Collaboration, Open Source Technology, and Sustainability. Oh my!

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Ohio GIS Conference

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SUSTAINABILITY DASHBOARD PARTNERSHIP

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MORPC
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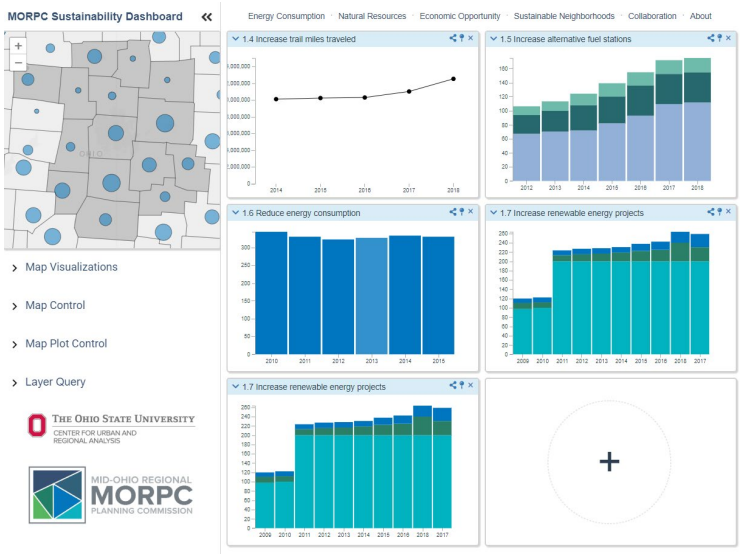
SO…WHAT IS THE MORPC REGIONAL SUSTAINABILITY DASHBOARD?

The MORPC Regional Sustainability Dashboard provides the most complete, accurate, and up-to-date representation of the region's sustainability goals. It serves as the official status report for progress toward those goals. The dashboard is intended for use by anyone with an interest in the sustainability of the region, including planners, elected officials, researchers, the media, the public, and you!



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FIRST…HOW DID THIS ALL COME TO BE?

- MORPC had a need and CURA had a solution
- MORPC wanted to make their static Regional Sustainability Agenda Report Card dynamic
- CURA had a prototype in CURIO

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NEXT COMES COLLABORATION

- In 2019, The Mid-Ohio Regional Planning Commission (MORPC) partnered with the Center for Urban and Regional Analysis (CURA) to develop a dynamic Sustainability Dashboard to replace their static Regional Sustainability Agenda.
- This was the first major collaboration between the two public entities
- This project launched in May of 2019 and was projected to conclude in May of 2020

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NO FUNDING? NO PROJECT

- This project was funded through the Sustainability Institute at the Ohio State University.
- In-kind contributions were made by both MORPC and CURA in staff time
- The College of Arts and Sciences ASC Technology Services contributed computational resources

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WHAT IS OUR COLLECTIVE MISSION?

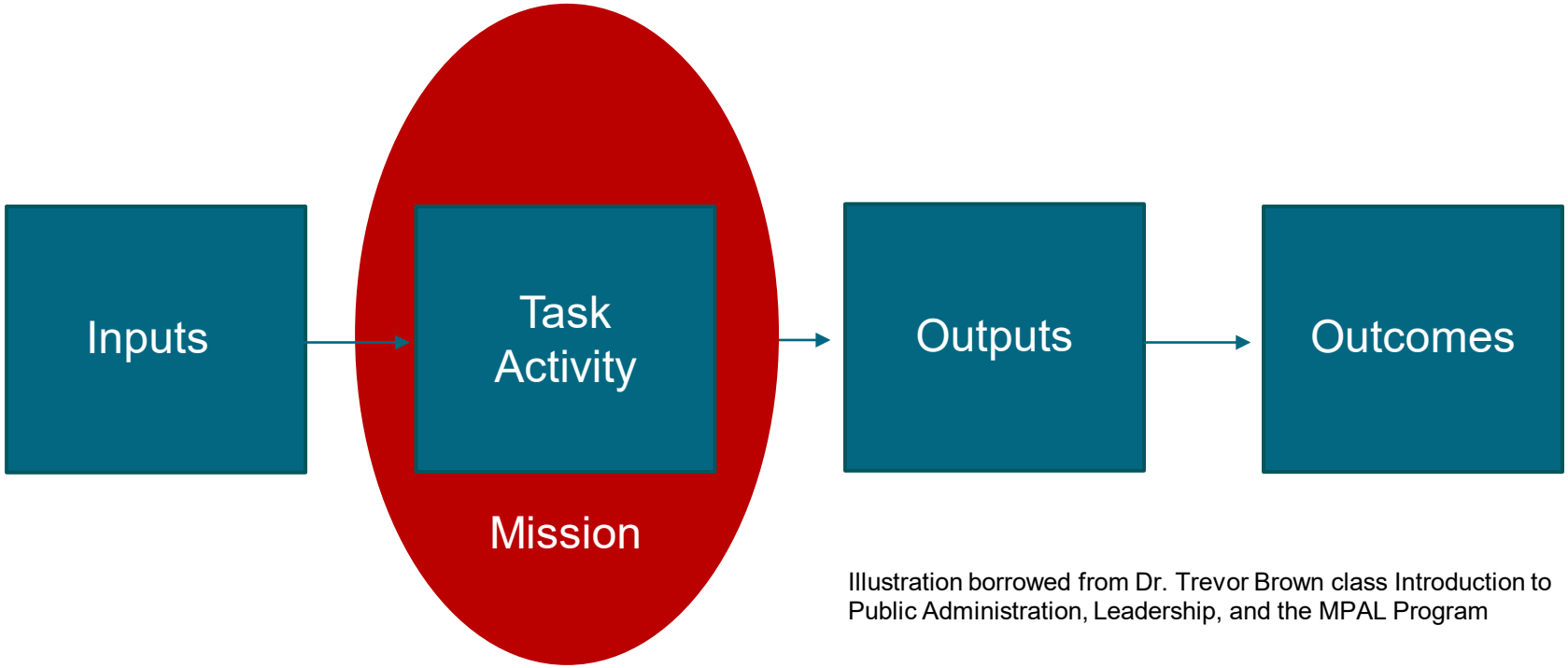

Illustration borrowed from Dr. Trevor Brown class Introduction to Public Administration, Leadership, and the MPAL Program

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GUIDANCE FROM OUR WORKING GROUP

- MORPC created a Sustainability Dashboard Working Group to help guide the direction of the Dashboard project
- The working group was comprised of members who work in data and analytics from the Central Ohio Community. The organizations they represent are:
  - The City of Columbus
  - One Columbus
  - Ohio EPA
  - The City of Upper Arlington
  - Urban Decision Group

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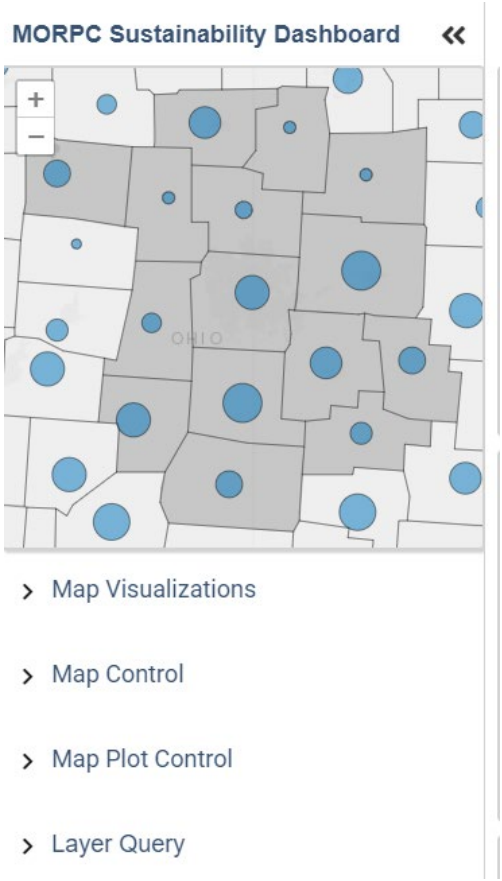
GEOSPATIAL ASPECT OF THE DASHBOARD

- The data is aggregated to the county and regional levels
- The county-level data on the map uses a proportional symbols format
- The aggregation for each of the indicators is automated, this allows easy updates when new data is available
- The data ingestion pipeline will allow for sophisticated spatial analysis to reduce time manually updating the data



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REGIONAL SUSTAINABILITY AGENDA

GOAL 1

Reduce per capita ENERGY CONSUMPTION and promote alternative fuel resources to increase affordability and resilience of regional energy supplies.

	OBJECTIVE	2020 TARGET
1.1	Reduce vehicle miles traveled (VMT).	9,200 VMT per capita (5% reduction)
1.2	Reduce the percentage of commuters driving alone and increase the percentage of commuters riding transit, biking, or walking.	80% of commuters drive alone; 6% of commuters ride transit, bike, or walk
1.3	Increase the percentage of vehicles using alternative fuels.	XX% of registered vehicles use alternative fuels (data and methodology under development)
1.4	Increase the number of trail miles traveled annually.	13 million Central Ohio Greenway trail miles traveled annually
1.5	Increase the number of alternative fuel stations.	220 alternative fuel stations (50% increase)
1.6	Reduce per capita energy consumption across all sectors.	50% reduction in the gap of per capita total energy consumption between Central Ohio and U.S.
1.7	Increase the number of local renewable energy projects and generating capacity.	576 certified renewable energy facilities with 89.4 megawatts of total generating capacity (25% increase)

GOAL 2

Protect NATURAL RESOURCES and mitigate infrastructure vulnerabilities to maintain a healthy ecosystem and community.

	OBJECTIVE	2020 TARGET
2.1	Reduce emissions to meet federal air quality standards.	Ozone attainment, PM2.5 attainment
2.2	Increase the number of people receiving air quality information and education.	10% increase in number of people receiving a combination of Air Quality Alerts, Air Quality Alert highway sign exposure, and media marketing exposure
2.3	Reduce the amount of municipal solid waste per capita disposed in the landfill.	4 pounds of waste produced per person per day (6% reduction)
2.4	Minimize greenfield development and promote infill and redevelopment.	50% of development occurred inside the urban area between 2010 and 2020
2.5	Reduce per capita water consumption.	5% reduction in gallons of water per capita consumed
2.6	Improve water quality in the Upper Scioto Watershed.	85% of Upper Scioto sampling sites are in attainment

GOAL 3

Position Central Ohio to attract and retain ECONOMIC OPPORTUNITY to prosper as a region and compete globally through sustainable practices and solutions.

	OBJECTIVE	2020 TARGET
3.1	Increase the number of businesses in Central Ohio with established sustainability policies and practices.	20% increase in the number of GreenSpot businesses
3.2	Increase the number of adopted institutional purchasing policies that support the purchase of local food.	XX% increase in adopted institutional food purchasing policies (data and methodology under development)

GOAL 4

Create SUSTAINABLE NEIGHBORHOODS to improve residents' quality of life.

	OBJECTIVE	2020 TARGET
4.1	Encourage MORPC member communities to adopt complete streets policies or policies that contain those elements.	45% of MORPC member communities have adopted complete streets policies or policies that contain those elements
4.2	Target infrastructure development to serve a higher number of people and jobs, and increase sidewalk coverage of arterials and collectors.	5 people + jobs per acre are within 3/4 mile of arterials; 40% of arterials and collectors have sidewalks
4.3	Reduce the number of fatalities and serious injuries from crashes.	0.63 fatalities per 100 million VMT; 5.83 serious injuries per 100 million VMT; 10% reduction in non-motorized fatalities and serious injuries
4.4	Target transit and bikeway infrastructure development to serve a higher number of people.	72% of population live within 3/4 mile of a transit stop; 72% of population live within 3/4 mile of a bikeway
4.5	Increase the annual number of income eligible households receiving free weatherization and safety-related home repairs.	5% increase in the number of households served
4.6	Increase the number of Central Ohio Greenways trail miles.	Build 20 additional miles of Regional Greenways Trails

GOAL 5

Increase regional COLLABORATION and educational opportunities to advance innovative sustainability solutions.

	OBJECTIVE	2020 TARGET
5.1	Establish the annual Summit on Sustainability as a premiere environmental conference through high participation and visibility.	Increase attendance by 10% annually
5.2	Increase number of local governments committed to sustainability.	100% of MORPC members are committed to sustainability

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www.morpc.org/sustainabilityreportcard

Need to devote more resources.

More focus needed.

Keep doing what we're doing.

We've accomplished what we set out to do. But the work continues.

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REPORT CARD: OPPORTUNITIES FOR IMPROVEMENT

- Represents single snapshot in time

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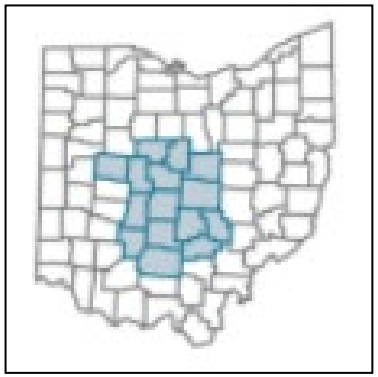
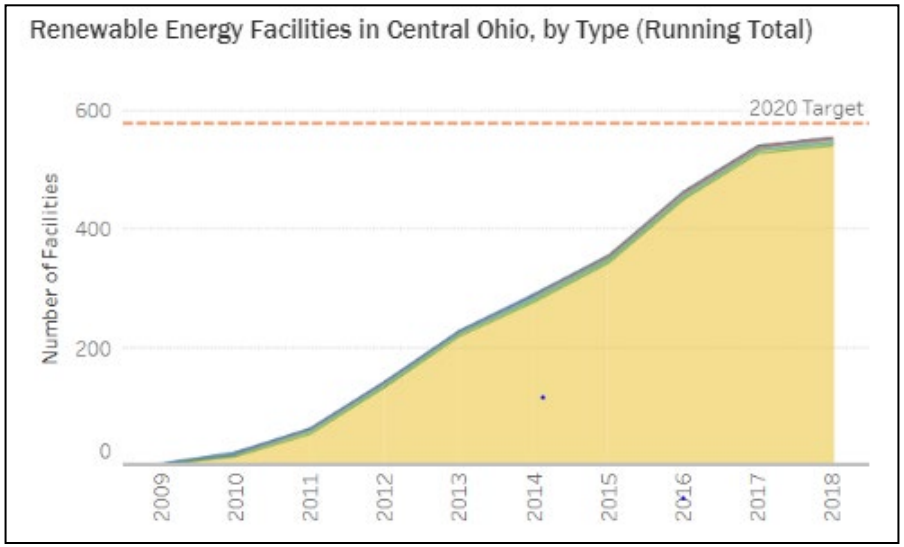
REPORT CARD: OPPORTUNITIES FOR IMPROVEMENT

- Represents single snapshot in time
- Aggregates progress across the region





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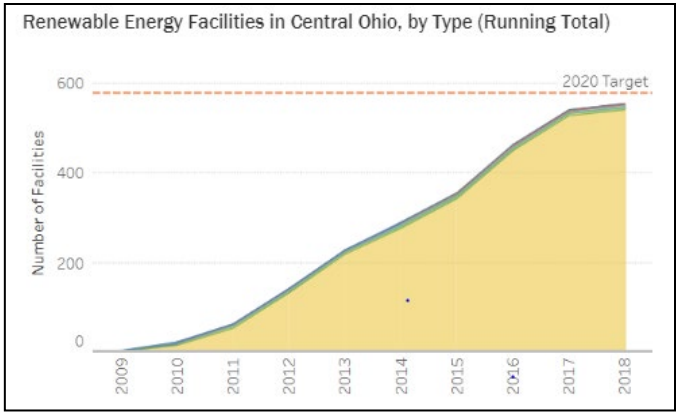
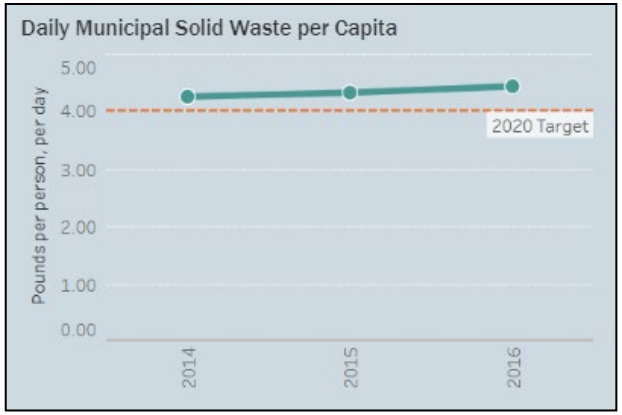
REPORT CARD: OPPORTUNITIES FOR IMPROVEMENT

- Represents single snapshot in time
- Aggregates progress across the region
- Varied geographic scope





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REPORT CARD: OPPORTUNITIES FOR IMPROVEMENT

- Represents single snapshot in time
- Aggregates progress across the region
- Varied geographic scope
- Fixed configuration
- Chance to include spatial data
- Metadata

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MOVING FORWARD

- Build on foundation of report card
- Plan and allow for unique use-cases
  - MORPC user personas
- Integrate stakeholder feedback
  - Sustainability Dashboard Working Group
  - Two Rounds of Beta Testing
- Launch the product (!)

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POLL QUESTION!

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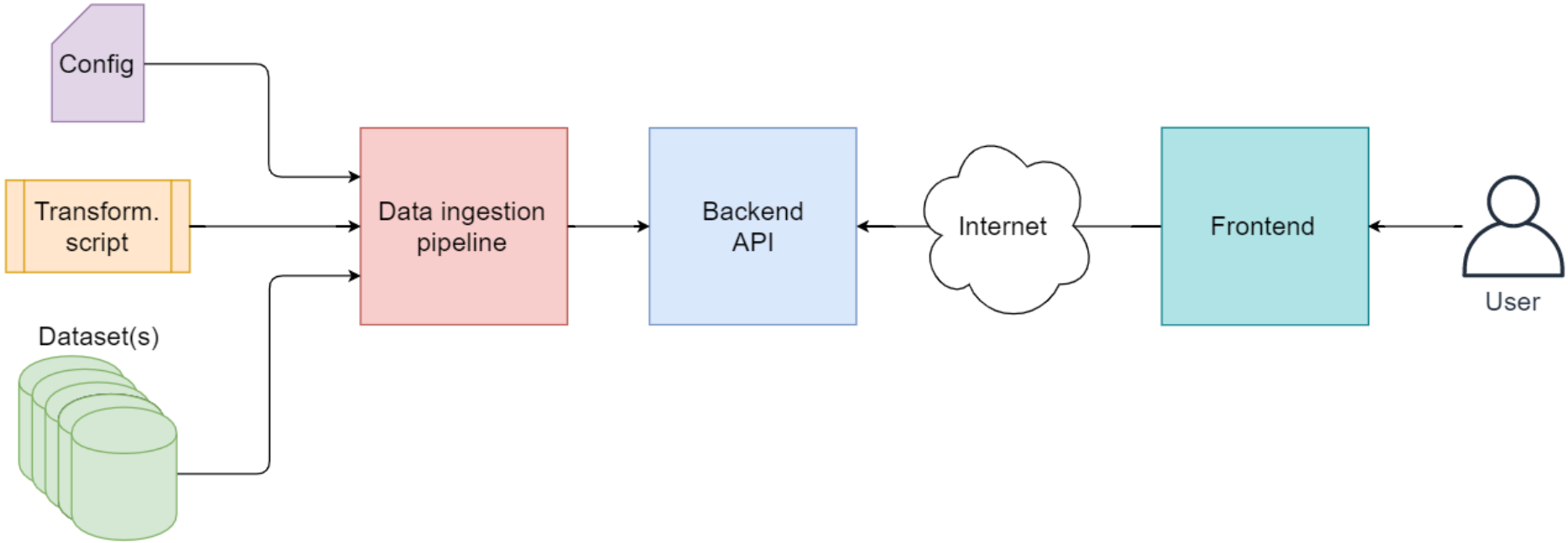
There are three main components: frontend, backend, and ingestion pipeline



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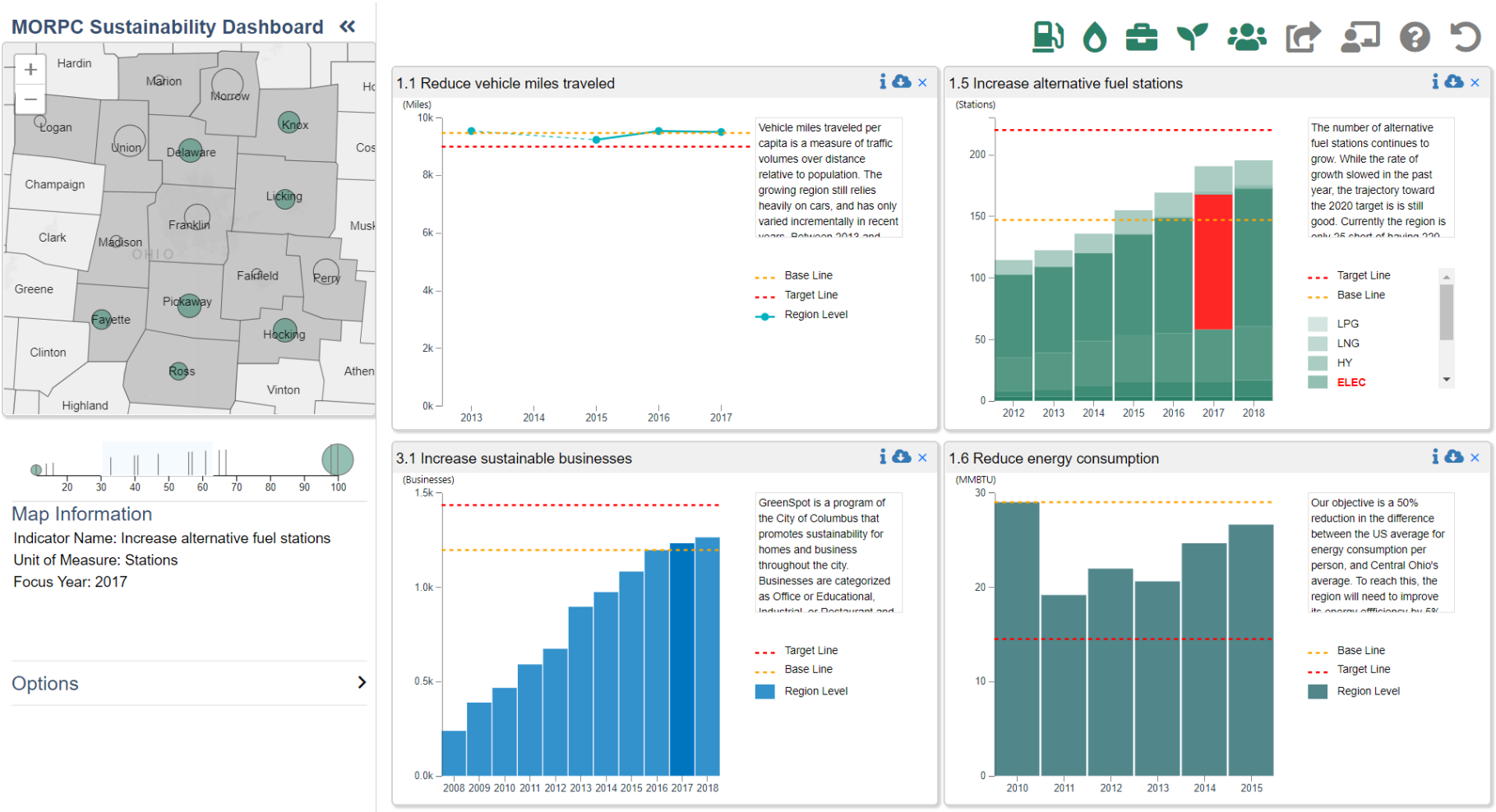
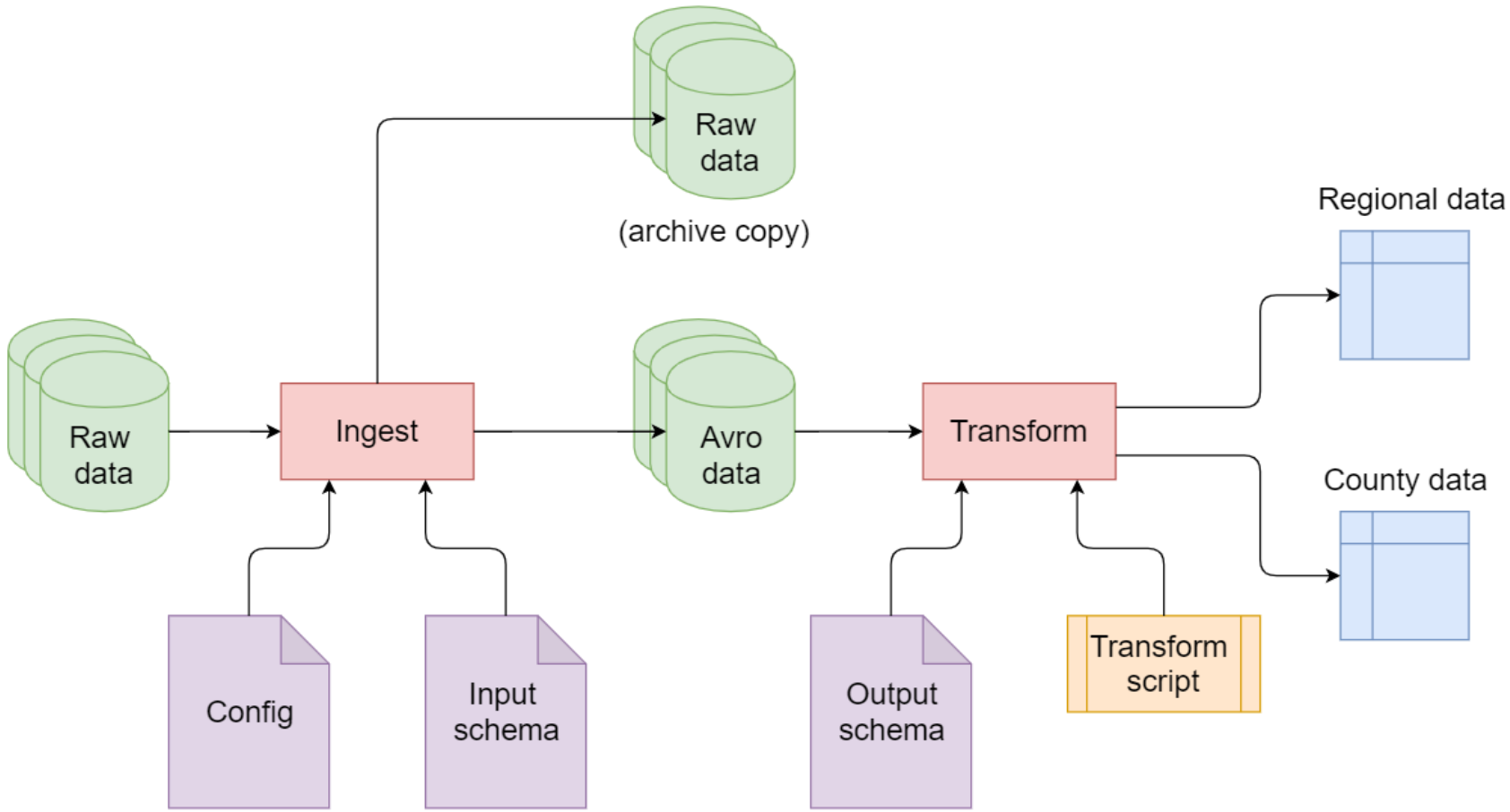
The frontend displays data using a linked map (Leaflet) and charts (D3)



The backend stores the data (PostgreSQL) and delivers it (Python + Flask)

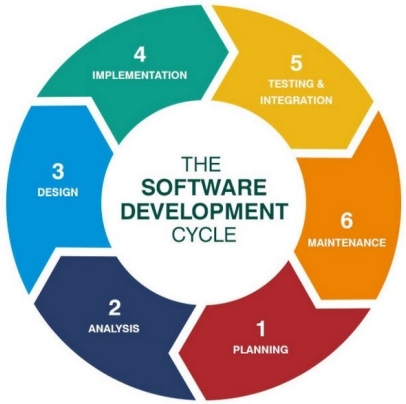
The pipeline ingests the data and transforms it (Python + Flask + Avro)



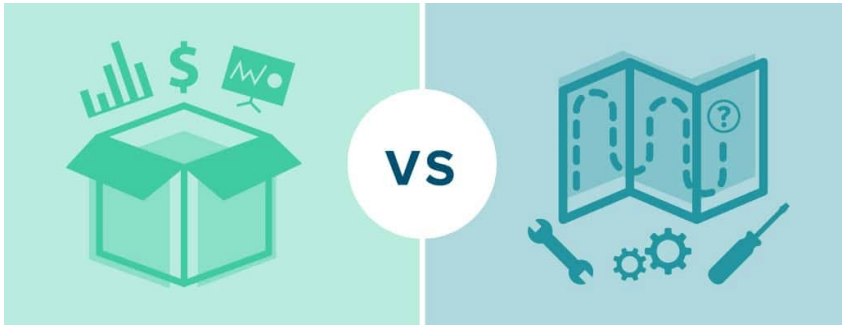
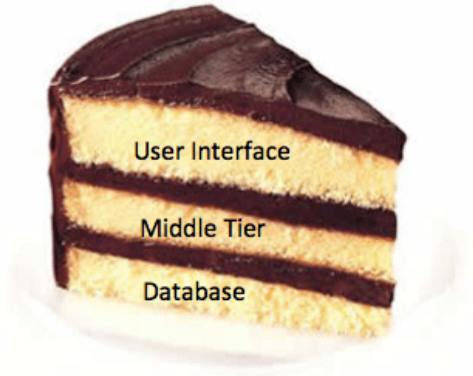
We learned that web application development is hard! And…

Use source control

Don’t skip steps



Don’t reinvent the wheel



Try to implement complete slices