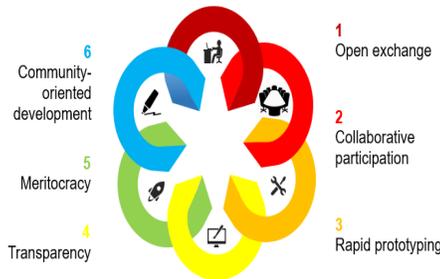




OPEN SOURCE SOFTWARE AND OPEN DATA

Based on the N-CATT webinar presented by Carol Schweiger, Sarah Anderson, and Dr. Sean J. Barbeau on May 21, 2020



Principles of Open Source Software

Carol Schweiger is the President of Schweiger Consulting. She has over 40 years of experience helping transportation agencies with technology technical assistance. She has developed numerous modules and reports, including three full TCRP reports.

Sarah Anderson is a Principal and Vice President at Cambridge Systematics. She has over 14 years of experience in transportation technology, advocating for open data and open source technologies in public transportation.

Dr. Sean J. Barbeau has been a researcher at the Center for Urban Transportation Research at University of South Florida since 2004. His research interests include, open-source software, and standardized open data.

OPEN SOURCE SOFTWARE

Open Source Software is software where the source code can be inspected, modified, and enhanced by anyone. Open source software is inherently collaborative, and it is encouraged for the community of users to have a hand in improving the software. The benefits of Open Source Software, in contrast to proprietary software, include:

- More control over the software
- The opportunity for users to become better programmers by working with the code
- Security, stability and support that comes from the software being worked on by a community of users
- An agency isn't locked into using any one vendor, but can integrate software into existing open software

EXAMPLES OF OPEN SOURCE SOFTWARE

OpenTripPlanner- A multimodal trip planner that provides passenger information and transportation network analysis, used by some state DOT's to integrate all possible transit options.

1-Click- A mobility management online resource that can be set up as an open source system. It enables users to discover all transportation options, including those for people with disabilities and seniors.

Link2Support- A web-based application that helps people access essential services including healthcare, food, and shelter.

RidePilot- A scheduling system for door-to-door service, aimed primarily at rural transit providers with small fleets.

OpenStreetMap- A map built by a community of contributors, who maintain data about roads, trails, and shops.



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GOOD OPEN DATA

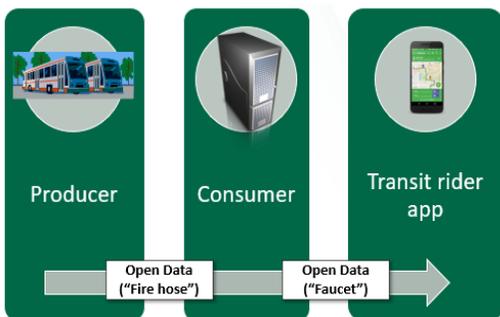


OPEN TRANSIT DATA

Open Data is data that can be freely used, re-used, and redistributed to anyone. It must be shared in a complete form to anyone who would want to use or modify it. Open Transit Data is freely accessible data produced by transit providers, such as trip statistics and schedules. This data can be either **static**, changing infrequently, or **real-time**, such as arrival times and vehicle positions. Open Transit Data can also be shared in two different magnitudes. The **fire hose** magnitude is a complete dump of all the data, including all static and real-time data. The **faucet** magnitude is a smaller, specific type of data shared, such as specific schedules or arrival time.

FLOW OF TRANSIT DATA

Data is created by transit providers. This “fire hose” data is shared with consumers, who often times pick out “faucet” data for customer use, such as with a transit app



Sharing open data has many benefits for both transit agencies, including increased awareness of services, empowered customers, and greater transparency.

DIFFERENCES BETWEEN OPEN DATA AND OPEN SOURCE SOFTWARE

Open Source Software Code has:

- A public repository with a complete history
- An environment that supports transparent reporting of issues, and suggestions and that includes documentation tools.
- An environment that allows improvements to be folded back into the original project

Open Data has:

- Published by a single organization
- No required insight into how the data is curated
- Data portals provide limited infrastructure, but don’t necessarily provide support for encouraging collaboration



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