metrics. (Pam)
- "Whole of government" focus on climate justice and equity – so all agencies are moving towards same objectives/goals. (Ken)
- What money goes to different communities for resilience (raises issues of equity). (Pam)
- Align methodologies of reviewing impacts with larger national approaches (Ken)
- "Climate notes" for legislative proposals is a good idea (Pat)
- Regulatory review of all regulations for "climate impacts" (similar to small business review) (Sheila)
- Life-cycle impacts – regional and national tools might be needed to address these issues (Liz and Ken)
- Can we capture more local farming / local food metrics? (Diane)
- Transportation is connected to everything – it's the veins of our economy. Reduction in VMT with improved building and land use. (Ken)
- How do we look across state and local emissions goals? "Grid mod" is important to keep up with our electrification goals. (Ken & Pam)
- Daunting task of collecting building information (by municipalities) – need to streamline. (Diane) ??? (OER) (Green Buildings Advisory Committee)
- There are so many existing tools out there to track building metrics (let's aim for consistency); how much information is too much information? (Ken)
- What support do we need to provide cities and towns so they can be successful? (Diane and Sheila)
- How do we layer this – what do we want in the first cut of a dashboard? Then how to we want to build it out to add new details/metrics? Make it easy to keep it updated. Let's phase this is… make it an iterative process. (Pam)
- Are private entities going to be required to provide data? (Pat)
- Are we going to be tracking legislative progress (new bills)? (Pat)
- Metrics should be "towards a goal" – connect people to information that doesn't t necessarily lend itself to be captured numerically. (Rachel)