5 Big Moves Glossary of Terms

Learn more about the 5 Big Moves at SDForward.com/5BigMoves

5G
An umbrella term given to the latest generation of wireless communication. The radios produced in the fifth generation of wireless communications will be capable of spanning multiple spectrum ranges, from high-frequency high-throughput to existing frequencies, delivering data to devices at much quicker speeds.

Access sheds
The full coverage area of a mobility hub based on the average distance and/or time required to walk, bike, e-bike/scoot, or rideshare to/from high-frequency transit.

Active Transportation and Demand Management (ATDM)
The use of real-time information and technology to manage the entire trip from origin to destination including influencing mode choice and how and when the transportation system is used. ATDM uses congestion pricing and the following strategies:

- **Active Demand Management (ADM)**
  The use of information and technology to influence mode choice, route choice, and time of travel.
- **Active Traffic Management (ATM)**
  The ability to manage congestion on roadways in real-time based on current traffic conditions.
- **Active Parking Management (APM)**
  The ability to manage the supply and price of parking in real time and provide real-time parking availability information to reduce circling around parking facilities.

Ambassador assistance
As driverless technology and transportation automation evolves, operators of these services (e.g., bus driver, train conductors, Trolley operators) may transition into an attendant role where they can assist passengers and can operate the vehicles manually, if needed.

Artificial intelligence (AI)
A science that focuses on enabling computers to replicate a human body's ability to sense, learn, reason, and act. It is an umbrella term that covers machine learning, deep learning, reinforcement learning, robotics, computer vision, natural language processing, and the application of algorithmic game theory.

Automation
The use and application of technology to monitor and control the delivery of products or services automatically without human intervention.

Big Data
Fusing multiple data sources together to uncover seemingly unrelated facts and identify patterns, trends, and associations. Refers to not only the amount of data, but a mature suite of data handling (including security), usability, analysis and usage metrics that provide governance teams with the oversight needed to protect this valuable asset.

Bikeshare
Bikeshare services provide low-cost, on-demand, and convenient access to a fleet of shared bikes (regular or electric bikes) for short-term use. Services are typically station-based or dockless and can be accessed by using a smartphone app. Examples include JUMP by Uber and Gotcha.

Bus Rapid Transit (BRT)
Bus operations that offer high-quality transit service with limited stops, operating on a fixed guideway for most of the route, traffic signal prioritization, and pre-paid fare purchasing among other amenities. BRT provides faster and more reliable transit service similar to rail transit but at a lower cost.

Carshare
Carshare services offer access to vehicles 24 hours a day, seven days a week. These cars can be found within a specified service area, at transit stations, or other locations, and people can find them through a smartphone app or provider's website.

Carshare models include:
- Free-floating carshare services - allow users to pick up and then park a vehicle anywhere within a designated service area. Permitted parking opportunities may include on-street and/or metered parking in addition to off-street designated carshare spots (e.g., car2go).
- One-way carshare services - allow users to pick up a vehicle from one designated location and return it to another branded carshare station. Carshare parking locations may be on or off-street (e.g., Zipcar, Maven)
- Peer-to-peer carshare services - allow private vehicle owners to rent their car out by the hour to others within their community (e.g., Getaround, Turo).
- Round-trip carshare services - require users to pick up and return a vehicle to the same designated location (e.g., Zipcar).

Commuter rail
Heavy rail that is predominately used for longer commute trips, such as the COASTER operated by North County Transit District (NCTD).

Conditioned based maintenance
Conditioned based maintenance is a proactive way to monitor a system's performance and schedule necessary maintenance. Conditioned based maintenance uses real-time performance data to inform future maintenance schedule needs of the system.

Congestion pricing (also referred to as value pricing)
A congestion management strategy that applies a surcharge to users of a transportation roadway or facility to reduce congestion during periods of peak demand. Congestion pricing is a way of harnessing the power of the market demand to maximize use of the available supply. Concepts include dynamic pricing, static/flat fixed pricing, cordon pricing that charges are either dynamic or fixed within or into an area, and areawide pricing generally applied on a per-mile basis within an area.

Connected infrastructure
Infrastructure that is embedded with sensors that are connected to a communication backbone which allows real-time data to be exchanged with other connected devices.

Connected vehicles (CV)
In-vehicle and wireless technology enables connected vehicle communication. CVs give the car and driver advanced information and warnings to inform safer driving decisions, such as when a car ahead brakes suddenly, or if there is an accident that causes traffic to slow or reroute. CVs can share data about the vehicle with other vehicles (V2V), infrastructure (V2I), and everything (V2X).

Courier services (also referred to as flexible goods delivery)
For-hire delivery services that use an online application or platform (such as a website or smartphone app, like Uber Eats and Instacart) to connect couriers using their personal vehicles, bikes, or scooters with goods (e.g., packages, food, etc.).

Curb management
Curb management seeks to inventory, optimize, allocate, and manage curb spaces to maximize mobility, access, and safety for the wide variety of curbside transportation demands through the application of curbside pricing and allocation of priority roadway and street design treatments. Potential curbside users include shared mobility service providers including transportation network companies (TNCs) such as Lyft and Uber, transit services, goods movement delivery services, electric vehicles, and on-demand bike/scooters.

Cybersecurity
Refers to preventative methods used to protect information from being stolen, compromised, or attacked. Requires an understanding of potential information threats, such as viruses and other malicious code. Cybersecurity strategies include identity management, risk management, and incident management.

Data analytics/data science
Applying scientific interpretation over data sets by using peer-reviewed and validated processes, algorithms, and other visually interpretative approaches to aid in the broad or deep understanding of information found in raw data.

Data exchange (also referred to as Open City, Open Data, Open Government)
A first step towards informed communities – delivering improved accessibility and quality of available data and facilitating methods for analyzing data to help create a smarter and more efficient region.

Data governance
The process of implementing procedures that seeks better decision-making. By improving an organization's understanding of data reliance, one seeks to better understand the lineage of that data, its quality, and whether it meets a regulatory requirement.

Dedicated lanes
Traffic lanes set aside for particular types of vehicles, travel, and shared mobility applications. These include dedicated lanes designated by signs and markings for the preferential or exclusive use of transit services; shared mobility services; bike, pedestrian, and other active transportation modes; and delivery vehicles sometimes permitting limited use by other vehicles, services, and modes. Allocating dedicated lanes can boost reliability, travel speed, capacity, and modal balance, to increase safety and the total performance of the transportation network.

Delivery bot
A delivery robot is an autonomous robot that is used for delivering goods to specified locations (e.g., Amazon Scout).

Demand-responsive
Services that allow passengers to schedule non-fixed route transportation services in advance or in real-time.

Double-track
Bidirectional tracks on a rail corridor with one track running in each direction.

Drone delivery
Use of a small and unmanned aerial vehicle (UAV) to deliver lightweight goods to a destination.

Dynamic lane control
The dynamic closing, opening, or changing of vehicle access (e.g., transit or HOV only) for individual traffic lanes. Dynamic lane control includes advanced warning of the closure(s) - typically through dynamic lane control signs - in order to safely merge traffic into adjoining lanes. In an ATDM approach, as the network is continuously monitored, real-time incident and congestion data are used to control lane use and reduce rear-end and other secondary crashes.

Dynamic pricing
A congestion pricing strategy to manage the demand and availability of a transportation facility (e.g., Managed Lanes and parking facilities). It uses real-time information to continuously monitor the transportation facilities and uses pricing algorithms and tolling technology to apply a charge and change pricing based on current demand. Dynamic pricing/tolls can be applied in response to changing congestion levels or changes in parking availability. The strategy is used to influence travel, provide transportation choices, reduce the negative impacts of travelers searching for parking, reduce traffic impacts associated with peak period trips, and provide incentives and priority access to transportation facilities to more effectively balance the demand and available supply.

Dynamic shoulder lanes
A strategy enables use of roadway shoulders as travel lanes, known as Hard Shoulder Running (HSR) or temporary shoulder use, based on congestion levels during peak periods and in response to incidents or other conditions during non-peak periods. In contrast to a static time-of-day schedule for using a shoulder lane, an ATDM approach continuously monitors conditions and uses real-time and anticipated congestion levels to determine the need for using a shoulder lane as a regular or special purpose travel lane (e.g., transit only).

Dynamic wayfinding (also referred to as dynamic routing)
Use of variable destination messaging to disseminate information to make better use of roadway capacity by directing motorists to less congested facilities. These messages could be posted on dynamic message signs in advance of major routing decisions. In an ATDM approach, real-time and anticipated conditions can be used to provide route guidance and spatially distribute traffic to improve overall system performance.

Express service
Point to point transit service with very limited stops that often only operates during peak commute periods.

Fixed guideway
Lanes that are dedicated for specific uses, usually for rail, buses, or autonomous vehicles.

Flexible curb space
Allows the mobility network to better balance street demands as they change throughout the day. For example, specific curb space can be designated for some mobility services during their peak demand periods, while the same space can be designated for other uses such as mobile retail during off-peak periods.

Grade separation
Guideway or transit priority lanes that are separated from the roadway through elevated structures or in tunnels.

Heavy rail
Similar to commuter rail, heavy rail takes passengers longer distances and often includes multi-city/multi-state travel. Goods movement/freight rail or cargo trains also are considered heavy rail.

Hyperloop
A sealed tube or system of tubes through which a pod may travel 600+ miles per hour free of air resistance or friction to efficiently move people or objects long distances. Hyperloop is not operational yet, there are test tracks in California and Nevada.

Interactive wayfinding
Touchscreen kiosks that provide transit schedules, shared mobility service availability, maps, and directions to key destinations including transit stations, civic and community buildings, parks, and more. This amenity can exist throughout the mobility hub and be customized based on user type and available travel modes.

Internet of Things (IoT)
Refers to a class of sensor device that captures simple data over time. Individually, each of these sensors are low-cost and purpose-specific. Simple measurements are taken across large geographic areas and compared with one another to provide significant insight into how a complex ecosystem operates at different times of the day, under different weather conditions, for different people. IoT will help government deliver services more equitably, quickly, and with less cost, by shortening the time it takes to identify errors.

Last mile delivery
The delivery of goods (e.g. packages, food, etc.) by a person or by using semi or fully automated vehicles, e-bikes, drones, and bots to make deliveries from the distribution center to a user's home or to smart lockers at Mobility Hubs. Shared vehicles can make efficient trips by carrying both passengers and goods at the same time.

Light rail
Dedicated rail service that serves both longer commute trips as well as shorter local trips (e.g., the MTS San Diego Trolley and NCTD SPRINTER rail service). Light rail is generally integrated into the street network much more than commuter rail.

Local Bus
Bus service that picks up and unloads passengers at frequent, designated places (stops) on city streets.

Loop
A high-speed underground public transit system in which passengers are transported via autonomous electric vehicles at up to 155 miles per hour. Loop is not operational yet, projects are planned in Las Vegas, Los Angeles, and Chicago.

MaaS app
The MaaS app, or integrated application, acts as an umbrella over the various booking and payment systems that participating companies in the MaaS market are making available.

Managed Lanes
Highway facilities or a set of lanes where operational strategies are proactively implemented and actively managed to optimize traffic flow and person throughput. Managed lanes include high-occupancy vehicle (HOV) lanes, value priced lanes, high-occupancy toll (HOT) lanes, or exclusive or special use lanes. Managed Lanes are designed to give priority access to alternative modes. The I-15 Express Lanes that run 20 miles between SR 78 in Escondido and SR 163 in San Diego are Managed Lanes that offer free use for transit, carpools, vanpools, and motorcycles, while single occupant vehicles pay a toll to use the lanes.

Micromobility
Small, low-speed, low-occupancy vehicles that fulfill short trips (e.g., bikeshare, scootershare, neighborhood electric vehicles [NEVs]).

Microtransit
Microtransit services use smaller vehicles that carry between 5-12 passengers, and riders typically can request service through a mobile app that directs them to gather at common locations along the service route for pick-up (e.g., RideCo, Bridj).

Mobile retail services
Mobile vendors situated throughout a mobility hub to offer people a convenient way to complete regular errands without relying on a personal car. Examples include food trucks, mobile dry cleaning, grocery delivery, salon services, and florists. Many of these services operate during normal business hours, so people visit them when they're traveling from transit to work, during lunch, or when they're on their way home.

Mobility as a Service (MaaS)
This is an umbrella term that refers to the ability access all modes of transportation in one trip planning and payment app. MaaS has been brought into the public eye with large car companies marketing a service for customers to access any kind of vehicle (bike, scooter, car, pickup, small van, etc.) to serve their needs. MaaS allows people to either pre-pay for transportation as part of a monthly mobility subscription (like Netflix), or pay as they go using a payment account linked to the MaaS app. The goal is to make it so convenient for users to get around with shared mobility and transit so that some they can give up their personal vehicles.

Mobility hub typologies
Mobility hubs are places of connectivity where different modes converge, they can be located in urban and suburban locations alike. Mobility hubs can be classified based on defining characteristics related to land use, employment and population density, and travel functionality (e.g., origin, destination, transfer hub).

Neighborhood Electric Vehicles (NEVs)
Neighborhood electric vehicles (NEVs) offer a low-speed, zero-emission motorized travel option and typically accommodate one to six people while travelling on local roads with posted speed limits of 35 mph or less. Polaris GEM is a common NEV manufacturer, and Circuit (formerly FRED, Free Ride Everywhere Downtown) is an example of a local on-demand NEV shuttle service.

On-demand
On-demand mobility services allow people to request a ride, vehicle, or service in real-time using a mobile app.

Overhead gantry
An overhead gantry (also known as a sign holder, road sign holder, sign structure or road sign structure) is a traffic sign assembly in which signs are mounted. They also often contain the apparatus for roadway ATDM infrastructure, traffic monitoring systems and roadway tolling systems.

Package delivery lockers
Secure locations from which online orders including groceries and other cold storage items can be held for pick up at any time of day (e.g., Amazon Locker, Click and Collect). They can be conveniently situated at transit stations or retail centers. Offering package delivery and return services within a mobility hub can save people an extra trip by car to pick up or return a package.

Predictive maintenance
Predictive maintenance is a proactive way to monitor a system's performance and schedule necessary maintenance. Predictive maintenance uses asset management data (warranty, useful life) and specific data measurements and calculations to inform future maintenance schedule needs of the system.

Predictive traveler information
Use of a combination of real-time and historical transportation data to predict upcoming travel conditions and convey that information to travelers pre-trip and en route (such as in advance of strategic route choice locations) in an effort to influence travel behavior. In an ATDM approach, predictive traveler information is incorporated into a variety of traveler information mechanisms (e.g., multimodal trip planning systems, 511 systems, dynamic message signs) to allow travelers to make better informed choices.

Public-private partnership (P3)
A public-private partnership (P3) is any formal collaboration between a public agency and a private company to deliver a public service or facility.

Queue warning
Informs travelers of upcoming incidents, congestion, or stop-and-go traffic. The information is based on real-time traffic data. Queue warning systems can alert drivers through dynamic message signs on overhead gantries or in-vehicle alert systems.

Smart intersections
Technology focused on improving safety at intersections for all users: personal vehicles, transit, bike riders, and pedestrians. Sensors, connected vehicle technology, and mobility applications facilitate communication among users to improve situational awareness and provide improved signal operations and intersection safety.

Resilience
The ability of any entity – individual, community, organization, or a natural system – to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions. This term often refers to resilience from natural hazards, particularly those exacerbated by climate change. Transportation system resiliency includes both the ability for infrastructure to withstand impacts from natural hazards and the capacity for the system to allow communities to effectively respond to natural hazards.

Ridehailing
Ridehailing services allow people to request rides in real-time from drivers who provide the ride in their personal vehicle in exchange for payment (e.g., Lyft, Uber).

Rideshare
Services that use mobile apps to match drivers and passengers traveling in the same direction, based on their origin and destination (e.g., vanpool, Waze Carpool, Scoop, Zimride).

Robotaxis
Driverless vehicles that operate within urban environments, fulfill short or medium distance trips, and can be hailed in real-time through a mobile app.

Scootershare
Scootershare provides low-cost, on-demand, and convenient access to a fleet of shared electric scooters for short-term use. Services may include kick scooters or mopeds and are typically dockless and can be accessed by using a smartphone app. Examples include Bird, Lime-S, and Scoot.

Seamless transportation
A multimodal trip made without any sudden changes, interruption, or difficulty, and in which people have confidence in the accuracy of the information they are provided.

Sensors
A broad term that describes any device that detect events or changes in its environment and shares the information with other connected devices. For example, autonomous vehicles use sensors to collect data about their surrounding environment and use that data to software to control, navigate, and drive the vehicle safely.

Shared mobility
Transportation services that are shared among users, either concurrently or one after another. Services may include shared vehicle fleets (e.g., dockless bikes and scooters) or shared ride options (e.g., Lyft and Uber).

Short line rail
Railroads that haul a wide variety of products, from imported goods in containers to agricultural products, lumber to petroleum products, and even passengers on a few tourist operations**.**

Smart City
Smart cities use data and technology to plan and operate effectively. Data informs decision making and ensures that resources are spent more efficiently. Smart Cities use data to improve all aspects of government, from transportation to public safety, water and energy use, and improving resiliency.

Smart infrastructure
Smart infrastructure is the combination of physical infrastructure with digital infrastructure, using data to provide improved information that enables better decision making and more efficient operations. *Also see V2V, V2I, V2X, sensors, smart intersections, cybersecurity, artificial intelligence, 5G.*

Smart parking
Smart parking leverages technology to make searching, reserving, and paying for parking more convenient and efficient. Smart parking solutions can be used to better inform people of available parking, streamline enforcement and maintenance, provide data on parking patterns within the community, and give people a better parking experience overall.

Smart signals
Application of signal timing system technologies that operate in conjunction with transit and freight signal priority treatments and Smart Intersections. Smart signals use advance detection systems to improve signal timing (e.g., turning traffic signals to green sooner or extending the green phase) based on real-time vehicle, bike, and pedestrian demand levels.

Speed harmonization
A strategy that uses real-time traffic data to balance upstream speeds of irregular traffic conditions caused by incidents such as bottlenecks, weather impacts, crashes, or special events. Speeds are synchronized by alerting drivers through dynamic message signs on overhead gantries or in-vehicle alert systems.

System integration
The process of creating a system of systems by securely sharing the data and capabilities between two systems. This is most effective when using machine to machine exchange formats that have been standardized by a national or internationally recognized standards organizations with multiple industries represented.

Transit amenities
Enhancements that provide safe and comfortable places for passengers to wait for a transit or shared mobility ride (e.g., comfortable seating, landscaping, lighting, shade or rain cover, restrooms, trash receptacles, complimentary WiFi, mobile device charging ports, and real-time travel information).

Transit Signal Priority (TSP)
This strategy manages traffic signals by using sensors or probe vehicle technology to detect when a bus nears a signal-controlled intersection and turns the traffic signals to green sooner or extends the green phase, thereby allowing the bus to pass through more quickly.

Transit supportive mixed-use development
Development featuring a mix of uses (e.g., residential with commercial) sited near Transit Leap services and throughout a mobility hub coverage area. This development is often built at higher densities to encourage use of transit and Flexible Fleets while eliminating the need to own a car for commute and other trips.

Transportation information (real-time)
The Next OS must be connected to a multi-modal orchestration tool to access second-by-second data from IoT sensors. This secure data, such as real-time transit vehicle arrival times, the number of cars passing through the green phase at a specific intersection (and how many are left waiting), will be combined with relevant pricing information from private industry partners who choose to offer services.

Transportation Systems Management and Operations (TSMO)
A revitalized Federal program that identifies a set of strategies, focusing on operational improvements, to maintain and even restore performance of the existing transportation system before extra capacity is needed.

Triple-track
Bi-directional tracks on a rail corridor that also include a bypass third railway (for express services or to temporarily store vehicles).

Universal Transportation Account (UTA)
Similar to the MaaS app, the UTA is an integrated payment solution for a wide variety of mobility services, accessible on a smartphone, to find, book, and pay for transit, parking, tolling, shared mobility services, EV charging, and more. The UTA will provide cities with the ability to deliver a better customer experience by applying incentives and rewarding people who seek alternatives to driving alone.

Variable Speed Limits (VSLs)
Enforceable speed limits that vary based on real-time conditions on the roadway, with the intent to smooth traffic flow and improve safety by reducing the chance of crashes (or secondary incidents) due to downstream congestion or adverse road weather conditions. VSLs may be posted manually or be automated using sensors and detectors in the field and are typically displayed on a regularly-spaced series of dynamic message signs or intelligent lane control signs through a VSL zone. In some cases, a similar implementation may instead post advisory speeds only.

Vehicle to Everything (V2X)
Vehicle and roadway technology designed to allow the communications between connected vehicles and with other transportation modes, like pedestrian, bike, and roadway works to alert drivers to use caution to improve safety.

Vehicle to Infrastructure (V2I)
Vehicle technology designed to allow automobiles to "talk" to roadway infrastructure and share data and information to control roadway management systems like traffic signals, ramp meters, toll, and parking payment systems to improve mobility and reduce emissions.

Vehicle to Vehicle (V2V)
Includes the vehicle technology designed to allow automobiles to "talk" to each other where data and information is shared to improve safety, mobility, and reduce emissions.

Wireless communications
The sending and receiving of data across radio spectrum waves.

Wireless electric vehicle charging
Allows vehicles to charge without plugging into a station. Also referred to as "inductive charging", this technology allows vehicles to charge up while operating on the road.

Zero-emission vehicle (ZEV)
ZEVs are vehicles that emit zero emissions from their on-board fuel source. ZEVs include both plug-in electric vehicles and hydrogen fuel cell electric vehicles.

Zero-emission vehicle (ZEV) infrastructure
ZEV infrastructure includes electric vehicle charging stations to support plug-in electric vehicles and hydrogen fueling stations to support fuel cell electric vehicles.