DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

STRATEGIES WORKSHOP

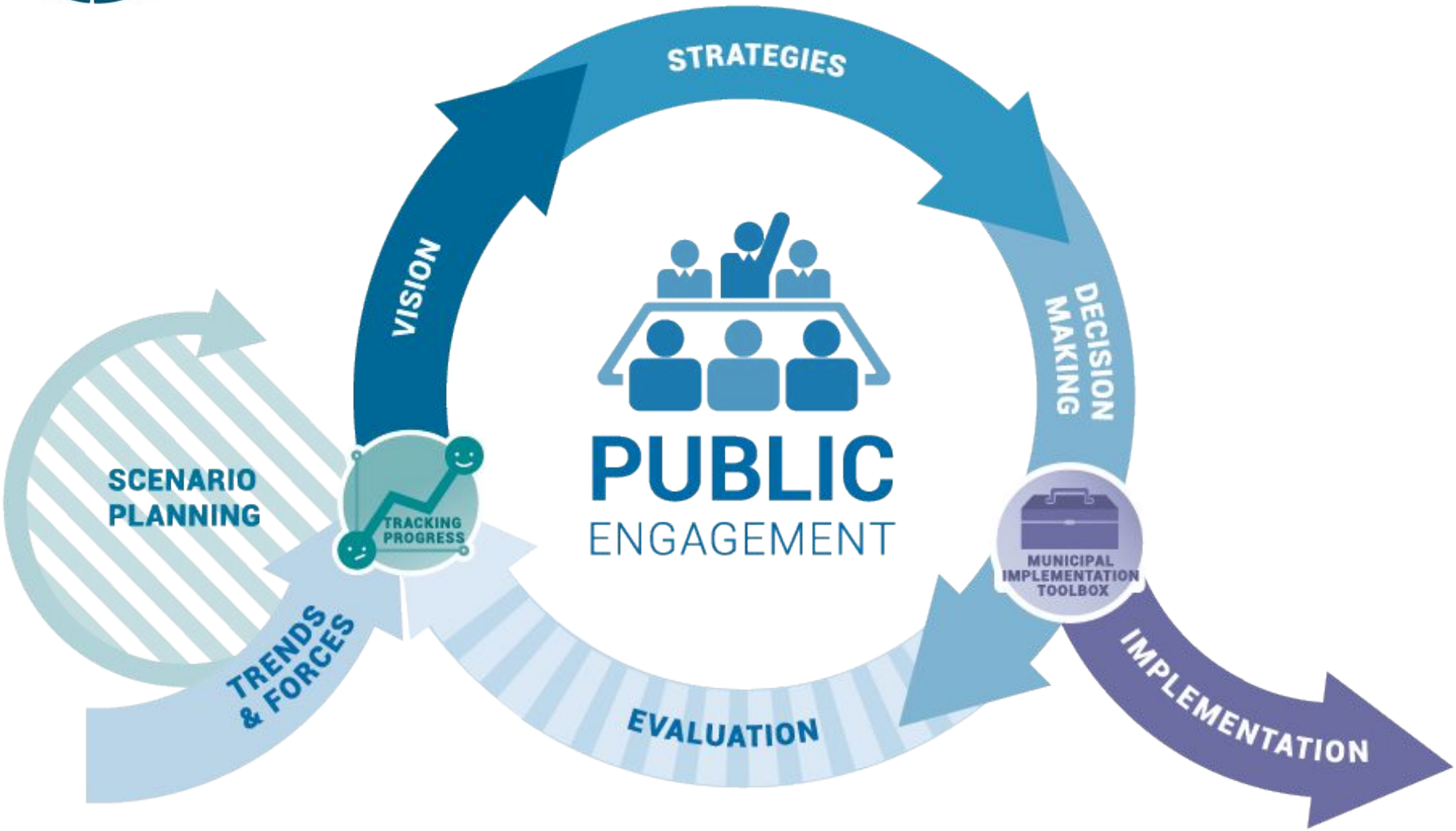
Transportation Technology
December 10, 2020

Agenda

- Workshop Welcome
- Plan Process
- Breakout Group Exercises
- Report Back
- Closing

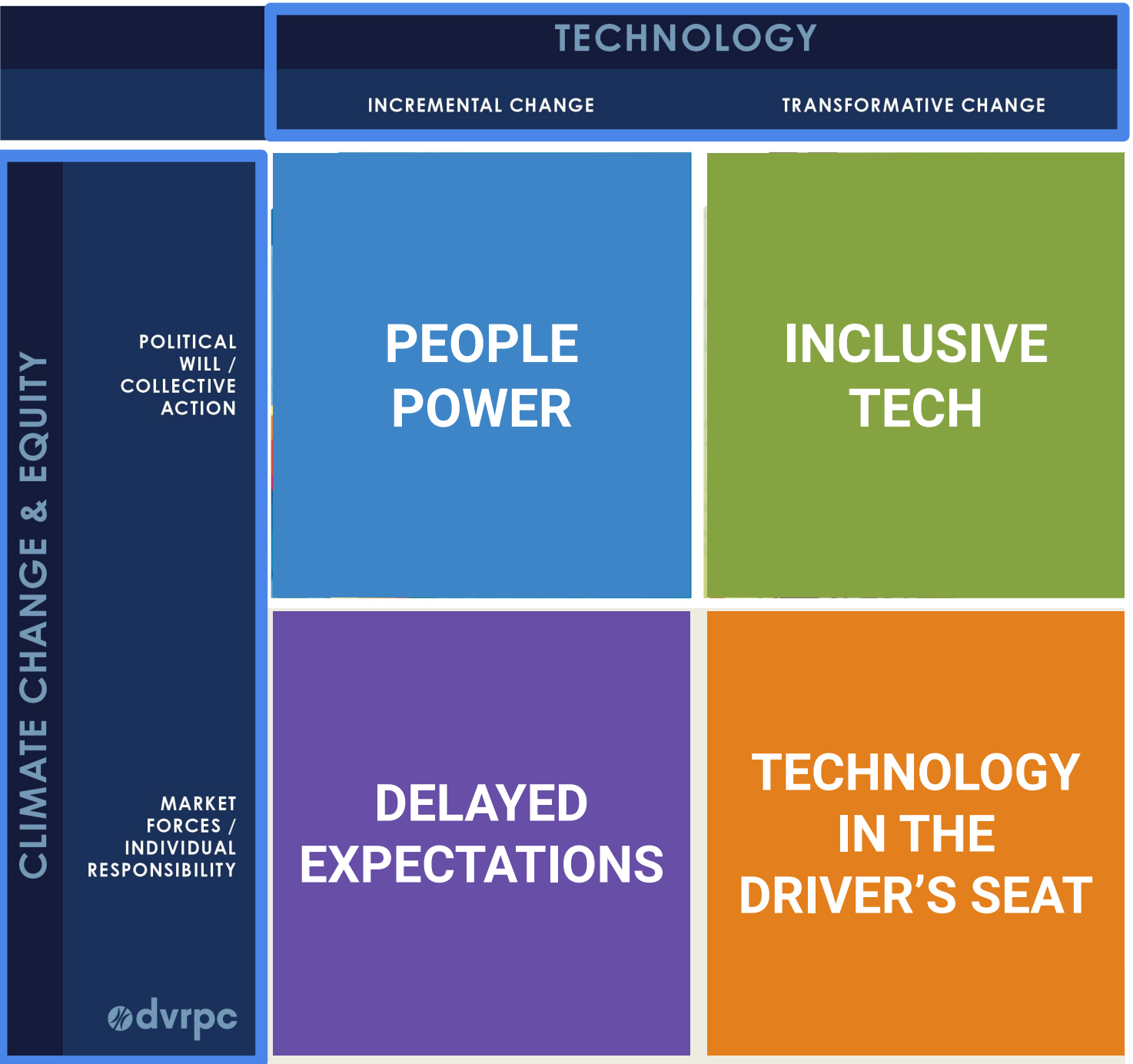
PLAN PROCESS

Developing a Plan



Scenario Planning

FOUR SCENARIOS



- ENVIRONMENT
- DEMOGRAPHICS
- THE ECONOMY
- INEQUALITY
- HOUSING
- TRANSPORTATION INFRASTRUCTURE AND FINANCING
- TRANSPORTATION TECHNOLOGY

Visioning Workshops

What do you value most in Greater Philadelphia today?

What concerns you the most when thinking about Greater Philadelphia in the future?

What is your vision and/or goals for the region?

Regional Vision

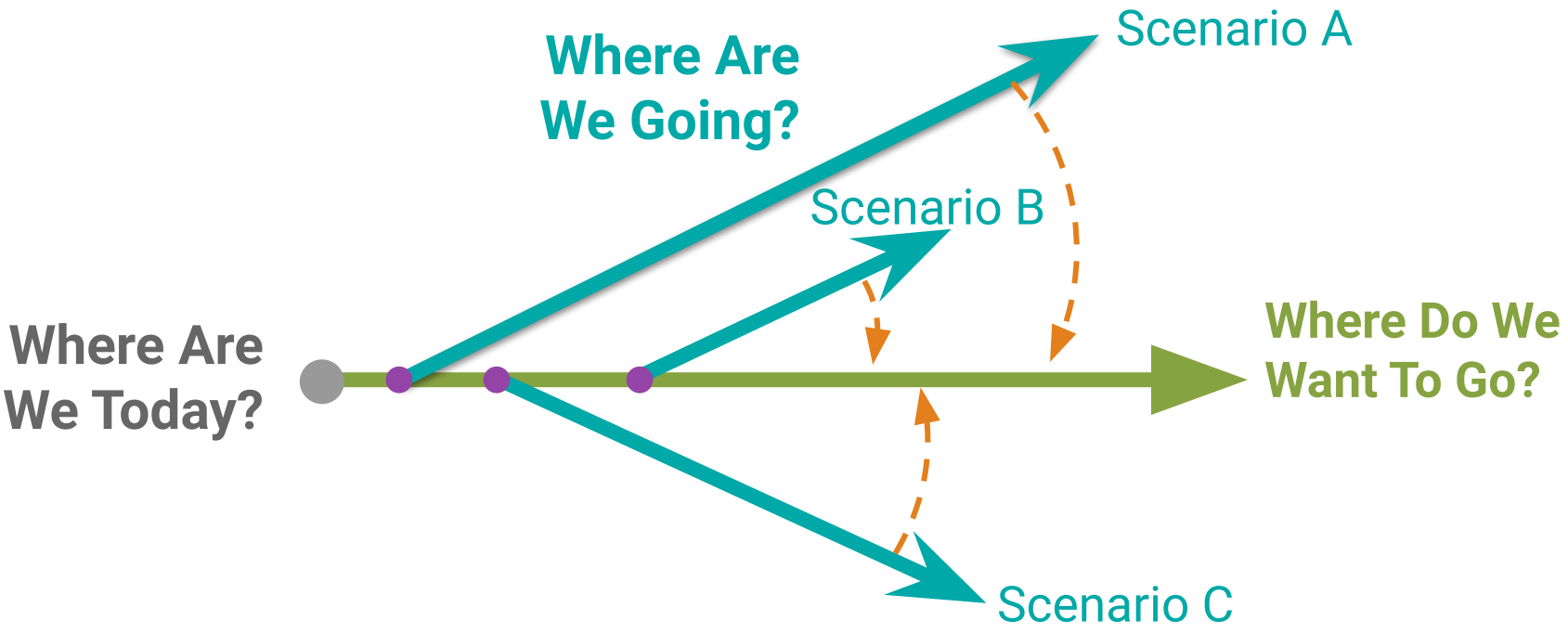
An equitable, resilient, and sustainable region that:

- Preserves and protects the natural **environment**.
- Develops inclusive, healthy, and walkable **communities**.
- Grows a prosperous and innovative **economy**.
- Maintains an integrated, **multimodal transportation network.**

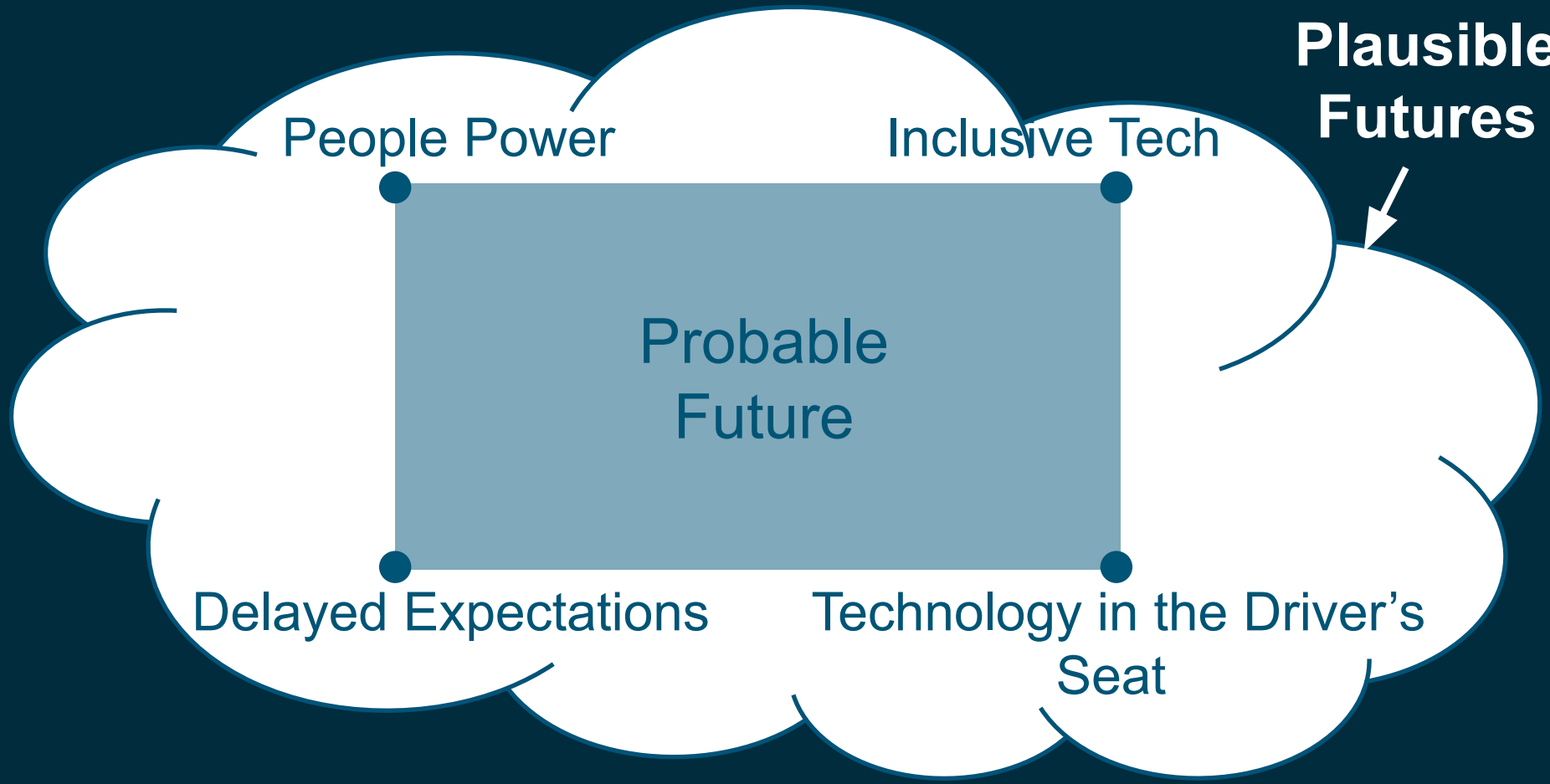
Transportation Goals

- **Rebuild and modernize the region's transportation infrastructure** and transit vehicles to achieve and maintain a state-of-good repair.
- Achieve **Vision Zero**—no fatalities or serious injuries from traffic crashes by 2050.
- **Integrate existing and emerging transportation modes into an accessible, multimodal network,** including completing the Circuit trail network. Transit, walking, and biking are integral components of this network.
- **Increase mobility and reliability**, while reducing congestion and vehicle miles traveled.
- Strengthen transportation network **security and cybersecurity**.

Strategies


Where Are We Going?
Scenario A
Scenario B
Where Are We Today?
Where Do We Want To Go?
Scenario C

Exploratory Scenarios Broaden Perspective



"The only relevant discussions about the future are those where we succeed in shifting the question from whether something will happen to what would we do if it happened"

Arie de Geus
Shell International Petroleum Company

BREAKOUT GROUP ACTIVITIES

Group Orientation

Introductions

Role Contracting

Group Agreements

Strategies Exercise

Brainstorm Strategies

Scenario Rounds (Repeat for 4 Scenarios)

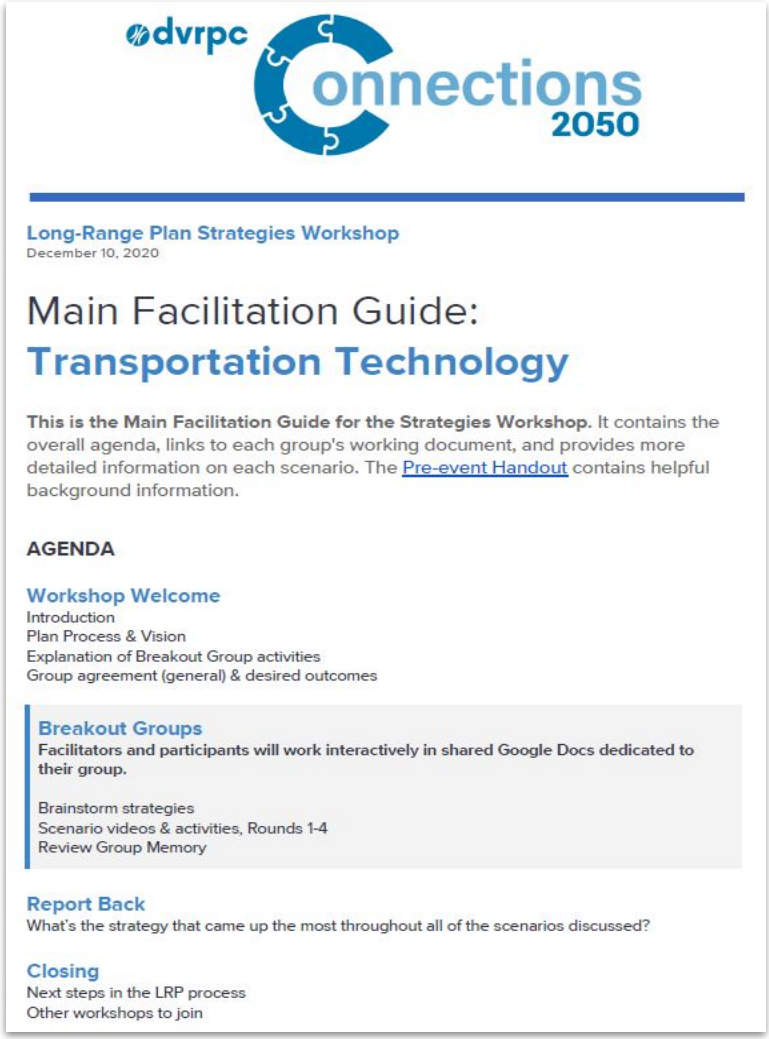
- Short Video
- Contingent Strategies for that future Scenario
- Prioritize the top 5

Group Memory/Agreement

Group Resources

Main Facilitation Guide

- Agenda
- Link to Breakout Groups
- Scenario Resources



dvrpc Connections 2050

Long-Range Plan Strategies Workshop
December 10, 2020

Main Facilitation Guide:
Transportation Technology

This is the Main Facilitation Guide for the Strategies Workshop. It contains the overall agenda, links to each group's working document, and provides more detailed information on each scenario. The Pre-event Handout contains helpful background information.

AGENDA

Workshop Welcome
Introduction
Plan Process & Vision
Explanation of Breakout Group activities
Group agreement (general) & desired outcomes

Breakout Groups
Facilitators and participants will work interactively in shared Google Docs dedicated to their group.

Brainstorm strategies
Scenario videos & activities, Rounds 1-4
Review Group Memory

Report Back
What's the strategy that came up the most throughout all of the scenarios discussed?

Closing
Next steps in the LRP process
Other workshops to join

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DISPATCHES SCENARIOS

TECHNOLOGY

INCREMENTAL CHANGE

TRANSFORMATIVE CHANGE

CLIMATE CHANGE & EQUITY

POLITICAL WILL / COLLECTIVE ACTION

MARKET FORCES / INDIVIDUAL RESPONSIBILITY

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PEOPLE POWER

Grassroots democracy gives citizens more input into the development of their communities and the economy, while readily available technologies are deployed to fight climate change.

INCLUSIVE TECH

A collaborative, networked, open source economy of abundance emerges from societal efforts to make technological advances more sustainable and equitable.

DELAYED EXPECTATIONS

Climate change, sharp political swings, ongoing civil discord, and a slowdown in innovation lead to a lack of direction and economic stagnation.

TECHNOLOGY IN THE DRIVER'S SEAT

Markets drive economic growth through Big Data, algorithms, and innovation.

SCENARIO ASSUMPTIONS AND IMPLICATIONS

FOCUS AREA	DELAYED EXPECTATIONS	PEOPLE POWER	TECHNOLOGY IN THE DRIVER'S SEAT	INCLUSIVE TECH
CLIMATE CHANGE AND ENVIRONMENT	Climate change advances far more rapidly than forecasted; inability to reduce GHG emissions means that geoengineering is increasingly seen as the only solution.	Focus on deploying readily available technologies to slow climate emissions, and proactive retreats from coastal and low-lying areas.	GHG emissions continue to rise, creating economic, societal, and environmental risks.	Carbon taxes and regulatory incentives are used to stimulate clean technology innovation; investment in direct air capture technologies that pull climate from the atmosphere; and proactive retreats from coastal and low-lying areas.
DEMOGRAPHICS	Increasing chronic health conditions shorten lifespans; lack of social safety net reduces birth rates; climate refugees are on the rise, but many residents are also leaving Greater Philadelphia.	Increased social safety net, including better parenting support and universal healthcare, leads to higher birth rates; climate change is bringing more people from the Eastern Seaboard to the region.	Major healthcare breakthroughs are extending lifespans for those who can afford them.	Universal healthcare and new drugs improve health outcomes for nearly everyone, extending lifespans across the board; birth rates drop as more people care for elderly relatives.
THE ECONOMY AND WORK	Jobs do not change much but do use more technology; continued growth in freelancing and gig economies.	Jobs look similar to today but continue to displace low-skill positions with high-skill ones; cooperatives and benefit corporations become the principal business structures.	A handful of large, monopolistic firms use data to dominate the economy; automation displaces some jobs, while technology requires more workforce skills.	Digital fabrication democratizes the means of production, reducing scarcity and deconcentrating economic power; work weeks shorten, and more people work for themselves.
INEQUALITY	Economic growth is slow, with more income going to those at the top as attempts to retrain and retool the workforce for modern economic needs have not kept up.	Governments invest heavily in education and workforce retraining, and try to both deconcentrate poverty and prevent low-income and minority communities from displacement.	Universal basic income (UBI) substitutes for hard-to-come by work.	Governments increase education funding and modernize curriculums, create community jobs, pay caretakers for their work and individuals for their data, and work to broaden capital ownership.
HOUSING AND DEVELOPMENT	Low-density communities struggle to keep up with maintenance of infrastructure as it ages.	Governments continue to subsidize existing low-density development in order to keep housing affordable while trying to improve walkability.	Development patterns continue to recentralize until highly automated vehicles (HAVs) arrive, leading to more decentralized land uses.	Automated technologies are applied to small, mobile housing units that enable relocation for work and quick evacuation from emergency situations.
TRANSPORTATION INFRASTRUCTURE AND FINANCING	Revenues move to mileage-based fees but are not set at a level that catches up on road maintenance needs.	Revenues shift to a fee based on the amount of VMT each property generates along with a tradable driving credits system, where each person gets an annual allotment of VMT; this helps pay for major new transit investments around the country.	Congestion pricing is used to curtail traffic and emissions but leads to significant road expansion and a focus on maintaining higher-volume roads; calls to privatize the most profitable roads to better address maintenance and keep technologies up to date.	Funding significantly increases thanks to carbon taxes but then decreases as emissions levels decline; these taxes also incentivize less carbon-intensive forms of transportation and infrastructure.
TRANSPORTATION TECHNOLOGY	Technological limitations have stymied efforts to create HAVs; little investment in CV technologies.	HAV rollout has been challenged by technology and business model problems; in response, the federal government is piloting truck platoons and automated shuttles, and implementing CV technologies.	HAVs, which can operate in designated zones, are deployed before anyone is ready for them; CV technologies are not pursued.	Quantum computing and artificial general intelligence (AGI) help to speed up HAV development and deployment of vehicles that bear little resemblance to traditional cars and trucks.

AUTOMATED, CONNECTED, ELECTRIC, AND SHARED MOBILITY DEVELOPMENT BY SCENARIO

Technology	Delayed Expectations	People Power	Technology in the Driver's Seat	Inclusive Tech
HAV Availability (Level 4 & Level 5)	No Level 4 or Level 5 HAVs by 2050	Level 4 HAVs by Late 2030s, No Level 5 HAVs by 2050	Level 4 HAVs in early 2020s; No Level 5 HAVs by 2050, Passenger drones deployed in 2040s	Level 4 HAVs by mid-2020s; Level 5 HAVs in early 2040s
Connected Vehicles	CV technologies are not widely deployed	CV technology deployed even in advance of HAVs	Private market deploys CV technologies unevenly, lack of standards means not all vehicles can communicate with each other and some HAVs are autonomous	CV and HAVs are jointly developed and deployed, CV technology is critical to unlocking Level 5 HAV capabilities
Shared Mobility	Existing vehicle-ownership model remains in place	Major transit expansion and growth in micromobility, worker protections harm TNCs	Mix of personal ownership and MaaS models, but MaaS companies operated as 'walled gardens'	Integrated, multimodal mobility-as-a-service (MaaS) network emerges
Electric Vehicles	Limited EV deployment	Expansive EV deployment	Considerable EV deployment, but not all HAVs are EVs	Expansive EV deployment-

PERCENTAGE CHANGE IN KEY REGIONAL INDICATORS BY SCENARIO, 2015–2050

FACTOR	DELAYED EXPECTATIONS	PEOPLE POWER	TECHNOLOGY IN THE DRIVER'S SEAT	INCLUSIVE TECH
POPULATION	–1%	+10%	+15%	+8%
POPULATION <16	–18%	–9%	–15%	–19%
POPULATION >65	+44%	+53%	+68%	+70%
WHITE, NON-HISPANIC POPULATION	–11%	–14%	+1%	–10%
MINORITY (NON-WHITE) POPULATION	+17%	+50%	+38%	+37%
EMPLOYMENT	+3%	+11%	+16%	+5%
HOUSEHOLDS	+1%	+16%	+26%	+21%
SINGLE-PERSON HOUSEHOLDS	+3%	+31%	+51%	+47%
PERSONS PER HOUSEHOLD	–1%	–6%	–10%	–11%
LOW-INCOME HOUSEHOLDS	+5%	+5%	+30%	+14%
MEDIUM-INCOME HOUSEHOLDS	–1%	+31%	+16%	+34%
HIGH-INCOME HOUSEHOLDS	-11%	+8%	+34%	+11%
VEHICLES	+5%	+17%	+5%	+13%
VEHICLE MILES TRAVELED (VMT)	–4%	–5%	+53%	+21%
VEHICLE TRIPS	–4%	0%	+31%	+34%
TRANSIT TRIPS	–1%	+20%	+9%	+31%
WALKING/BIKING TRIPS	+13%	+29%	–4%	+17%

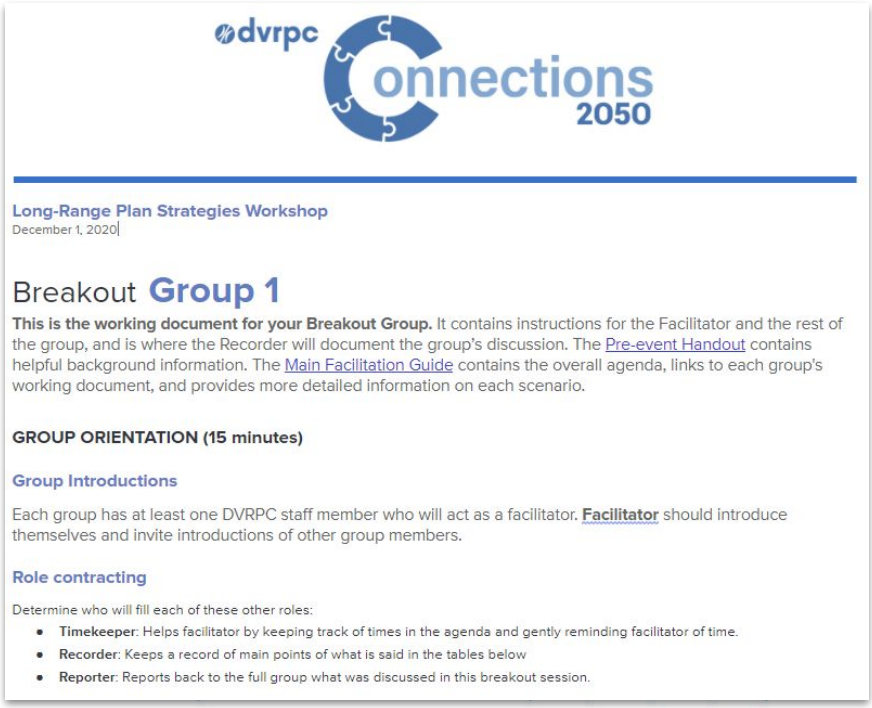
Group Resources

Main Facilitation Guide

- Agenda
- Link to Breakout Groups
- Scenario Resources

Working Document

- Instructions
- Place to record discussion



dvrpc Connections 2050

Long-Range Plan Strategies Workshop
December 1, 2020

Breakout **Group 1**

This is the working document for your Breakout Group. It contains instructions for the Facilitator and the rest of the group, and is where the Recorder will document the group's discussion. The Pre-event Handout contains helpful background information. The Main Facilitation Guide contains the overall agenda, links to each group's working document, and provides more detailed information on each scenario.

GROUP ORIENTATION (15 minutes)

Group Introductions

Each group has at least one DVRPC staff member who will act as a facilitator. **Facilitator** should introduce themselves and invite introductions of other group members.

Role contracting

Determine who will fill each of these other roles:

- **Timekeeper**: Helps facilitator by keeping track of times in the agenda and gently reminding facilitator of time.
- **Recorder**: Keeps a record of main points of what is said in the tables below
- **Reporter**: Reports back to the full group what was discussed in this breakout session.

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GROUP AGREEMENT & DESIRED OUTCOMES

Group Agreements

- Everyone will have a chance to speak.
- It’s OK to disagree.
- Disagree with the idea, not the person.
- Do not interrupt each other.
- If you get stuck: park the issue so the process can keep moving.

What is a Strategy?

- Goal: Achieve and maintain a state-of-good repair for all transportation infrastructure.
- *Some* Potential Strategies:
  - Allocate more available funds to improving condition.
  - Generate new revenues (specify how).
  - Apply new technologies or designs to get better information for and performance out of interventions.
  - Reduce the size of the network to better align with available revenues.
  - Etc. etc.

Desired Outcomes

- List of strategies to achieve the vision
- Revised list of strategies for each scenario
- Prioritized list (5) strategies for each scenario
- Aim to get through 2 scenarios, but keep going if you're moving quickly!

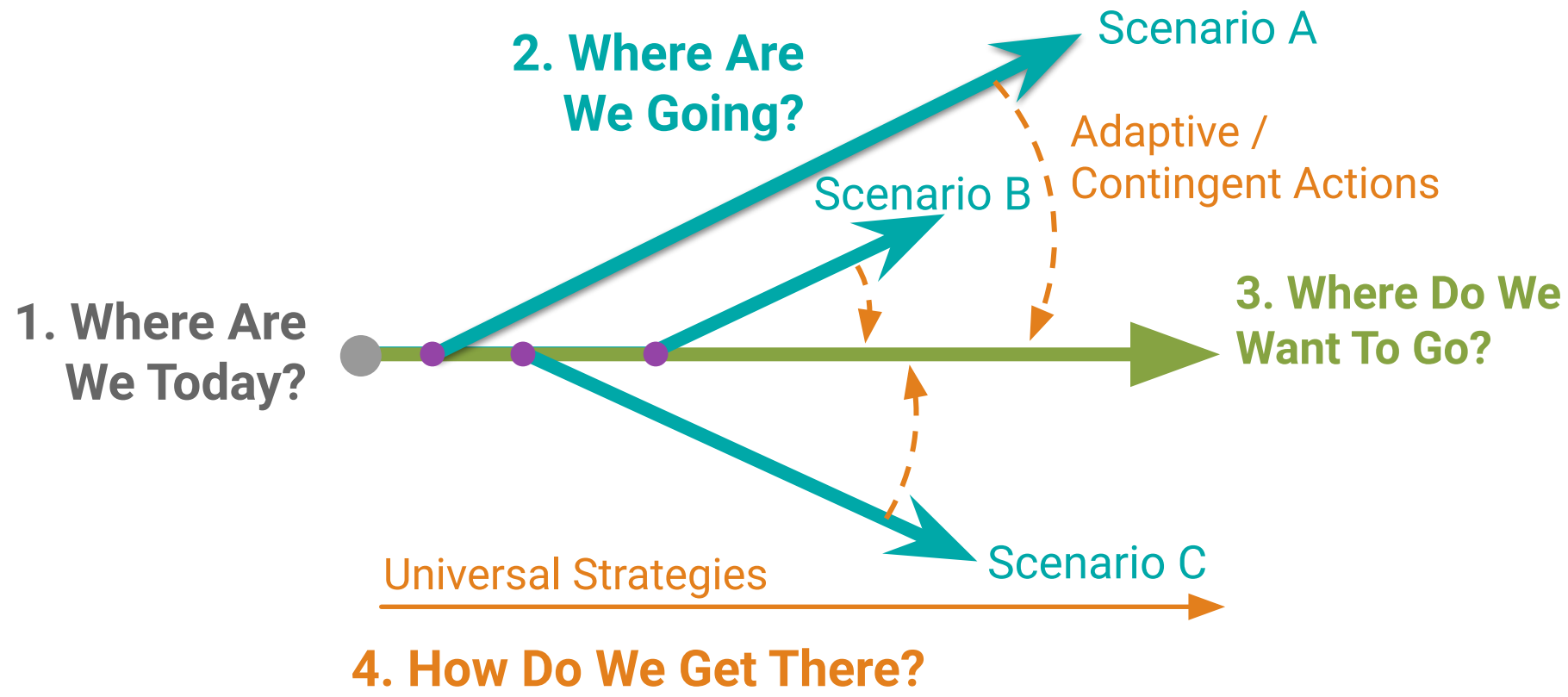
QUESTIONS?
HAVE FUN!

REPORT BACK

What's the strategy that came up the most throughout all of the scenarios discussed?

NEXT STEPS

Informing Strategies

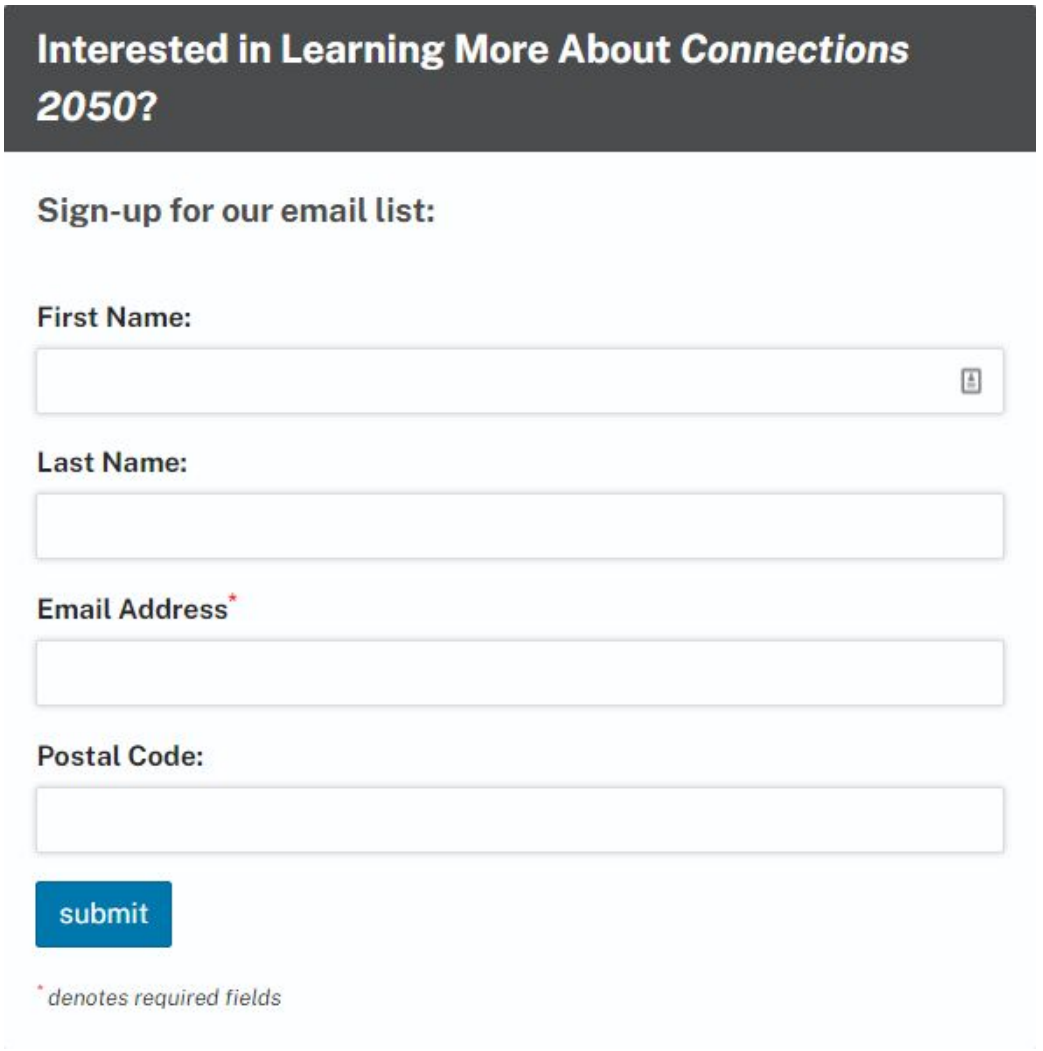


OTHER WORKSHOPS

Other Strategies Workshops

- Transportation Infrastructure & Financing
- Transportation Technology
- Climate Change & the Environment (TBD)
- Community / Built Environment & the Economy (TBD)
- Equity & Civic Engagement (2/16/21)

Visit dvrpc.org/2050



STRATEGIES WORKSHOP

Thank You for participating.

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