International Traffic Safety

Data Systems Improvement

Facilitator Guide

Data System Foundations

Data System Foundations

NHTSA
www.nhtsa.gov

World Health Organization

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Facilitator Preparation

> "Adults learn best in situations characterized by physical comfort, mutual trust and respect, and acceptance of differences."
> ~Daniel D. Pratt

What You'll Need

✓ Before you begin preparing to teach this workshop, make sure you have the following materials:
  - A copy of the **International Traffic Safety Data Systems Improvement Participant Workbook** for this workshop.
  - A copy of the file **pre–workshop_questionnaire.docx.** This is a questionnaire file that you will send to participants prior to the workshop.
  - The PowerPoint presentation file for this workshop: **traffic_safety_data_systems_workshop.pptx.**
  - **Data Systems: A Road Safety Manual for Decision Makers and Practitioners** available at the World Health Organization Website at: http://whqlibdoc.who.int/publications/2010/9789241598965_eng.pdf

✓ You'll also need the following equipment:
  - White board or flip chart and markers
  - A computer with projector for projecting the PowerPoint slides
  - Screen or white wall for projections

IMPORTANT
When you download the Data Systems Manual using the link above, note that the link is only one portion of the Manual. Use hyperlinks within that document's Table of Contents to download the remainder of the Manual.

Note: Chapter 3 is two files, one titled "3a" and one "3b." Download each section separately.

Workshop Timing

This workshop takes two and a half days to complete. Lesson timing will vary based on the number of participants and their prior knowledge.

There are eight Lessons—six major content lessons, an interim review and a final summary. The approximate Lesson Timing below does not account for breaks and lunch.

Use the Approximate Daily Timing below to pace the workshop. Make sure you summarize at the end of each day and prepare participants for the next day.

This workshop has been carefully designed to prepare participants for the job ahead, so cutting out material is not recommended.

DAY ONE

Lesson Title	Approximate LESSON Timing	Approximate DAILY Timing
1 • Importance of Data Systems	2.5 Hours	2.5 Hours
2 • Current Data System	2 Hours	2 Hours
3 • Data System Components	30 Minutes	30 Minutes
4 • Situational Assessment	3 Hours	1 Hour

DAY TWO

Lesson Title	Approximate LESSON Timing	Approximate DAILY Timing
Situational Assessment – Continued		2 Hours
5 • Review and Vision	45 Minutes	45 Minutes
6• Strategies for Improvement	5.5 Hours	3.5 Hours

DAY TWO

Lesson Title	Approximate LESSON Timing	Approximate DAILY Timing
Strategies for Improvement – Continued		2 Hours
7 • Improving the Data System To Monitor Road Safety: Putting It All Together	1.25 Hours	1.25 Hours
8 • Moving Forward	30 Minutes	30 Minutes

"If you're not sure where you're going, you're liable to end up someplace else."
~Robert Mager

How to Prepare

✓ **Read the entire Data Systems: A Road Safety Manual for Decision Makers and Practitioners.** This workshop is based upon the Manual and its content. Be familiar and comfortable with the Manual content to facilitate this workshop effectively.

✓ **Review this entire Facilitator Guide** several days before the workshop. The Facilitator Guide is scripted for you. Of course, you do not have to read the script aloud! The purpose of the script is to provide a guideline for you to follow, and to ensure that all facilitators teaching this workshop follow the same basic plan to meet the workshop's goals.

✓ **Make it your own.** We encourage you to add your own stories, examples, and personality to this material! It is your job to make the material come alive. There is plenty of room to make it your own while maintaining the direction and focus required to reach the workshop goals.

✓ **Review all activities and exercises completely.** Much of the learning takes place during these activities, and especially during the "debrief" or discussion that follows the activity.

- Each activity has a goal, stated at the beginning of the activity. This focus will help you understand the purpose of the activity so you can guide learners to the intended outcome.

✓ **Review the slide presentation.** Some slides are animated to help explain concepts or to pace the material. If mouse clicks are required to advance the presentation, you'll see this symbol on the slide:

The example above indicates that you will click the mouse two times to advance the animation. The facilitator's script also includes animation pacing. When appropriate, you'll see **bolded, underlined** text to cue you to advance the animation.

E–mail Participants the Questionnaire

✓ Send the **Questionnaire on Traffic Safety Data in Your Jurisdiction** to each participant via e–mail a few weeks before the workshop.

- Decide which facilitator will be responsible for collecting and compiling the pre–work. Share the compiled results with your co–facilitator prior to the workshop start.
- The questionnaire is a Word Forms document. That means that the document is "locked" except for designated input areas.
  - Complete the top portion of the form with your contact information. Then save the file and send copies to participants.

> ### Questionnaire on Traffic Safety Data in Your Jurisdiction
> **Instructions**
>
> 1. Complete the questions to the best of your ability before attending your first workshop.
>
> Please send the completed questionnaire to:
>
> **Name** Lourdes Hernandez
>
> **E-mail** lourdes@email.com
>
> **Phone** 1-999-999-9999
>
> **Date Due** July 10, 2012
>
> *Complete the top portion of this form with your contact information, then save the file and send copies to participants.*
>
> 2. Also bring a completed copy of the questionnaire to your workshops.

  - Participants can complete their answers and return the questionnaire to you prior to the workshop. It is important to have the answers prior to the first workshop. This information will help you focus the sessions to the needs of the participants.
- Instructions in the document tell participants to bring a copy of the completed questionnaire with them to the first workshop.

SAMPLE DATA COLLECTION TOOL

✓ In your e–mail to participants, also ask them to bring a sample(s) of any data collection tool(s) currently used in their country or jurisdiction, such as traffic incident report forms or hospital intake forms. These samples will be used in an activity in the Strategies for Improvement Lesson.

REVIEW RETURNED QUESTIONNAIRES PRIOR TO THE FIRST WORKSHOP SESSION

✓ After you receive the questionnaires from your participants, take some time to review them and note what challenges they are facing. Prepare to address these challenges in the live class session.
   ▪ To optimize class time and meet the needs of the participants, you need to know where participants are at in their process so that you can best guide them in their learning.
   ▪ Summarize the data and be prepared to give the class an overview of the questionnaire results.
✓ Be sure to review the last question: What do you most want to learn in this workshop? If you feel that any participants' expectations of the learning are far in excess of the workshop content, respond to the participant to help manage his or her expectations.

IMPORTANT TRAVEL NOTE

✓ When communicating with the participants, be sure you prepare them for a full 2.5 day workshop. Encourage them to plan their travel accordingly.
✓ The workshop material has been carefully designed to prepare participants for the job ahead. Cutting short the training time may adversely affect participants' success.

Facilitation Method

This workshop is designed to be interactive, with small group activities where the most learning comes *during the discussion that follows the activity.* If you are accustomed to a lecture–only style of delivery, this may be uncomfortable at first. You may feel you're not doing your job if you're not "delivering" the information! If you "deliver" information, then your participants become mere consumers of information, instead of true learners. Adult learners create learning for themselves as they work through activities, solve problems, and try out new skills by applying them to real life tasks.

Learning that is created by the learner him/herself is the kind that really sticks. Your job is to *facilitate* this learning.

This course is designed with proven accelerated adult learning principles at its core. Adult learners learn best in a social, collaborate learning environment with a skilled facilitator leading them where they need to go.

Peer Learning
The activities in this course are designed to enable groups from different countries to share ideas and to learn from one another's progress through the activities.

HOME GROUPS
The activities sometimes ask you to group participants by "home group." Ideally, participants will attend this workshop as a team representing three sectors: law enforcement, health and transport from their jurisdiction.

We refer to this group as the "home group."

If you are teaching one group from the **same country,** forming small groups for the activities will be different. Review and understand the goals for each activity so you will be able to best form your small groups to meet those goals.

> "Telling as the main mode of instruction deprives the learner of the excitement and opportunity of powerful learning."
> ~Neil Postman

> "Ideally students remember what they have learned, not what the teacher has told them."
> ~Lao Tzu

How to Use This Facilitator Guide

✓ This guide includes suggested scripting for you. Scripting is presented in plain Roman text.
✓ **Directives** are notes that are for you, the facilitator, only. They appear in ***bold italic text.***
✓ Icons in the left column of the guide identify key content types. See the table on page 10 for a key to the icons used in this guide.

Slides

Slide images are displayed in the body of the document at the point where you are to show them.

See example at right.

Facilitating with the Participant Workbook

✓ The Participant Workbook is designed to follow this Facilitator's Guide. It is designed to encourage participants engage with the material, but not to take the focus off of the facilitator.
✓ **Activity** questions are listed in both the Facilitator Guide and the Participant Workbook.
✓ **Debrief** questions are listed in the Facilitator Guide. The Participant Workbook has space for participants to write and reflect as needed.
✓ **ASK** question in the Facilitator Guide are intended to move the discussion along. The specific questions are not listed in the Participant Workbook; rather, space is available for participants to jot down thoughts as appropriate.

Teaching Participants Who Speak English as a Second Language

Keep the following pointers in mind when you are teaching a workshop with students who speak English as a Second Language (ESL).

✓ At the beginning of the class, encourage participants to stop you if they do not understand something. Ask them to raise their hands or give you some other signal to pause.

  ▪ Even if no one stops you, pause briefly after main content sections to validate understanding.

  ▪ Avoid repetitively asking, "Do you understand?" or "Is that clear?" Rather ask specific questions, such as "What are the building block components of your data system?"

✓ When speaking, always face the class. If you have to turn to write on a whiteboard or flipchart, stop talking until you're finished. ESL learners blend your words, facial expression, and gestures to assess meaning.

✓ Avoid using idioms or slang, unless you explain the words or phrases.

✓ When explaining concepts, write or draw clearly on a flip chart or white board to support your verbal explanations.

✓ Speak more slowly than normal, enunciating your words. Avoid running words together (e.g. "whatchoo" instead of "what you"). Finish each word.

✓ Speaking louder does not necessarily equate with speaking more clearly. Pumping up the volume does not help non–native speakers understand you better. Speak at a normal volume and pace—but not too fast!

✓ Introduce and summarize often. Use different words to explain concepts in different ways.

Icons and Their Meanings

ACTIVITY

CASE STUDY

DATA MANUAL REFERENCE

DISCUSSION OR DEBRIEF

MAIN POINTS

REFERENCE

SUMMARY

TRANSITION

1

IMPORTANCE OF DATA SYSTEMS

1 • Importance of Data Systems

**Lesson Time:
2.5 Hours**

Welcome

Show slide 2.
Welcome everyone to the workshop. Introduce yourself and your credentials.

Point out the location of bathrooms, exits, snack areas, etc.

Share your classroom rules, such as the use of electronic devices.

Participant Workbook
✓ Follow along in the Participant Workbook. The Workbook features:
- Slide images so you can follow along with the presentation.
- Activity worksheets.
- Some content notes, plus areas for you to capture your own notes.

**Time for Ice Breaker:
20 minutes**

Activity • Ice Breaker

Goal for Ice Breaker
✓ To get participants thinking about the subject matter and to help them get comfortable with each other.

INSTRUCTIONS
If you have 10 or fewer participants, facilitate this activity with the full group; if you have more than 10, split the class into two groups and have them self–facilitate the activity with you observing and guiding as needed.

Keep this activity briskly moving. Do not let any one person monopolize the story telling.

1. Ask each participant to turn to the Welcome page in the Workbook.
2. Say, "Take a few minutes to think about a traffic crash you recently experienced or observed. This crash can be something that happened to you or that you watched happen to someone else. Describe the crash in the Workbook and then jot down what could have prevented it from happening."
3. Allow a few minutes for participants to record the crash and preventive ideas in the Workbook.
4. Ask each participant to briefly share his or her crash.
   - If an opportunity arises to tie a crash to a workshop topic, briefly make that connection.
5. Ask him or her to consider if any of their preventive ideas could benefit from an improved traffic data system.

Goals for this Workshop

In this workshop you'll be able to:
✓ Describe traffic safety Data System Components required to build a successful traffic safety data system.
✓ Understand how the following contribute to a comprehensive traffic safety data system: data beyond crash data; road safety management; and data from different sectors.
✓ Describe how a comprehensive traffic safety data system leads to successful evaluation.
✓ Prepare the tools and strategy you'll need when you return to your country and perform a Situational Assessment of your traffic safety data systems.
✓ Work through a fictional case study that includes some of the same challenges you may face in your home countries.

Data Systems Manual

Make sure everyone has a complete copy of the Manual titled "Data Systems – A road safety manual for decision–makers and practitioners."

✓ We will refer to this Manual as the Data Systems Manual.
✓ The Data Systems Manual provides practical guidance to establish data systems that will:
  ▪ Improve measurement of a jurisdiction or country's road crash problem.
  ▪ Help select evidence–based interventions and allow for better monitoring and evaluation of progress.
  ▪ Raise awareness about road safety issues and be able to use an evidence–based "story" to influence policy, programs, and resources allocated to road safety.

Manual Development

The Data Systems Manual was developed to help road safety practitioners all over the world implement the recommendations of a World Health Organization (WHO) and World Bank report on road traffic injury prevention. The Manual provides the best practices and guidelines for effective traffic safety data systems.

This workshop takes the best practices and guidelines from the Manual and helps you put them to work in your jurisdiction. It is our goal in this workshop to provide the "how to" for the practices presented in the Manual.

Tell participants that this workshop is based closely on the Manual. If they have not had the chance to read the entire Manual prior to this workshop, advise them to do so at their earliest opportunity.

Terminology Review

Ask everyone to turn to page 4 of the Data Systems Manual.

Review the terms in the table. Explain that the definitions were created jointly by an international team of official

international bodies involved in road safety, which held detailed discussions to arrive at these approved definitions.

OTHER TERMINOLOGY
✓ As we go through this workshop, please stop me and ask me about any other terms you may not be familiar with.
✓ It's important that everyone understands how we are using these terms—similar to the data system's variables (which you will learn more about shortly).

Goals for Lesson 1

✓ To define comprehensive traffic safety data system.
✓ To recognize how data from different sectors contribute to a comprehensive traffic safety data system and road safety management.
✓ Understand how a comprehensive traffic safety data system and successful evaluation are linked.

Workshop Agenda

Show slides 5 and 6
Review the workshop lessons.

Explain that the eight lessons will span 2.5 days. Use the Approximate Daily Timing on page 2 to overview your agenda.

Share the break and lunch times you've established. (Lunch and break times are up to the facilitator.)

Data Systems Overview

Show slide 7.
Explain the overview diagram using the scripting below.

Remember: bold, underlined text prompts you to click the mouse to move the slide animation to the next stage.

DATA SYSTEMS COMPONENTS

✓ Data components are the essential **building blocks** of a successful traffic safety data system.
 ▪ There are three data components: Stakeholder Engagement, Data Quality, and Systems Requirements/Resources.

DATA SYSTEMS IMPROVEMENT

✓ Once you have all of the Data Components in place, you and your team can think about **improving** your data system. An improved data system moves you further along the path towards effective Road Safety Management.

ROAD SAFETY MANAGEMENT

✓ Your goal is to create a sound data system so that you can practice effective Road Safety Management. One of the goals of **Road Safety Management** is to generate high quality data which helps you and your team make better decisions that will ultimately reduce serious injuries and deaths.
✓ Evaluation of the data produced by data systems is critical to identify safety problems, assess effectiveness of interventions, and to inform road safety decision–makers.
✓ As we move through this workshop, we will discuss the data systems components more in depth.

Data Systems Improvement Process

Show slide 8.
The Data Systems Improvement Process is represented by the yellow sign in the previous diagram. The entire process is shown here.

There are four major steps in the process. We will reference this process throughout the workshop.

TRANSITION

Before we dive into Data Systems Components, let's see why traffic data systems are so important.

Why are Data Systems Important?

CASE STUDY

Present the following case study that illustrates the importance of good traffic safety data systems. Tell participants to follow along in the Workbook.

- ✓ One city in Brazil put a lot of money into policing the roundabouts in the city. Data showed that the highest volume of crashes occurred at roundabouts.
- ✓ Expensive engineering measures were considered to help solve the crash problem at roundabouts.
- ✓ When the city changed their data collection process and improved their data system, they came to understand that the efforts at the roundabouts were not the best use of time and resources—because while it was true that most of the crashes happened at roundabouts, the types of crashes involved mostly minor property damage, such as a dented fender.

✓ The improved traffic safety data system told them where the most traffic fatalities were occurring, and by whom—areas where there was a high concentration of bars, by motorcyclists.

✓ With the new data pointing to a more serious problem, the city will ultimately be able to address the fatality issue and potentially reduce the number of people dying of traumatic brain injuries.

Discuss the Case Study

ASK

? What data were missing before the system was improved?
SUGGESTED ANSWER:
- Number of crashes with injuries, the severity of injuries and fatalities at the intersection

? What were the consequences of poor data collection?
SUGGESTED ANSWERS:
- Inaccurate assessment/understanding of road crash causes
- Allocating money and resources to the wrong problem
- Lives continue to be lost

? From this case study, what are some characteristics of good traffic safety data systems?
SUGGESTED ANSWERS:
- Quality data that accurately points to a problem
- Comprehensive data, beyond crash statistics, that provide a complete picture of the road safety situation
- Data that measures risk factors such as helmet use or speeding
- Data in relationship to the general population
- More specific location data
- Etc.

CASE STUDY MAIN POINTS
✓ The case study shows that poor data collection can cause resources to be misdirected and wasted—and worse, cost lives because these resources are focused on the **wrong problem!**
✓ The case study shows that improved data collection and accurate evaluation of that data can potentially save lives.
✓ In this case study, the data showed that the type of accident in the roundabouts was minor.
  ▪ Data was used as evidence. Evidence is defined as "something that makes plain or clear."
  ▪ With data, better decisions can be made to help solve a problem.
  ▪ Data–based decisions ultimately lead to effective road safety management.
✓ These are compelling reasons to learn to improve traffic safety data systems!

ASK
? What evidence did the improved data system provide in the case study?
SUGGESTED ANSWERS:
  ▪ The types of crashes occurring – major vs. minor
  ▪ The exact location of the most serious crashes

TRANSITION
The case study we just reviewed demonstrates the importance of:
✓ collecting the *right data*,
✓ improving the data collection method, and
✓ analyzing the results properly.

Now let's look further at the requirements for the data that we collect in our traffic safety systems.

Data Requirements

Show slide 9.

✓ Most jurisdictions collect traffic crash and fatality data, but few do this in a comprehensive manner.

✓ The slide displays the four data collection areas required to achieve a *comprehensive data system.*

✓ A comprehensive system collects and examines many factors related to traffic crashes, including:

- **Outputs.** What enforcement policies or interventions are in place?
- **Safety performance indicators.** How many people are driving the speed limit, wearing seatbelts, or driving drunk?
- **Final outcomes.** What was the *end result* of a crash—death, injury, property damage?
- **Socio–economic costs.** What is the cost to society (loss of life, property, productivity, health, etc.)?

✓ If data systems do not capture this information, it is difficult to understand the true extent of the problem and to evaluate the impact of interventions. Comprehensive data systems are needed to provide a strong evidence base for effective road safety management.

TRANSTION

Let's review these concepts in more detail.

Outputs

Show slide 10.

✓ The dictionary definition of outputs is:

- *The amount of energy, work, goods, or services*

produced by a machine, factory, company, or an individual in a period.[1]

✓ Outputs are the *visible results* of safety policies and programs.
✓ Output data may include:
- How many roadblocks were set up for random breath testing?
- How many speed bumps have been built?
- How many billboards were used for a safety campaign?

✓ Enforcement efforts are outputs. Enforcement efforts require *energy and work.*
- This work is measured in terms of person hours spent on enforcement tasks such as performing breathalyzer tests for alcohol detection.

ASK

? What might be the *visible results*—or outputs—of a speeding enforcement program?

SUGGESTED ANSWERS:
- The number of 30–second public service announcements broadcast
- The number of times police stopped and cited drivers for non–compliance
- The number of speed cameras installed along a route

? Why measure outputs?

SUGGESTED ANSWER:
- Outputs are measured because they can ultimately tell us whether specific amounts of *energy and work* correlate to a reduction in traffic deaths and injuries.

---

1 http://www.businessdictionary.com/definition/output.html

Safety Performance Indicator Data

Show slide 11.

✓ Safety Performance Indicators are factors that *lead up* to the final outcome.
✓ **Indicators** are *variables* that can be used to *measure change.*

✓ Think of Safety Performance Indicators as factors in effect between point A and point B of a trip over the road.
✓ Safety Performance Indicators are variables related to the environment, the vehicle, or road–user behavior.
✓ For example:
  ▪ Does the driver speed?
  ▪ Does the driver drink alcohol and then drive?
  ▪ Do motorcyclists wear helmets?
  ▪ Is the road designed for safety?
  ▪ How quickly can an ambulance reach the site and then transport people to the hospital?
  ▪ How old is the vehicle, and how crash–worthy?

Final Outcome Data

Show slide 12.

This term means exactly what it says! A **final outcome** is the *end result* of a crash. End results include:
✓ Death
✓ Injury
✓ Property Damage
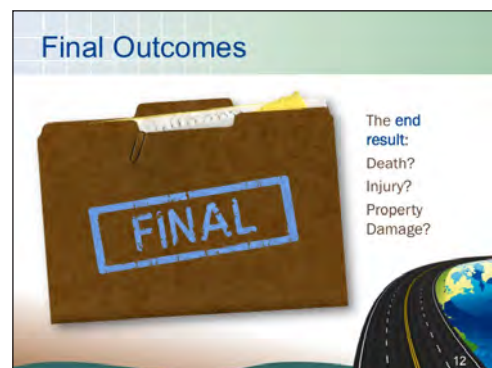
Socio–Economic Costs

Show slide 13.
✓ **Socio–economic costs** are the costs borne by everyone in a society.
✓ They include the costs of lost productivity, medical care, and costs of intervention due to traffic safety problems.

Show slide 14.

ASK
? Why should we care about socio–economic costs?
SUGGESTED ANSWERS:
✓ Unsafe driving conditions affect the economy on a local and national level.
  ▪ Deliveries of goods can be delayed due to unsafe road conditions.
  ▪ Unsafe conditions increase insurance rates, requiring companies and individuals to spend more on insurance. Companies pass along these costs to the consumer.
  ▪ Death of a wage–earner can cause economic hardship for families, who may then rely on social welfare systems.
  ▪ Unsafe conditions may cause businesses to locate elsewhere.
✓ Socio–economic costs ultimately affect *everyone* in society.

Summarize Data Requirements.
✓ Crash statistics do not provide a complete picture of the road safety situation.
✓ Data systems that can generate data about final outcomes, safety performance indicators, outputs, and socio–economic costs will ultimately help you evaluate the successes or failures of your traffic safety interventions.

TRANSITION

We'll talk about evaluation in just a moment. Before we do, there is one more important concept we need to understand about data requirements. This is the concept of **exposure data.**

Exposure Data

Show slide 15.

✓ Traffic safety data makes little sense without knowing its "universe of possibility."

✓ Example:

If you are counting traffic fatalities for a time period, you can state the *total number* of fatalities but cannot state the *fatality rate* without some type of denominator from which to calculate the rate.

Draw the following fraction on the flip chart or whiteboard.

$$\frac{600}{?????}$$

▪ In this example, the missing could be the population of our jurisdiction. Let's say that's six million.

Edit the fraction on the flip chart or whiteboard to include the denominator.

$$\frac{600}{6,000,000}$$

ASK

? In this example, we have six hundred traffic fatalities out of a total of six million inhabitants. What is the rate of fatal traffic accidents for all licensed drivers?

SUGGESTED ANSWERS:

▪ .0001 or 1 in every 10,000 people

? **What are some other exposure measures found in the Data Systems Manual (bottom of page 9)?**
SUGGESTED ANSWERS:
- Demographic data
- Number of licensed drivers
- Traffic volume data
- Infrastructure factors

EXPOSURE MEASURES

Show slide 16.
Review some of the exposure measures used by the U.S. National Highway Traffic Safety Administration, as shown on the slide.

Exposure Measures • Example

Traffic fatality rates	2002	2011
Per 100 million vehicle miles traveled	1.50	1.10
Per 100,000 licensed drivers	22.04	15.28
Per 100,000 registered vehicles	18.97	12.57
Per 100,000 resident population	14.85	10.39

Source: U.S. NHTSA

Discuss the merits and weaknesses of each exposure measure as a road safety indicator and in terms of data collection.

TRANSITION

We've just talked about all of the data requirements that need to be included in a comprehensive data system. You can now understand their importance. Without this type of data, program evaluation is not possible.

Click the mouse to advance the slide.

Data for Program Design and for Program Evaluation

Data for Design and for Evaluation

Show slide 17.
✓ Data systems and interventions are co–dependent:
  - data systems **provide information** to help design the interventions most likely to be effective;
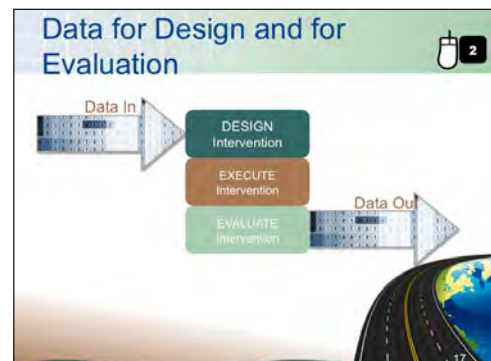
- data systems are used **to analyze** the result(s) of the interventions and monitor progress.

Targets

Establishing Targets are a way to assess your progress and success. Targets are specific goals that interventions are designed to work towards.

EXAMPLE
In Australia, the country set a goal to reach by the year 2020—11,000 fewer people killed or seriously injured in traffic crashes.

Discuss target guidelines.

Target Guidelines
1. Set targets for each of the different road safety indicators.
2. Targets should be ambitious, yet achievable.
3. Targets should be grounded in expected results from *planned interventions.*
4. Targets can be set at the national and local levels.
   - For example, at the national level in Australia the country set a goal. At the local level, in the community, they set a target to increase helmet use by a specific date.
   - Other local examples include:
     - An Australian city set a goal to reach by the year 2020—1,000 fewer people killed or seriously injured on the road within their jurisdiction.
     - A city set a goal to reduce the number of pedestrian fatalities by 50% (from 100 to 50) within the next 5 years.
     - A city set a goal to reduce the number of head injuries as a result of motorcycle crashes by 20% (from 25 to 20) within the next 2 years.
     - Some localities are now setting goal zero targets—no annual motor vehicle crash fatalities.

ASK

? *Do any of you have national targets?*

? *What are your local targets?*

Allow participants to contribute and lead to the final points below.

5. Support long–term targets (e.g., by 2020) with interim targets (e.g., by 2012, 2015, 2018).

✓ The ability to monitor road safety targets depends on the data systems in place. When improving data systems, consider the targets that have been set by policy–makers and what data they require.

Why Evaluate?

Create a discussion using the questions below.

ASK

? Why evaluate?
Use the responses to lead to the points below.
SUGGESTED ANSWERS:
 ▪ Evaluation of any program is vital:
   ▫ to determine whether it works;
   ▫ to help refine program delivery;
   ▫ to provide evidence for continuing support of the intervention.
 ▪ Evaluation will also help determine:
   ▫ whether the program is appropriate for the target population;
   ▫ whether there are any problems with the implementation and support;
   ▫ whether there are any ongoing concerns.

✓ Be aware that the evaluation a traffic safety programs is limited by the *quality of the data systems.*

ASK

?   What is evaluation?

Allow volunteers to respond. Lead to the points below.

SUGGESTED ANSWERS:

- It documents the good parts of a program and finds the things that need to be changed.
- It is the process by which someone determines the value of something.
- It examines, appraises, or judges the worth of a particular item or program.

ASK

?   Why is it important to think about evaluation when implementing traffic safety program?

Use responses to lead to the points below.

SUGGESTED ANSWERS:

- To determine the exact nature of the traffic safety problems that need to addressed.
  - For example, last year, 10 percent of the 50 traffic–related deaths were child bicyclists. None of the children were wearing bike helmets.
- To set reasonable goals and objectives for reducing this problem.
  - For example, to decrease the number of bicyclist fatalities by increasing bike helmet usage from 45 percent to 80 percent among child bicyclists.
- To know how well the implemented program accomplished its objectives.
  - For example, bike helmet usage increased from 45 percent before the program to 85 percent after the program.

ASK

?   What do you notice about these three statements?

Use the responses to lead to the points below.

SUGGESTED ANSWERS:

- Notice that example statements are specific, focused, and practical.

- First, the evaluator identified a specific problem—the children who died were not wearing bicycle helmets.
- Next there is one focused, promising program approach to address this problem—increase bicycle helmet use.
  - Note that there is no mention of how this will be done—free helmets, school programs, bike safety events—those are specifics that are decided later in the process.
- Finally, there is a practical measure of the progress made to implement the program—document the change in bicycle helmet use.
✓ Always evaluate your traffic safety programs.

Interventions

Show slide 18.
Interventions are the programs, strategies, and legislation that are designed to improve traffic safety. Interventions can include:
✓ Enforcement programs
✓ Education programs
✓ Legislation
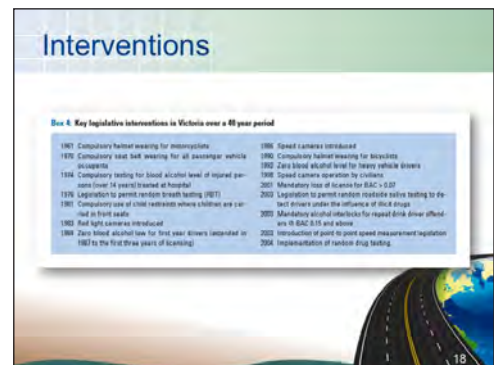
Source: Tony Bliss and Jeanne Breen, June 2009

Review the legislative interventions on the slide, which are from Victoria, Australia.

ASK
? How would you evaluate the success or failure of these types of legislative interventions?

Allow participants to respond. As participants respond, create a list on the flip chart or white board.

Once you have an ample list, ask volunteers to group the response into evaluation type—process, impact, or outcome evaluation.

Debrief the activity with the points below.

Process Evaluation

✓ Examines whether the intervention was carried out as planned.

✓ Helps to understand why the measure led or did not lead to the desired result.

✓ Identifies the strengths and weaknesses to guide program improvement.

✓ Aids in understanding why certain outcomes were, or were not, achieved.

✓ Looks at questions such as:

▪ Did the program start on time? What was the level of police activity? What was the level of media presence? Were the flyers distributed to the target audience? Were the engineering changes implemented?

Impact Evaluation

✓ Determines whether the intervention brought about a change that would not have occurred without the intervention.

✓ Measures changes such as road–user knowledge, perceptions and behavior, and impact of engineering treatments (immediate effects).

✓ Benefits from regularly measured Safety Performance Indicators.

✓ Looks at questions such as:

▪ What was the seat belt use rate? Was the targeted population aware of the program? Were fewer people driving impaired? Did the average speed decrease? Did drivers yield to pedestrians crossing the street? What is the use rate of approved motorcycle helmets? Are new drivers aware of basic driving rules?

Outcome Evaluation

✓ Investigates where the intervention was successful.

✓ Did intervention lead to the desired result?

✓ Typically measures changes in outcome indicators.

✓ Concerned with measuring longer–term effects.

✓ Looks at questions such as:

- Has the fatality rate decreased as a result of more people wearing seat belts? Has the fatality rate decreased as a result of lower travel speeds? Are fewer motorcyclists receiving traumatic brain injuries as a result of using approved helmets? Are fewer pedestrians killed by motorists? Are there fewer adolescent crashes as a result of graduated driver laws?

Pages 137–138

Show slide 19.
- ✓ While there are a variety of outcome evaluations, several of which are detailed in the manual (pages 137–138), one simple design is a before–after study.
- ✓ This study measures the outcome of interest before and after an intervention.

Outcome Evaluation Types
- ✓ Randomized Control Trial (RCT)
- ✓ Controlled Before-After Study
- ✓ Interrupted Time Series Design
- ✓ Before-After Study (No Control Group)
- ✓ Sample Size and Statistical Analysis

- ✓ There is not a control group so the changes are difficult to attribute specifically to the intervention; however, the study can serve as a first step to more complex evaluations.
- ✓ For example—
  - A community wants to increase seat belt use.
  - Seat belt use is observed along the main street through town (before or baseline observation).
  - For the intervention, belt reminder signs are installed throughout the community, local businesses distribute educational brochures, and police vehicles place buckle up magnetic signs in their vehicles.
  - After one month, the intervention concludes. A follow–up observation of belt use is conducted.
- ✓ When improving your data system, consider three factors that will affect the possibility and quality of road safety interventions.
  1. **Systems architecture**. Is data from all sectors and databases aligned and working together? Is information flowing properly throughout the system?
  2. **Data quality.** Is quality data flowing out of the system? Is the data accurate, reported, reliable, comprehensive, etc.?
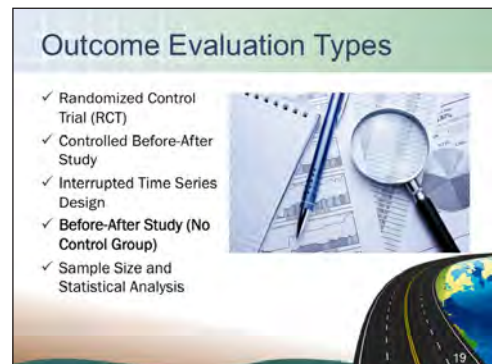
3. **Output.** Do you have the "right" type of data outputs to evaluate targets and interventions?

✓ In the next session we will talk much more about how to determine data quality.

✓ What's important to understand now is that successful evaluation of a program or intervention is not possible if the data system architecture is flawed or the data produced by the system is poor quality.

- Imagine you are baking a birthday cake. You will still have something you can call a "cake" even if you:
  - Use oatmeal instead of cake flour and lard instead of butter.
  - Bake the cake in an oven set at the wrong temperature.

✓ But…how good will the cake turn out? Probably not as expected!

✓ You can't expect good results with the *wrong ingredients* and *wrong settings.*

✓ That's why evaluating the data system architecture and the quality of the data it produces is so important.

Data Requirements/Evaluation Summary

Summarize the Data Requirements/Evaluation section with the following main points:

✓ Effective data systems design allows you to consider more than just the fatalities that result from crashes.

✓ There are many effects (other than death) of poor traffic safety data systems—although death is an undesirable result.

✓ By looking at the traffic safety data system in a comprehensive way, we can improve the system to reduce serious injuries and deaths.

✓ Exposure data is necessary to interpret crash data and accurately measure change over time.

✓ Including final outcome, performance safety indicators, socio–economic costs, and output data in the traffic safety data system will produce the data necessary to plan and evaluate traffic safety interventions.

✓ You must know what data needs to go *into* your data system in order to produce valid data for designing and then evaluating interventions.

✓ When designing your interventions be sure to include data that supports process, impact and outcome evaluation.
✓ You should also examine the data system itself to be sure it is producing quality data.

TRANSITION

One way to improve your data system is to locate *all the data* that is available. This comprehensive goal requires different sectors—law enforcement, health care, and transport—to begin a conversation about "who has what."

Sector Roles and Data Needs

ACTIVITY • Sector Roles and Data Needs

Goals for activity:
✓ To review the functions of the law enforcement, transport, and health care sectors, and the data needs of each.
✓ To promote understanding of other sectors (other than the ones participants work within).

Time for Activity: 1 hour

INSTRUCTIONS

1. Divide the class into three groups, according to their role:
   ▪ Law Enforcement
   ▪ Transport policy, planning, or engineering
   ▪ Health policy, public health, health care planning, or provision
2. Now, assign each group a sector *other than the one they officially represent.*
   ▪ For example, assign the *Health Sector group to the Law Enforcement Sector.*
   ▪ **EXPLAIN:** You already know your own sector. One of the purposes of this exercise is for you to gain an understanding of what other sectors' needs are.
3. Give each group a piece of flip chart paper and a marker.
4. Refer each group to the appropriate Manual section (left margin), which they will review and discuss as a group.

Law Enforcement •
p. 10–12

Transport •
p. 12–14

Health •
p. 14–15

5. Refer participants to the Sector Roles and Data Needs page in the Workbook.
6. Tell each group that they will present their assigned sector to the class, following this outline (in the Workbook):
   - **?** **In addition to data collection, what are the other duties of your assigned sector?**
   - **?** **What data is typically collected by the sector, according to the Data Systems Manual?**
   - **?** **Who collects the data in your assigned sector? What is their role?**
   - **?** **What data does the sector need for its own purposes?**
7. Have each group list the data needs of their assigned sector on the flip chart paper, to use during their presentation.
8. Allow 20 minutes for groups to work, and 10 minutes for each group to present their findings.
9. Use the questions in the Discuss the Activity section below after all presentations are concluded.

Discuss the Activity
Tape the three flip chart pages next to each other at the front of the room.

ASK
- **?** **What data are shared across sectors?**
- **?** **What data from each sector could benefit traffic safety systems?**
- **?** **What data is NOT collected by the sector that would benefit traffic safety systems?**

Show slide 20 to help guide the discussion.
Following are some primary data needs of the various sectors.

SUGGESTED ANSWERS:
LAW ENFORCEMENT SECTOR DATA NEEDS

Sector Data Needs

✓ Monitor occurrence of traffic law infractions.
✓ Keep track of legal issues such as court appearances and fines.
✓ Use data on collisions and infractions to target nature of and location of enforcement activity.

TRANSPORT SECTOR DATA NEEDS
✓ Identify locations, times, and environmental conditions where collisions occur most frequently.
✓ Identify human factors contributing to collision for which preventive measures are needed (e.g., better education programs).
✓ Identify vehicular factors that contributed to collision that could be addressed by vehicle safety standards.

HEALTH SECTOR DATA NEEDS
✓ Number of fatalities and injuries
✓ Severity of injuries
✓ Causal factors involved so that appropriate health promotion messages can be effectively targeted
✓ Assess effectiveness of injury management and treatment and outcomes
✓ Monitor trends in traffic fatalities and injuries

ACTIVITY MAIN POINTS
✓ Within a particular sector, there may be multiple people responsible for different types of data collection.
✓ Each sector has its own unique data needs, so sharing data across sectors may be challenging.
✓ Knowing something about the data needs of different sectors will help you when performing your Situational Assessment back home.
  ▪ We'll talk more about your Situational Assessment in the upcoming lessons.

Summary

Show slide 21.

In this lesson, we:

- ✓ Reviewed terminology we'll be using in this workshop and that you'll encounter in your traffic safety data systems work.
- ✓ Discussed a case study that illustrates why traffic safety data systems are important.
- ✓ Identified data requirements for a comprehensive traffic safety data system.
- ✓ Identified the different data needs of different sectors involved in data collection.
- ✓ Discovered the links between data requirements, road safety management, and evaluation.
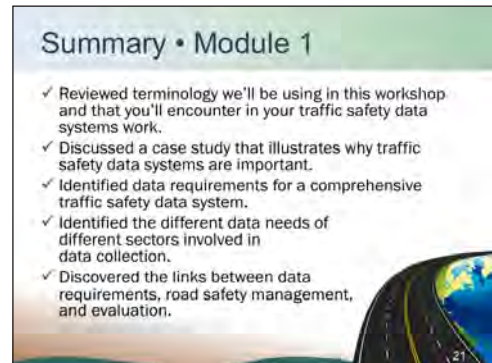
TRANSITION

Now that you know how important data systems are and what types of data different sectors typically produce, let's turn our focus to your own unique situation and find out what you were able to discover about the sectors and data in your jurisdiction or country.

Notes

2

CURRENT DATA SYSTEMS

Current Data System

**Lesson Time:
2 Hours**

Where Are You Now?

Show slide 22.
Ask participants to pull out the Questionnaire on Traffic Safety Data in Your Jurisdiction that they completed prior to the workshop.

Goal for Lesson 2

✓ Gain a firm understanding of where participants are at in their data systems improvement process.

**Time for Activity:
2 hour**

ACTIVITY • Questionnaire Review

Questionnaire on Traffic Safety Data in Your Jurisdiction

Instructions

1. Complete the questions to the best of your ability before attending your first workshop.

Please send the completed questionnaire to:

Name

E-mail

Phone

Date Due

2. Also bring a completed copy of the questionnaire to your workshops.

Questions

1. Which agencies in your jurisdiction collect the following data? Please list all agencies you are aware of.

Type of Data	Agencies that collect data	Not collected	Don't know
Road traffic fatalities			
Road traffic injuries (non-fatal)			
Damage-only crashes			
Licensed drivers and registered vehicles			
Condition of road network			
Road user behavior (helmet use, seatbelt use, drinking and driving)			
Travel patterns and journey type			

✓ We are going to review your questionnaires together. We know that you may not have been able to collect a lot of this information yet. But, thanks for giving it a try!

✓ Any information you didn't collect will become a task in your Situational Assessment Action Plan.

ASK
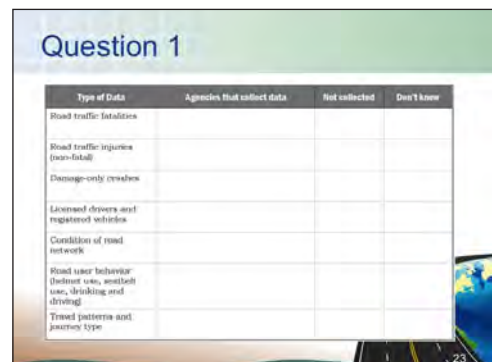
? **What was your experience completing this questionnaire?**

? **What challenges did you encounter?**

Acknowledge difficulties, and encourage participants who had a tough time by telling them that the planning in this workshop will help them return to their countries or jurisdictions ready to get to work.

QUESTION 1

Show slide 23.
We first asked you to try to find out who is the "keeper" of the data that makes up a comprehensive traffic safety data system.

Ask for a show of hands:

? **Was anyone able to find out the data sources for all of the items in this table?**

If Yes, ask that person(s) to explain his or her process for getting the answers. If no one was able to locate all of the data sources, find out who was able to complete the highest number and ask him or her to explain how s/he found the information.

QUESTION 2

Ask participants to come together in their home group for five minutes and share their responses for Question 2.

ASK

? **How similar are your group member's descriptions of your country's road traffic safety data system(s)?**
? **If the descriptions within your home group are not similar, what might account for the difference?**

Allow participants to share their thoughts, and then lead to these points.

✓ The perspective from within your own sector may tell a different story than another sector's.
✓ The work of the different sectors directly relates to road traffic safety, but they may not consider this work to be traffic safety work.

QUESTIONS 3 THROUGH 8

✓ These questions relate to whether any prior assessment of traffic safety data systems has been done within the participants' jurisdictions.

ASK

? **Has anyone answered "Yes" to question 3?**

Ask respondents to share what they know about existing assessments, using questions 4 through 8 as a guide.

Direct the following questions to those who answered "No" to question 3.

? **What are some reasons a prior assessment has not been performed?**
? **What does this mean for your upcoming work in assessing the system?**

QUESTIONS 9 THROUGH 13

✓ These questions ask about any cross–sector linkages that already exist in your jurisdiction.

ASK

? **Has anyone answered "Yes" to question 9—either one part or both parts?**

Ask respondents to share what they know about existing cross–sector linkages, using questions 9 through 13 as a guide.

Direct the following question to those who answered "No" to question 9.

? **What does this mean for your upcoming work in assessing the system?**

REMAINING QUESTIONS

✓ We will work with the remaining questions in the next lesson.

Summary

Show slide 24.

In this lesson, we:

✓ Reviewed your Questionnaire on Traffic Safety Data in Your Jurisdiction.

✓ Based on the responses to your questionnaires, we began to get a picture of the job ahead of us in our Situational Assessment.

Summary • Module 2

✓ In this lesson, we:
- Reviewed your Questionnaire on Traffic Safety Data in Your Jurisdiction.
- Based on the responses to your questionnaires, we began to get a picture of the job ahead of us in our Situational Assessment.
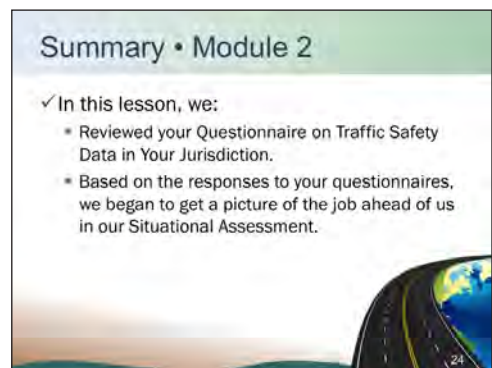
TRANSITION

Next, we're going to get more detail about traffic safety data systems! The next lesson takes apart the Data Systems Overview diagram we saw at the very beginning of this workshop. This detail view will further prepare us to return home and perform a Situational Assessment.

3

DATA SYSTEM COMPONENTS

Data System Components

Lesson Time: 30 minutes

These components are covered in detail on Day Two. This lesson is a quick overview of the components.

Overview and Goals for Lesson 3

Show slide 25.
The goal of this lesson is to define a traffic safety data system's components. These components are the foundational elements necessary to improve your traffic safety data system—your data system's building blocks.

Let's begin by reviewing the building block components of your traffic safety data system.

Component Overview

Show slide 26.
Use the notes that follow to describe each component and briefly review how they contribute to an effective traffic safety data system. Remind participants they may take notes in the Workbook, and that each component will be presented in detail later.
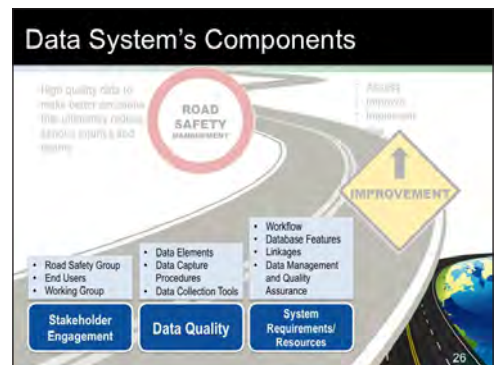
The three main data systems components include:
1. Stakeholder engagement
2. Data quality
3. Data systems requirements and resources

Stakeholder Engagement

Show slide 27.

✓ **Stakeholder engagement** provides an opportunity to interested parties to comment and contribute to the development and implementation of the traffic safety data system. Stakeholders may be:

- existing or potential consumers of road crash data, or
- end users of the data outputs
- employees
- suppliers or
- those who define policies or who have financial leverage.

✓ A successful engagement means that you foster meaningful and fair dialogue among the appropriate decision–makers and end users. The appropriate engagement will help ensure necessary agreement, ownership, support, and fortify long–term success.

Data Quality

Show slide 28.

Data quality is affected by the following main areas related to the data collection process:

✓ **Data elements** are the items you are counting. Data elements are variables your system will collect, such as crash location, road–user type, transport mode, etc.

✓ Standardizing data elements and definitions helps produce more reliable outputs and provides a common "language" to interpret the data. Establishing *minimum data elements* helps data creators and data consumers speak the same language. This alignment is critical to ensure *data integrity*.
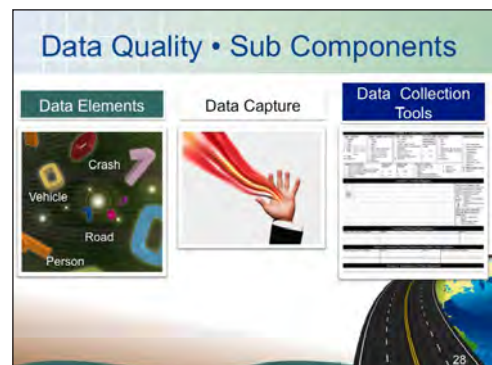
✓ **Data capture** involves the people who obtain the data, and includes the way data moves through the data system. Data capture is influenced by a variety of factors including definitions and classifications of deaths and injuries; reporting or underreporting; missing data; errors; the format of data, etc.

✓ **Data collection tools** are the ways people, devices, and the system capture information. Much of the world's road crash data collection is captured by hand—with paper forms. Standardizing data collection tools will help improve data quality.

Perform a quick activity. For each of the following items, ask participants to consider how each item might affect data quality. Capture responses on the white board or flip chart.

ASK

? **Law enforcement officers are each equipped with an accurate GIS (geographic information system) to use at the site of an auto crash.**

SUGGESTED ANSWER:

▪ Use of a reliable GIS reduces location errors such as misnaming streets, and recording incorrect mile markers or other location indicators at the scene of a crash. Human error is minimized when reliable equipment is used, improving data quality.

? **A reporting process where accident report forms are input to a database a month after the crash.**

SUGGESTED ANSWER:

▪ A delay between an event and recording the event increases the likelihood of error. If errors are found on the crash report form, it would be difficult for the reporter to recollect key facts so long after the actual event. Delays also affect the availability of data.

? **A process to correctly identify the make, model, and year of any vehicle involved in a crash.**

SUGGESTED ANSWER:
- Improving accuracy of collected data would have a positive impact on data quality.

Data Systems Requirements and Resources

Show slide 29 and expand on the points below.

✓ The data system and system performance includes people, processes, hardware, software, and necessary resources to be able to collect and manage road crash related information.

✓ The Systems Requirements/Resources building block has four sub components or major elements that comprise the data system and require resources. They are:
- **Workflow** describes how data moves through the system. During the Situational Assessment you will create a map to understand this data flow. Mapping the workflow is essential to understanding how data moves through the system and who is responsible at each step. Creating a clear map will allow you to better manage and evaluate the data system.
- **Database features.** A database is a collection of related data organized for storage, search, and retrieval. Databases can be paper–based or electronic. The structure or architecture of the database directly affects users' ability to search and retrieve records quickly, and the type and quality of analysis that you can perform. Your data collection system might have one or many databases.
  - It is important to seek assistance from an expert with up–to–date database creation and managment knowledge
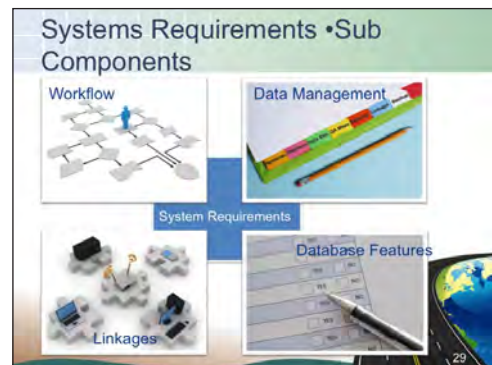
and experience. It is also important to secure on–going database support.

- **Linkages** refers to linked data streams and data systems. Functional linkages can be difficult to achieve for a variety of political and practical reasons.
- **Data management and quality assurance.** This sub component is your plan for how your team will improve its traffic safety data system and ensure that people and processes are working together to improve the data system.
  - Specific plan elements are listed on page 76 of the Manual.
  - A robust data back–up and security plan are essential to avoid accidental or malicious loss.
  - Your plan includes identifying trained staff available to work with the data system.

Page 76

Summary

Show slide 30 and summarize.

✓ In this lesson we introduced the building block components of a traffic safety data system.
✓ Understanding these core components will help you improve your data system
✓ An improved data system leads to effective road safety management and ultimately fewer road crash deaths and serious injuries.
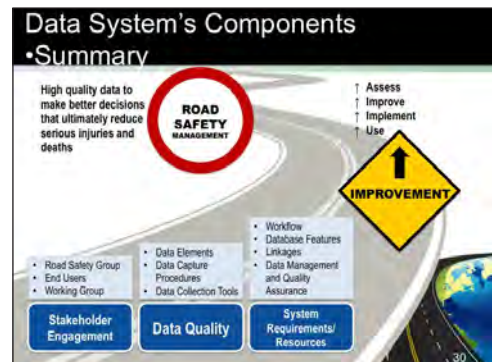
TRANSITION

We'll look at these data system's components even more closely in Day Two. But for now, let's turn our attention to the process to assess your current data situation as a first step to improving the traffic safety data system.

Notes

4

SITUATIONAL ASSESSEMENT

Situational Assessment

**Lesson Time:
3 hours**

Overview and Goal for Lesson 4

TIMING NOTE: Day 1 is most likely to conclude after completing Step One • Stakeholder Analysis. Read your audience to determine pacing. Briefly summarize before ending the day.

Show slide 31.
The goal of this lesson is to understand the Assessment Phase of the Improvement Process. We will review each step as you work through exercises, discussions, and a case study that will prepare you to conduct an actual assessment when you return to your jurisdiction or country.

What is the Situational Assessment?

Show slide 32.
✓ The goal of a well–planned and thorough assessment is to have a solid understanding of what portions of the data system are already available, and the limitations that exist.
✓ Objectives are to identify:
  ▪ *people and agencies* involved in the collection, processes and use of road safety data
  ▪ *data sources and system(s)* already in place, and their strengths and limitations

- the *needs of end users*
- *political factors* that will help or hinder the road safety data systems improvement process

Show slide 33 and explain main points below.

✓ There are four main steps in a Situational Assessment.

1. Define and assess stakeholders.
2. Assess data sources, data systems, and data quality.
3. Define and assess end users.
4. Assess the environment.

✓ The output of your Situational Assessment will be a written report of the current situation including recommendations to improve your traffic safety data system.

✓ The assessment phase is Phase 1 • Assess in your country's data system's improvement process.

Show slide 34 and explain the main points below.

✓ After you perform an assessment, you will be ready to begin the Improve Phase by defining your working group.

✓ In order to do so, you must define and get to know your larger stakeholder group.

✓ Understand that these phases are not strictly linear.

✓ However, for the purpose of learning and understanding the basic pathway towards data system improvement, we've defined them as such.

Step One • Stakeholder Analysis

Show slide 35 and explain main points below.

✓ The primary function of a stakeholder analysis is to identify the organizations and individuals who have an interest in the collection and/or use of road safety data.
✓ Consider potential partners who might initially oppose efforts to improve the data system.
✓ Stakeholders most involved with road safety data include:
  ▪ the police—the Law Enforcement sector
  ▪ health authorities—the Health sector
  ▪ transport bodies—the Transport sector
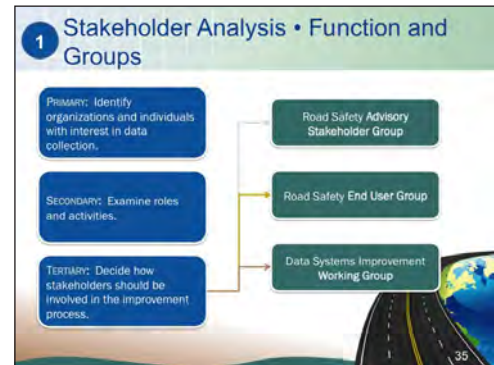
ASK

? *Within these sectors, who has the most relevance to road safety? (What are their roles/functions? We don't need names.)*

Allow volunteers to respond. Highlight the list below.

PRIMARY STAKEHOLDER GROUPS

✓ Traffic police who enforce traffic legislation and investigate road traffic crashes.
✓ Trauma specialists and other doctors who deal with those injured in road crashes, and epidemiologist/public health specialist in injury prevention.
✓ Transport and civil engineers who construct roads and who must remedy road defects and traffic pattern errors that contribute to road safety.

SECONDARY STAKEHOLDER GROUPS

Encourage participants to also consider these groups.

✓ Representatives of the national statistics office
✓ Insurance industry representatives

✓ Non–governmental organization working for road safety
✓ Academic institutions
✓ International donor agencies that fund road building and maintenance
✓ The automobile industry
✓ Media and policy–makers who might utilize or facilitate better road safety data systems.

A stakeholder analysis examines the roles and activities of all stakeholders. In your Stakeholder Analysis:
✓ Identify stakeholder influences and interests.
✓ Identify supporters and opponents. Understand the reasons for opposition so that you can develop solutions to satisfy as many stakeholders as possible.

ASK
? **Who has run into opposition thus far—working with stakeholders and developing your data system? How did you handle it?**
? **Why might some stakeholders oppose improvements to road safety data systems?**

Allow a couple of volunteers to respond.

Stakeholder Involvement
✓ The last function of the stakeholder analysis is to decide how stakeholders should be involved in the improvement process.
✓ They will fall into one of three groups:
  ▪ **Road Safety Advisory Stakeholder Group.** This group consists of advisors, consultants, and those with an interest in road safety management. Understand the nature of each person's participation and how they would like to be involved. Create follow up/advisement plans.
  ▪ **Road Safety End User Group.** This group is vital to data usability and must be involved and consulted upfront. Assessing End Users is step three in the Situational Assessment process.

- **Data Systems Improvement Working Group.** This group is the group that will assist you with data system improvement. They are the stakeholders who will collectively define the goal(s) for the traffic safety data system, create the plan, and mobilize to implement and monitor the plan results.

✓ The results of your Situational Assessment will give you a clear picture of who your potential partners and opponents are, who your end users are, and who your working group will be.

Sample Stakeholder Analysis

Refer participants to the Case Study. Find the Stakeholder Analysis table beginning on the third page of the case study.

Emphasize that this is a fictitious example.

The example summarizes the output of Stakeholder Analysis into a table for easy reference.

Review the table together with the class.

ASK
? **What do you like about this Stakeholder Analysis?**
? **What would you do to change or improve this table for your own use?**

ACTIVITY • Stakeholder Analysis

Goals for activity:
✓ To begin to define stakeholder groups.
✓ To create a working plan for this assessment step.

Activity Time: 30 minutes

INSTRUCTIONS

1. Direct participants to the Stakeholder Analysis page in the Workbook.
2. Ask participants to work in their home groups and complete the questions in the Workbook. Allow 10–15 minutes.
   - **? Identify all stakeholders in law enforcement, transport, and health sectors.**
   - **? Identify other types of stakeholders (insurance, NGO's, academic institutions, automobile industry).**
   - **? Identify the activities and roles of each stakeholder in relation to road safety data.**
   - **? Identify the stakeholders who will be key supporters or opponents.**
   - **? Describe your first meeting. Who's there? What is the agenda? What is the meeting goal?**
   - **? If you are unable to craft complete lists above, what will you need to do to fully identify all stakeholders, roles, and positions?**

Discuss the Activity

ASK

? **What obstacles do you predict when identifying and recruiting stakeholders? How will you address them?**

TRANSITION

You should have at least a few critical Action Items listed from this exercise. We will continue to gather "to dos" throughout this lesson, so when you leave you will have a draft Action Plan to begin your Situational Assessment.

The next step is to assess data sources, systems, and quality. Let's examine each aspect one by one.

Step Two • Assess Data Sources, Systems, and Quality

Show slide 36.
- ✓ It is important to know what information is already collected and by whom.
- ✓ You also will want to know how that data is currently managed and the jurisdictional span of the data.
- ✓ Finally, you'll want to assess the data quality for each source and sector to ensure high quality data input and ultimately, reliable data outputs that lead to effective road safety management.
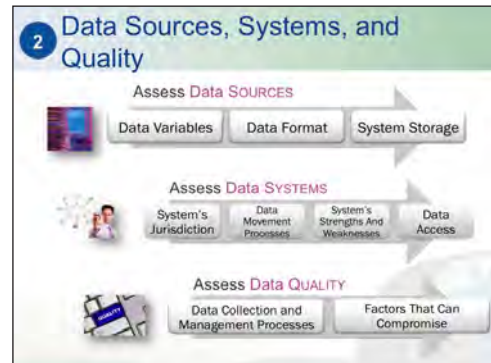
Assess Data Sources
- ✓ Different institutions collect information about the same road crash using various techniques.
- ✓ There may or may not already be mechanisms in place to aggregate these data within or across sectors.
- ✓ Rarely will one person, or even one agency, be able to answer all the questions in this step.
- ✓ Your Working Stakeholder Group will help you execute the Situational Assessment—especially, this step.
- ✓ Your first step will be to identify existing sources that collect road traffic injury data.
- ✓ For each source describe:
  - ▪ The information or variables that are collected
  - ▪ The data format (hard copy, electronic records, etc.)
  - ▪ The system used to store the data (e.g. filing cabinets, paper reports, databases, etc.) and process the data (e.g. tallies by hand, computerized analysis)
- ✓ Each source will have its own strengths and limitations.

Case Study • Assess Data Sources

Refer participants once again to the Boldonia Case Study. Refer to the table titled Data Type Mapped to Source, System, and End–User (Page 5 of the case study).

EXPLAIN: While this table does not represent a complete assessment of data sources, as a summary table it presents a great framework for putting an assessment of data sources together.

Allow the class a few minutes to review the table, then facilitate a brief discussion using the questions below.

ASK

? **What is useful about this format?**

Accept all logical observations based on the table information.

? **How might your own report vary from this format?**

Accept all logical observations based on the table information.

? **How is the format of data sources listed in this table?**

SUGGESTED ANSWER:

- ▪ The data format is not called out specifically in this table. When doing your own complete data source assessment, you'll want to be sure you capture the data format.
? **Based on this data source summary, which data sources may require the most effort to include in a traffic safety data system?**

Accept all logical observations based on the table information.

ACTIVITY • Assess Data Sources

Goals for activity:
✓ To begin to think through how to assess data sources.
✓ To create a working plan to begin the assessment step.

Activity Time: 20 minutes

Page 26, Table 2.1

INSTRUCTIONS

1. Direct participants to the Assess Data Sources page in the Workbook.
2. **EXPLAIN:** In your home group, review the Key Sources of Road Traffic Injury Data table on page 26, Table 2.1 of the Manual.
    ▪ Use this list of sources and sectors to begin to populate the table in your workbook (as best you can, based on your current point of view).
    ▪ Complete the Action Items list and document the tasks that must be executed to complete this assessment step in your jurisdiction or country.
3. Discuss the activity with the large group.

Discuss the Activity

ASK
? **What types of action items did you list?**
? **Do you foresee any barriers to complete your plan? What are ideas to overcome these barriers?**
? **Who else must be involved to complete this assessment step?**

Assess Data Systems
✓ If electronic records exist for police records, injury surveillance, or hospital data and vital registration information, your next step is to describe the characteristics of those systems.
✓ Begin with national level systems.
✓ The objectives are to understand:
    ▪ the jurisdiction of the system
    ▪ the process by which data moves through the system
    ▪ the system's strengths and weaknesses

- data accessibility
✓ You can gain a better understanding of these systems and their requirements by focusing on reporting requirements—both for police and health workers.
✓ Have discussions with data collectors, data managers, and data users about the strengths and limitations of traffic safety data systems.
✓ It is possible that you may encounter problems accessing data.
✓ Agencies that collect data may be reluctant to release information due to privacy concerns, fear of compromising clients' interests, fear of loss of control, or fear that their performance will be judged.

ASK
? **Has anyone encountered this kind of challenge?**
? **How did you discover the "real" issues?**
? **How did you manage the challenge? Were you able to obtain access?**

ACTIVITY • Assess Data Systems
Goals for activity:
✓ To begin to think through how to assess data systems.
✓ To create a working plan to begin the assessment step.

Activity Time: 20 minutes

Page 28, Box 2.3

INSTRUCTIONS
1. Give the following instructions to participants:
   - In your home group, discuss which data systems need to be assessed.
     - Choose one system when answering the questions in the Workbook.
   - Read the Checklist to Assess Data Systems on page 28, Box 2.3 of the Manual.
   - Discuss these questions with your group.
   - Determine what needs to happen to complete this checklist and fully assess each data system. Populate your Action Item list.

- When you are finished, we will discuss the activity with the large group.

Discuss the Activity

ASK
? **What kinds of action items did you list?**
? **Do you foresee any barriers to complete your plan? What are ideas to overcome these barriers?**
? **What other people, resources, or political will is necessary?**

Assess Data Quality
✓ In the next session, we'll break down the kinds of Quality issues that are important to understand when you go back home and perform the Situational Assessment.
- For now, focus on your assessment plan and how you will discover quality related issues.
✓ In the Assessment Phase, you will examine these elements.
✓ You will also assess the degree to which each data source is representative of all incidents and the reliability of the recorded data.

Page 29, Box 2.4

Refer participants to the Data Systems Manual, page 29, Box 2.4. Review the items in the checklist together with the class.

As you can see from this checklist, assessing data quality can be a big job. You and your working group must undertake this work with tact and cooperation. Stakeholders whose systems or processes are found to be in need of improvement will need to be handled with care. This is one reason building good relationships with stakeholders is so important.

ASK
? **What will you do if definitions (such as definitions for "road traffic crashes" and "road traffic fatality") differ between sectors in your jurisdiction?**

? **What kind of permission or approval is needed to begin to assess data quality for each source and sector?**

? **What type of expertise is needed for data quality assessment? What are your resources for this type of expertise?**

Encourage participants to capture action items in the Workbook during or after this discussion.

Case Study
Refer participants to the Data Sources, System and Quality • Step 2 section of the case study. Allow a few moments for them to read through that section.

ASK
? **What did the Boldonian team do to assess data quality?**

SUGGESTED ANSWERS:
- They compared five different crash data collection tools to find the common variables among all five forms.
- They compared crash data collection forms against the relevant crash report for accuracy and completeness.

? **What did the Boldonian team discover after this test of data quality?**

SUGGESTED ANSWER:
- Data forms were not well–completed.

? **What does the Boldonian team need to do to improve data quality?**

Accept and discuss all logical answers.

Exposure Data
✓ Remember that exposure data is critical for analysis and interpretation of the road safety situation.
✓ When performing the Situational Assessment, consider exposure data. These data are rarely simple to collect.

Page 38, Table 2.3

✓ Refer to Transport–Related Data Elements on page 38 of the Data Systems Manual.

TRANSITION

Assessing data sources, systems, and quality is a big job. It could take several months. A consultant paid to focus on this analysis will be able to complete it in a shorter timeframe than if you have to conduct the assessment along with your usual work.

The next assessment step is to assess your end users.

Step Three • Assess End Users

Show slide 37 and explain points below.

✓ An end user assessment is important to conduct on the front–end of the improvement process.
✓ A clear understanding of your user's needs will enhance the road safety community's use of the data system.
✓ There are many users and suppliers of road safety information. An end user assessment is important to:
  ▪ understand the composition and diversity of users;
  ▪ understand the kind of information end users want and expect from their data system;
  ▪ determine required financial and human resources, and request and mobilize these resources;
  ▪ make better use of available financial and human resources;
  ▪ design a user–centered data system that adequately meets end users' needs.
  ▪ When you perform the end user assessment, it will reveal:
  ▪ who the users are;
  ▪ circumstances or situations that lead them to require road safety information;

- the type of information different users require and expect from a data system;
- sources of information the users currently use;
- preferred format in which users prefer to access information;
- factors that affect or determine their access to, and use of, road safety information.

ASK

? **What are some ideas for how you will gather information about end user's needs?**

Acknowledge responses and transition to the next activity.

ACTIVITY • Assess End User's Needs

Goals for activity:
✓ To begin to think through how to assess end user's needs.
✓ To create a working plan to begin this assessment step.

**Activity Time:
20 minutes**

Pages 39 and 40

INSTRUCTIONS

1. Refer to the list on pages 39 – 40 in the Data Systems Manual.
2. Using this list, ask home groups to brainstorm their plan to gather information about end user's needs. Instruct them to document their Action Items in the Workbook.
3. Discuss the activity with the large group.

Discuss the Activity

ASK

? **Who are your end users?**
? **How do their needs differ? How are they the same?**
? **Does your approach differ by sector or end user group?**
? **Do you foresee any barriers to access to end users?**
? **What kinds of Action Items did you capture?**

TRANSITION

Assessing end users' needs is a critical step in the Improvement process. The last assessment step is to assess the environment.

Step Four • Analyze the Environment

Show slide 38 and explain the points below.

✓ Road safety is often the responsibility of the highway or transport authority or ministry, or a national road safety council.
✓ These bodies are often responsible for monitoring road safety and improving road safety conditions.
✓ As part of your traffic safety data systems improvement project, you'll want to ensure that these bodies collaborate with police.
✓ Crash data collection is primarily the responsibility of police.
✓ The responsibilities and priorities of police can conflict with the need to collect road crash data.
✓ Dialogue and collaboration between data generators and data collectors of road safety data and the end users of this data are required to improve the data system.
✓ Without this kind of collaboration, it is unlikely that improvements to the data system will succeed.
✓ The political environment may help or hinder improvement efforts.
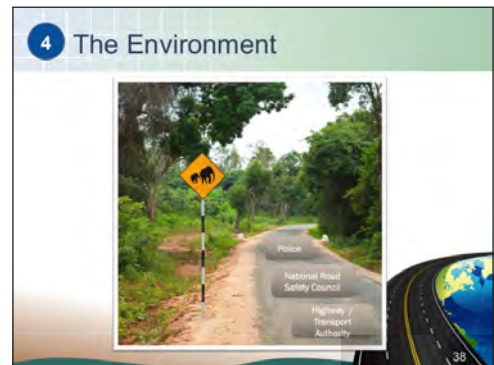
ACTIVITY • Analyze the Environment

Goals for activity:
✓ To begin to think through how to assess the political environment.
✓ To create a working plan to begin this assessment step.

**Activity Time:
20 minutes**

Page 40, Box 2.7

For additional tools consult the World Bank Global Road Safety Facility guildelines.

INSTRUCTIONS

1. Instruct home groups to read and discuss the questions in Box 2.7 on the bottom of page 40 in the Data Systems Manual. Allow 10 minutes.
2. Instruct individuals to complete their Action Items list.
3. Discuss the activity with the large group.

Discuss the Activity

ASK

? **Is there political will in your jurisdiction/country to improve the data system?**
? **Who are your closest advocates and allies? How can they help or support?**
? **What did you identify as the drivers for change?**
? **How can you build on those drivers?**

Boldonia Case Study

INSTRUCTIONS

1. Ask participants to work in their home groups.
2. Direct groups to read the full Boldonia case study.
3. Give the following directions.
   ▪ Using the case study as an example—and thinking about your own Situational Assessment—compare the case to your own case. What's different, what is the same?
   ▪ Go back to your Action Items in the Workbook. Is there anything you would like to add?

TRANSITION

The Situational Assessment will likely not follow a linear step by step process. Once you have assessed the current situation and identified gaps in data–gathering systems you will determine the resources needed to improve the data system.

The results of the Situational Assessment should provide a clear understanding of the stakeholders that will be involved. You will

then be able to establish your Stakeholder Working Group and begin to define your Data Systems Improvement goals and plan.

In the next session, we will address improvement strategies.

Summary

Show slide 39 and summarize.
✓ In this lesson we worked through the Situational Assessment steps.

Review the steps on the slide.
✓ Data systems that can accurately count injuries and fatalities, reliably provide information to identify road–users at risk, and identify hazardous locations require an investment of funds, resources, and time.
✓ It may take years to build this kind of system.
✓ Through your discussions in the workshop, you should have a better idea of what your situation will require.
✓ Remember to set your goals realistically.
✓ You may have discovered that there are only bits and pieces of a data available and no real system in place.
✓ In this case, you can develop an intermediate plan based on your list of Action Items derived throughout this workshop.
✓ Work to lay the groundwork and convene a working stakeholder group to begin.
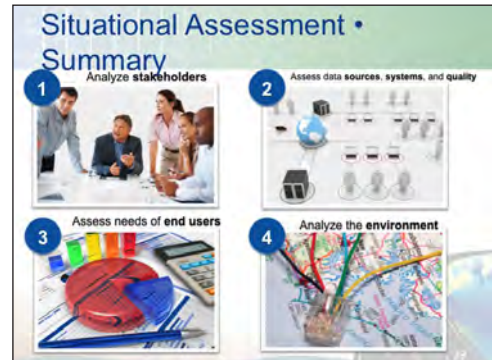
Ask the class to take 10 minutes to individually summarize their Action Items/Take–Aways in the Workbook.

TRANSITION
Next, we'll summarize and prepare for the following sessions.

Notes

5

REVIEW AND VISION

Review and Vision

Lesson Time:
45 minutes

Mid–Workshop Overview and Goals

The purpose of the next group of lessons is to break down the data system's core components to better understand effective improvement strategies for your unique data system. We'll use the Boldonia Case Study to help you apply your new knowledge and compare improvement strategies to your own jurisdiction or country.

The workshop will end with a brief discussion of "what's next" to make sure you have adequate support and enough of an action plan in place so that you leave this workshop ready to improve your traffic safety data system!

Mid–Workshop Review

Show slide 40.
Before going further, let's take a moment and review the core concepts thus far.

TRANSITION

Before we go further, and examine data system's components, let's recap what you've learned so far.

Goal for Lesson 5

Review the goals. Lead into the activity below.
✓ To integrate knowledge from the first part of the workshop.
✓ To help participants form a vision for the work ahead.

Activity Time: 15 minutes

Click the slide to advance the animation.

ACTIVITY • Review

Goal for activity:
✓ To allow participants to reflect on their experiences and to help the entire group summarize workshop content thus far.

Show slide 41 and briefly recap.
✓ **These fundamental components** allow you to design a successful traffic data system—Stakeholder Engagement, Data Quality, and Systems Requirements/ Resources.

✓ Your job is to figure out how to best **improve** the traffic safety data system in your country/jurisdiction.

✓ An improved data system will move you further along the path towards effective **Road Safety Management.**

✓ Your improved data system will then **generate high quality data** which in turn, will help you and your team make better decisions that will ultimately reduce serious injuries and deaths—this is the ultimate goal!

Show slide 42 and continue to recap.
✓ This slide shows an overview of the Data Systems Improvement Process.

✓ By now, you've crafted a draft plan to carry out a Situational Assessment—Phase 1.
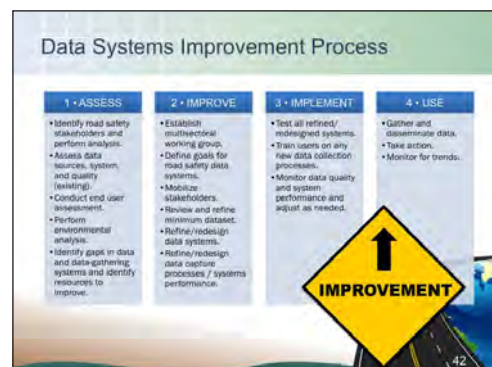
INSTRUCTIONS
1. Ask participants to turn to the Lesson 5 Review Activity in the Workbook.
2. **EXPLAIN:** A colleague from another country wants to attend this workshop. Capture 3 – 10 things you learned from this workshop thus far that you would share with your colleague.

3. Allow five minutes for participants to write in the Workbook.

Discuss the Activity

Ask each participant to briefly share the points s/he captured.

Capture a list of summary points on a flip chart or whiteboard.

Encourage participants to capture take–aways in the Workbook.

TRANSITION

Next, we'll do an exercise that will help you link and sustain the work you do in this workshop with the work you will do back on the job.

Visioning

ACTIVITY • Our Vision

A non–lead agency may have a different vision from a lead agency. Whatever the vision, it is important for each agency to establish a "vision within a vision" to enable each leader to personalize his/her work and to inspire action.

Activity Time: 25 minutes

Goals for activity:
✓ To help agencies develop a collective vision for their agency and their unique work.
✓ To prepare participants for the work ahead.
✓ To integrate learning.

INSTRUCTIONS
1. Divide the group into home groups or small groups with their agency leadership.
2. Explain the following to participants.
   ▪ All leaders must have a vision. When working with multiple agencies and stakeholders, it is essential for each leader,

who may be somewhere in the middle, to have a concrete vision that fits into the larger vision or goal.

- Sometimes people "in the middle," even though they lead others, feel that they have no authority to have their own vision. Each of us has a vision, whether you think about it or not. This unspoken vision is then communicated to others.
- In this activity, you will have the opportunity to co–create a vision for your agency, with respect to the data systems improvement project, with the intended messages you wish to communicate.
- A clear, well articulated vision is a powerful tool that will help keep all people motivated and inspired towards action.

3. Ask participants to begin the activity by reflecting on the content thus far. Ask them to begin by individually reflecting on the questions in the Workbook.

- Page back through your notes and Action Items for the Situational Assessment and reflect on the work that will need to be done to accomplish your goals.
- Individually answer the questions in the Workbook. Allow about 10 minutes.
  - What do you see? How does it look and feel?
  - What does it look/feel like to your customers or end–users?
  - What does your agency provide? What's special about this?
  - What does success look like?
- Without spending a lot of time thinking, use your imagination to jot down the first thoughts (and feelings, sensations) that come.
- When each person is complete, discuss your response with your small group. Allow about 10 minutes for small group sharing.
- What emerges? What's common to each person's sharing? Is there anything that stands out?

4. Discuss the activity with the questions below.

Discuss the Activity

ASK
? **Did anything unexpected emerge?**
? **What did you discover that was of value?**
? **How will you use this vision as you move the project forward?**

TRANSITION
✓ With the beginnings of a plan to enact your Situational Assessment, and an emerging agency vision in mind, let's turn our attention towards strategies for improvement.

Notes

6

STRATEGIES FOR IMPROVEMENT

Strategies for Improvement

Overview and Goals for Lesson 6

**Lesson Time:
5.5 hours**

Show slide 43.
The goal of this lesson is to clearly understand the data system's components. Then, you will use a case study to develop strategies to improve a traffic safety data system.

TIMING NOTE: Day 2 is predicted to conclude after completing the section on Data Elements. Read your audience to determine pacing. Briefly summarize before ending the day.

TRANSITION
Let's begin by reviewing the "building block" components of the data system.

Component Overview

Show slide 44.
Use the questions below to get participants thinking and engaged in a dialogue. Validate responses. Use participant input to transition to the next section.
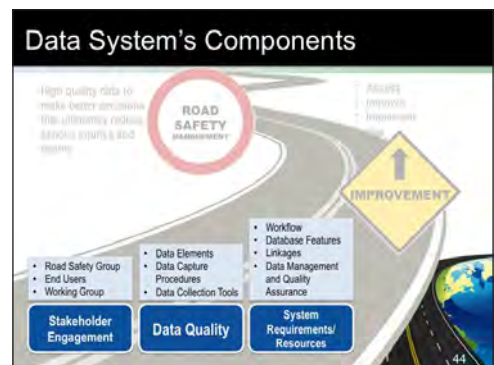
ASK
? **What is Stakeholder Engagement? Why is it important?**
? **What factors affect Data Quality?**
? **How does your minimum dataset relate to data quality?**
? **What sub components are included in Systems Requirements/Resources?**

Perform a quick activity. Allow five minutes for discussion.

Ask the class to discuss the following questions with a partner:
? **How are the Data Requirements/Resource sub components related? How do they influence one another?**

Ask volunteers for their responses. Validate responses.

TRANSITION

Good thinking, everyone! Now, we will break down the data system's components one by one.

In Day One, you learned how to analyze your stakeholder constituency. You identified three distinct groups of stakeholders. In this lesson, you will discover the conditions necessary to engage those stakeholders. You will learn tips to promote stakeholder participation, think about your approach to involve stakeholders, and define the things you will prepare to begin the stakeholder engagement process.

Stakeholder Engagement

Show slide 45. Explain the following.

- ✓ Stakeholder engagement is a foundational building block for improving your traffic safety data system. Effective stakeholder engagement is key to your success!
- ✓ When you engage stakeholders you form a critical feedback loop that connects the data system to the data users—those who use the data outputs.
- ✓ As you discovered in the Situational Assessment lesson, getting the right people involved at the right time will be important to your success.
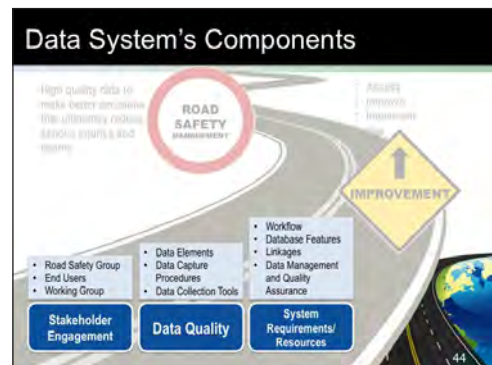
✓ Ideally, you want to connect as many appropriate stakeholders as possible at the appropriate stages of your work.

Show slide 46. Explain the main points below.

✓ This is the Data Systems Improvement Process again with critical stakeholder involvement junctures highlighted in red.

✓ Although stakeholder involvement is important throughout the process, you can see from this diagram that it is critical on the front end of the improvement process.

✓ The highlighted steps have been shown to be important stakeholder participation points for building and improving a robust traffic safety data system.

1. In the **Assess Phase–**
   ▪ Identify and gather information about your main ***stakeholder group***—those who have an interest in data collection and/or the use of road safety data. This group is your Road Safety Advisory Stakeholder Group.
   ▪ Identify and assess the needs of ***end users***—the road safety community who will use the data outputs—the Road Safety End User Group.

2. In the **Improve Phase–**
   ▪ The ***multisectoral group*** of stakeholders may be different from the original group. This group is your Data Systems Improvement Working Group—the team that will help you improve and fortify your data collection system.
   ▪ Use this working group to define the goals for the road safety data system, choose, and chart out a course of action.

✓ Your goal when engaging stakeholders is to ensure overall project coordination, commitment, and reliability of the data collection system.

✓ Once the goals and direction are clear, you will need to *mobilize these stakeholders into action.*

✓ You may find other stakeholder touch points necessary throughout the data systems improvement process.

TRANSITION

In the Situational Assessment lesson, you discovered how to identify and gain information about the agencies, organizations or individuals that may have a stake in your traffic safety data system. Now, let's find out more about the conditions necessary to engage those stakeholders and promote participation.

Gaining Stakeholder Engagement

Explain the points below.
✓ Stakeholder engagement is an on–going and managed process.
✓ It requires careful planning, thorough reporting, and development of relationships.
✓ When stakeholders are engaged, and each person is able to contribute, you are better able to identify potential risks and opportunities that can affect your shared goals.

ASK
? **What are some ways you've been successful in the past when engaging stakeholders?**
? **What does "meaningful" engagement mean to you?**

Allow volunteers to respond. Gather responses on a flip chart to refer to throughout the activity. Use the responses to transition to the next activity.

TRANSITION

Let's take your keen experience and draw it forward into the next activity.

![wheel icon]

**Activity Time:
45 minutes**

![notebook icon]

ACTIVITY • Define Conditions and Characteristics of Engagement

Goal for activity:
✓ Participants draw from their own experience to define conditions and characteristics that meaningfully engage stakeholders in their unique environment and culture.

Show slide 47 to reinforce instructions.

INSTRUCTIONS
1. Divide participants into their home groups.
2. **EXPLAIN:** Take 5–10 minutes to answer the first two questions in the Workbook on your own. When complete, take 5–10 minutes to share your responses with your home group (question three below).
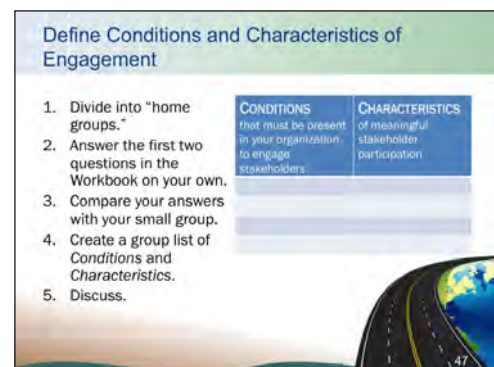
WORKBOOK QUESTIONS
? **Bring to mind a specific project where you or someone you worked with successfully brought the right people together to accomplish a goal. What conditions in your own organization or the general environment were present to enable the right people to show up, participate, and add value?**
? **Thinking about this same project, what things did you or someone else do that helped foster stakeholder contribution?**
? **Compare your responses with your home group. What's the same? What's different? What did you learn?**
3. **EXPLAIN:** On the following page in the Workbook, take another 5–10 minutes with your home group to create a list

of the conditions that must be present in your organization to engage stakeholders effectively and the characteristics of meaningful stakeholder participation.

4. Define *Conditions* and *Characteristics* for participants.

   ▪ *Conditions* are the necessary organizational and environmental factors that must be present to engage stakeholders. For example, *agency support*. What does support in your environment look like?

   ▪ *Characteristics* of meaningful participation are the more subtle aspects of communication technique that allow for each person to share his/her point of view in an atmosphere of trust and safety so that the group benefits from the total group wisdom. For example, *foster a two–way dialogue* that allows people to participate fully.

5. While participants work, monitor for timing, move them along, and prepare a flip–chart page with two columns: one labeled "Conditions to Create" and the other labeled "Characteristics that Engage."

6. When the class completes their discussions in their home groups, ask them to report their results to the large group.

7. Populate the flip–chart with appropriate items in each column. Differentiate, as much as possible, *Conditions* from *Characteristics.* (See example below).

8. Take 10 minutes to discuss results within the large group.

EXAMPLE RESPONSES

CONDITIONS TO CREATE	CHARACTERISTICS THAT ENGAGE
✓ Institutional support ✓ Internal departmental alignment—clarity on roles and desired outcomes ✓ Have a (written) stakeholder engagement plan and identify all the relevant stakeholders ✓ An appropriate "tone" and role from top leadership. Understanding of how top leadership will be involved. ✓ Know how your own organizational culture may impact engagement. Identify the enablers and barriers to stakeholder engagement activities. ✓ Establish a review or "touch back" process.	✓ Establish common values and vision ✓ Engage in two–way dialogue so that both sides have the opportunity to exchange views and information, to listen, and address issues ✓ Foster long–term commitment ✓ Consider how to engage and encourage all viewpoints to achieve a fair representation. For example, gender may play a role in certain cultures. ✓ Show appreciation of the stakeholder contribution. ✓ Use culturally appropriate techniques. ✓ Develop a mood of trust—demonstrate an understanding of different viewpoints and motivators. ✓ Evoke motivation transparency from the organization and the stakeholders. Articulating motivation, even if differing, can help close the gap.

Discuss the Activity

ASK
? **What are the key conditions your organization must have in place to gain commitment from stakeholders?**
? **What will you/your organization need to prepare to work with stakeholders?**
? **What will you need to do to make sure that stakeholders are engaged and that all points of view are included in the discussions?**

DISCUSSION POINTS

Acknowledge all relevant responses. Highlight the points below.

✓ Engage stakeholders early in the process.

✓ Listen. Ask how they want to talk to you. Consider appointing stakeholder managers.

✓ Make sure there is two–way dialogue.

✓ Find out how much influence they have with your target audiences.

✓ Remember they may have a different agenda. Always define mutual objectives and highlight common goals.

✓ Communicate appropriately, relevantly, and demonstrate appreciation.

✓ Don't forget stakeholders may talk to each other more than to you. Keep your story straight and your offer transparent.

✓ Don't treat stakeholder relationships as a onetime event— communication at the start of a project. Keep them informed and involved all along.

✓ Allocate energy and attention to developing positive relationships—building trust–based relationships takes time, effort, and attention!

Encourage participants to record Take–Aways or Action Items on **the Stakeholder Engagement • My Take–Aways/ Action Items** *page in the Workbook.*

TRANSITION

I hope this discussion got you thinking about your approach to engaging stakeholders and the kinds of things you'll want to prepare when you go back home to your organizations. Now let's return to another data system building block, *Data Quality.*

Data Quality

Show slide 48.
Explain the following.
- ✓ Data Quality is the second fundamental building block of the traffic safety data system.
- ✓ Ensuring high–quality data is your goal.

- ✓ "Garbage in, garbage out" is a coined American pun on another phrase: First In, First Out (FIFO), which describes a queue processing technique.
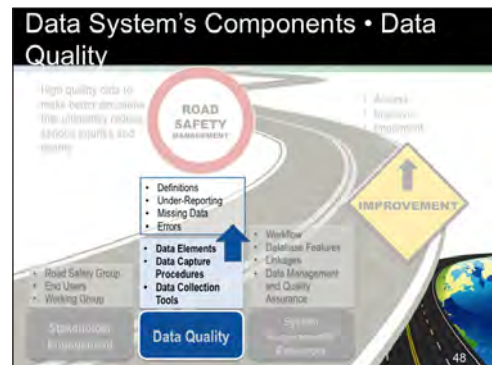
ASK
? **How does this phrase relate to data quality?**
- ✓ A phrase in the field of information technology, it calls attention to the fact that computers will unquestioningly process the most nonsensical of input data ("garbage in") and produce nonsensical output ("garbage out").
- ✓ Reliable data output requires quality data input.
- ✓ Data quality is affected by the data collection and management process. There are three areas related to the data collection process that can affect quality:
  - Data elements
  - Data capture procedures
  - Data collection tools
- ✓ High quality data means that your system's data is accurate, representative, comprehensive, and that data variables are uniformly understood by data creators and data consumers.

ASK
? **What can compromise the data coming into the system?**
- ✓ Factors that can compromise data quality include:
  - definitions
  - under–reporting
  - missing data
  - errors
- ✓ You want to examine these factors in depth in your Situational Assessment, ideally, for each data source and sector.

TRANSITION

Let's look at each of these factors one by one and examine the potential pitfalls that can lead to reduced data collection quality.

Factors That Can Compromise Data Quality

Definitions

Show slide 49.

ASK

?   **What challenge does this woman have?**

✓   Many of you who speak English as a Second Language (ESL) can relate to this slide!

Acknowledge responses and lead to the following points.

✓   Definitions can compromise data quality when events are inconsistently included or excluded from the data system or are classified in different ways.

✓   Think of your data, inputs and outputs as a language.

✓   In order for data to be meaningful, data creators and data consumers must understand the same language.

✓   Standardized definitions of road crashes and definitions that classify injury and crash severity the same way will help ensure high quality data.

✓   Recommended definitions of road crashes and fatalities are listed on pages 30 and 31 of the Manual.

✓   A clear definition and illustration of the relationship between injury severity and crash severity is on page 33 of the Manual.

Pages 137–138

ACTIVITY • Think About Data Definitions

Goal for activity:

✓   Get participants thinking about definitions of data for their unique traffic data systems.

Activity Time: 30 minutes

INSTRUCTIONS

1. Direct participants to the Think About Data Definitions page in the Workbook.

2. Ask participants to review the definitions of "road traffic/crash accident" in the Manual on page 30 and "road traffic fatality" on page 31, and the table on page 33.

3. **EXPLAIN:** Compare your country or jurisdiction's definitions with definitions in the Manual.

    ▪ Use your pre–workshop questionnaire—the questions related to definitions (Questions 14 and15).

4. Direct them to answer the questions in the Workbook (shown below) with their home group.

    ? **What events are excluded by the definition of road traffic crash, and what kind of bias does this omission create?**

    ? **Has anyone estimated the number of crashes that are excluded from the data because of the definition?**

    ? **Are police required to judge injury severity?**

    ? **Does injury severity get assessed at the crash scene only, or through follow–up with the victim and health services?**

    ? **Are the definitions for injury severity straightforward enough for police officers to understand and apply them? If not, are adjustment factors applied so numbers can be compared?**

    ? **Do police receive training to determine injury severity?**

    ? **Has someone made comparisons with hospital data to evaluate the accuracy of the policy reported injury severity?**

    ? **Are the definitions used by the various sectors matched so that everyone understands the definitions the same way? If not, are adjustment factors applied so numbers can be compared?**

    ? **Is there an opportunity to create uniform understanding? How?**

5. Discuss the activity with the large group.

Discuss the Activity

If participants did not get a chance to complete the exercise in the time allowed, recommend they plan a follow up session with their home group.

ASK

? **What did you learn?**
? **What definitions need to be refined?**
? **What obvious action items came from the discussion?**

Encourage participants to record Take–Aways or Action Items on the Data Quality – Definitions • My Take–Aways/Action Items page in the Workbook.

TRANSITION

You can begin to see how commonly understood definitions of data variables are critical to high quality data. These definitions must be understood by both data creators and data users—in the *same way!* The best way to reach common understanding is to get people into a room to discuss and agree. Now let's look at another factor that has the potential to affect data quality.

Under–Reporting

Show slide 50.

ASK

? **In the law enforcement sector, what are a few ways you can imagine data gets under–reported?**

Validate responses. Use them to transition to the following points. Explain:
✓ Under–reporting refers to the situation where some crashes and injuries are not documented in the data system.
✓ Under–reporting problems exist, especially as the crash and injury severity lessen.

✓ When you do the Situational Assessment and assess data quality, you will want to look for areas where data is under–reported with a goal to eliminate, as much as possible, the under–reporting.

✓ Reporting more robustly will improve your data quality and help provide the best snapshot of road crash situation.

✓ There are several typical areas where under–reporting can happen.

- Under–reporting in police data
- Inaccurate reporting rates of road traffic deaths in vital statistics
- Under–reporting of road traffic injuries in heath facility data

TRANSITION

Let's do an activity that will help you better understand the potential obstacles that can lead to under–reporting.

ACTIVITY • Think About Under–Reporting

Goal for activity:

✓ To synthesize information, report the factors that can cause under–reporting, and identify potential obstacles that can lead to under–reporting in a particular sector.

Activity Time: 30 minutes

Pages 33–37

INSTRUCTIONS

1. Create small groups of 3–4 people with similar sector expertise.
2. Assign each group a sector that matches their experience. Depending on the number of participants and expertise in the room, there may be more than one group in each sector. Represent each sector.
   - Police sector. (Include participants from the Transport sector in this group, as appropriate.)
   - National Statistics Office. (The Health sector representatives may have experience in this sector.)
   - Health sector.
3. Refer to pages 33–37 of the Manual.

4. **EXPLAIN:**
   - In your small group, read the section that lists factors contributing to under–reporting in your sector.
   - Summarize and discuss these factors. Add examples, if you have them, based on your own experience of obstacles that have contributed to under–reporting in your sector.
   - Use the questions in the Workbook to gather your ideas and to prepare a summary for the larger group.

WORKBOOK QUESTIONS

? **What are the factors that contribute to under–reporting in your sector?**

? **What obstacles contribute to under–reporting?**

? **How can these obstacles be overcome? What are some ideas for overcoming these obstacles?**

? **What linkages, resources, communicating, or training would help to alleviate under–reporting in your sector?**

5. Ask each group to present their summary.
6. Use the questions below to guide the large group discussion.

Discuss the Activity

ASK

? **What did you learn?**

? **What common obstacles or barriers did you discover?**

? **What strategies did you discover to overcome these obstacles?**

? **When you conduct the Situational Assessment, how will you identify under–reporting?**

Encourage participants to record Take–Aways or Action Items on the Data Quality: Under–Reporting • My Take–Aways/Action Items *page in the Workbook.*

TRANSITION

Understanding the potential barriers that lead to under–reporting will help you work with your stakeholders to address the obstacles to under–reporting. The Situational Assessment will highlight places where under–reporting may be occurring. An

upfront sense of potential barriers will enable you to focus on solutions that help avoid and/or minimize under–reporting in the traffic safety data collections system.

Missing data is another potential challenge to your system's data quality.

Missing Data

Show slide 51. Click the mouse four times to play the "conversation" animation.

ASK

? ***Has anyone experienced a similar challenge?***

? ***What are some reasons data might be missing?***

Field several volunteer responses and lead the below points.

Explain the following.
- ✓ Data quality is also affected by data elements that are missing from the data collection system.
- ✓ As the slide points out, systematic missing data for certain fields or crash types is especially problematic.
- ✓ The Situational Assessment is designed for you to examine the necessary and applicable data sources for the traffic safety data collection system.
    - ▪ Your goal will be to identify the proportion of records with missing data, whether or not the missing data is random or systematic, and to identify data that is collected but not captured in a system.

TRANSITION

Lesson learned: make sure you identify the proportion of records with missing data, whether or not the missing data is random or systematic. Identify data that is collected but not captured in a system.

The last factor that can affect data quality is errors.

Errors

Show slide 52.

ASK
? **What leads to data collection and data entry errors?**
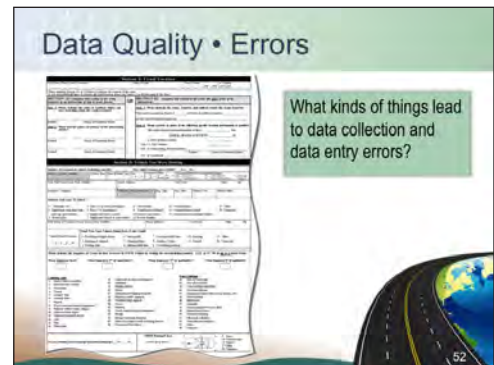
Use the responses to transition to the points below.

MEASUREMENT ERRORS
✓ There are several types of potential errors that will affect your data system.
✓ **A measurement error** is the difference between the true state and what appears on the data collection form or screen. For example:
  ▪ A policeman doesn't know how to use his new GPS device and ends up with the wrong coordinates for a crash location.
  ▪ A breathalyzer is improperly calibrated and reads an inaccurate blood alcohol level.
  ▪ An attending police officer records injuries as "superficial" because the victim looks fine apart from some cuts and bruises—but later the victim nearly dies from internal hemorrhage. (You can also consider this type of error a classification error.)
  ▪ The emergency room nurse does not ask how the patient broke his legs, so the injury does not get coded as a road traffic injury.

ASK
? **What are other types of measurement errors you are aware of?**
? **How can measurement errors be addressed?**

SUGGESTED ANSWER:
- ▪ Through training, equipment calibration, and quality checks.

RESPONSE ERRORS
Continue explaining.
- ✓ Like measurement errors, **response errors** will also show a difference between the true state and what appears on the data collection form/screen. For example:
  - ▪ Incorrect information from witnesses or crash–involved people. This reported information could be intentional misinformation, such as lying about the use of a cell phone, seat belt, etc. Or, people may not remember correctly the sequence of events (who was at fault, the maneuvers of the other vehicle), especially after a trauma.

ASK
- ? **What are other types of response errors you are aware of?**
- ? **How can response errors be addressed?**

SUGGESTED ANSWER:
- ▪ There may not be a lot you can do about response error except training people to interview victims and witnesses.

DATA PROCESSING ERRORS
Continue the explanation.
- ✓ **Incorrectly recording data, coding data incorrectly and human–error entry mistakes** are data processing errors that may happen after the data has been collected. These types of errors can include such things as:
  - ▪ Transpositions (e.g., 19 becomes 91 during data entry)
  - ▪ Copying errors (e.g., 0 (zero) becomes the letter "O" during data entry)
  - ▪ Coding errors (e.g., a racial group gets improperly coded because of changes in the coding scheme)
  - ▪ Range errors (responses outside of the range of plausible answers, such as a reported age of 290)
- ✓ These types of data processing errors will affect accuracy and reliability of the data.

ASK

? **What are other types of data processing errors you are aware of?**

? **How can these errors be addressed?**

SUGGESTED ANSWER:

- Improve form design, improve data collection tools, improve training and Quality Assurance measures.

Acknowledge and validate responses.

TRANSITION

Unclear or inconsistent definitions, under–reporting, missing data and a multitude of potential data collection and processing errors can affect your traffic safety data system's quality. As you improve your data system, one of your primary goals will be to ensure high quality data.

Ensuring Data Quality

Assessing the traffic safety data collection system's quality is a big job. You may not be able to do a data quality assessment for each data source or sector, but you will be able to assess the sources or database in your own jurisdiction for high quality data collection.

Show slide 53.

✓ When you perform the Situational Assessment and examine data quality, be aware of three main areas related to the data collection and management processes:
  - Data elements
  - Data capture procedures
  - Data collection tools

TRANSITION
Let's look at each area, one by one.

Data Elements

Explain the following main points.
- ✓ Your common dataset, including the minimum dataset included in the Data Systems Manual plus the unique variables necessary for your data collection system's goal, is an essential data systems tool.
- ✓ A defined set of data elements will ensure the appropriate data are captured and that data are consistent and compatible across sectors.
- ✓ Your goal is to create a common dataset for your country's data system.
- ✓ To create a common dataset you will define the minimum data elements and specify uniform definitions and criteria so that this minimum dataset is uniformly understood by all those who will use the data.
- ✓ This commonly defined and understood dataset can then be used to accurately describe road crashes and resulting injuries for national analysis and road safety improvement.
- ✓ You want to select your system's *minimum data elements* based on the following criteria:
  - ▪ Useful for road crash analysis
  - ▪ Comprehensive and concise values
  - ▪ Not difficult or impossible to collect
- ✓ The Data System Manual's focus is on a dataset for the police sector, not necessarily the health, transport, or other sectors.
  - ▪ The Manual's dataset is based on Common Accident Dataset (CADaS). It represents a common framework for road crash data collection in Europe.

ACTIVITY • Dissect Data Elements

**Activity Time:
30 minutes**

Goals for activity:

✓ Examine the Manual's recommended minimum data elements definitions and criteria and evaluate their application to the participant's country or jurisdiction.

✓ Evaluate pre–work questionnaire responses, gain a sense of what's missing, and consider next steps.

**Pages 59 and
94–113**

INSTRUCTIONS

1. Direct participants to the Dissect Data Elements page in the Workbook.
2. Ask home groups to review the following:
   ▪ The Manual's proposed minimum data elements and their definitions
   ▪ The pre–work Questionnaire on Traffic Safety Data in Your Jurisdiction —questions related to minimum data elements (Questions 15, 16, 17)
3. Ask participants to answer the following questions in the Workbook:
   ? **Identify the types of crashes that will be included in your database—injury only or property damage as well?**
   ? **Is your common dataset defined? What needs to happen to get a common dataset?**
   ? **What type of data is important but will not be gathered at the crash scene? What is its source/sector?**
4. Monitor the groups as they work, and cue for timing.
5. Discuss the activity with the large group.

Discuss the Activity
Use the questions below to facilitate a group discussion and get participants thinking about next steps.

ASK
? **What did you learn? What surprised you?**
? **Where are data elements either undefined or not defined with specificity? (That is, in what areas?)**

? **Who will help you finalize common definitions and understanding?**

? **What kind of resources, support, leadership, or political will is needed?**

Encourage participants to record Take–Aways or Action Items on the Data Elements • My Take–Aways/Action Items *page in the Workbook.*

Data Capture Procedures

Explain the following points.

✓ Data capture procedures are the processes used to collect information about the crash and transfer that information to a database.

✓ This "building block" is part of the overall system's workflow that will capture road crash data from the various sources and sectors.

✓ There is no single best practice for data capture. What works well in one jurisdiction may not work in another.

✓ Data capture procedures will vary by source and by sector.

  ▪ For example, primary data collection of the minimum data elements may be captured by police officers at the crash scene or attending medical personnel in a hospital's emergency department. Alternatively, data may be extracted from information in the police reports or medical records crash at a later point in time.

✓ Data capture requires that you understand and plan the appropriate processes for data entry. For example, the police officer investigating the crash scene can enter the data, or data entry might be centralized at the district level police headquarters.

✓ Your country may elect to have one agency at a regional or national level enter all police data.

✓ In some cases, it may be possible to import relevant data from one information system (or several) to the primary crash database.

ACTIVITY • Dive into Data Capture

**Activity Time:
30 minutes**

**Pages 81–82
and 26**

Goal for activity:
✓ To get participants thinking about the potential data sources in their countries/jurisdictions that will contribute to the data collection system.

INSTRUCTIONS
Allow about 20 minutes to read the case studies and answer the first two questions. Allow 10 minutes to discuss.

1. Direct participants to the Data Capture Procedure page in the Workbook.
2. **EXPLAIN:** Read both case studies on pages 81 – 82 of the Manual—a centralized data extraction and entry and a data capture from multiple data sources.
   - Answer the following questions (found in the Workbook):
   ? **In your country or jurisdiction, does your traffic safety data collection system look more like the Ghanaian or the Peruvian case study? With respect to data capture processes, what are the similar characteristics? What's different?**
   ? **From what you know now, what sectors and sources do you imagine will contribute to the traffic safety data collection system? Use table 2.1 on page 26 of the Manual.**
3. Discuss the activity with the large group.

Discuss the Activity

ASK
? **What characteristics does your data collection system share with either of these case studies? What's different?**
? **If your data system is centralized, will that central agency be responsible for collecting all the data or will districts or other entities be responsible for forwarding data?**
? **What did you discover about data capture related to data sources?**
? **What questions arose?**

Encourage participants to record Take–Aways or Action Items on the **Data Capture • My Take–Aways/Action Items** *page in the Workbook.*

Data Collection Tools

Explain the following points.

✓ The last component that directly impacts data quality is your data collection tools.

✓ Road safety data collection tools range from simple, paper–based questionnaires to sophisticated, electronic mobile devices that can transfer data in real time.

✓ The tools are best designed to capture all data variables according your country/jurisdiction's defined minimum dataset.

✓ Much of the world's road crash data collection is done by hand, using paper forms.

✓ One way to ensure high quality data is to standardize data capture forms and provide the appropriate training.

✓ The structure and design of the data collection forms can have a significant impact on data quality.

✓ The structure and design of data collection forms is influenced by both data collector's processes and data entry processes. The best designs take both processes into account.

ACTIVITY • Explore Data Collection Tools

**Activity Time:
45 minutes**

Goals for activity:

✓ To explore what's known about data collection tools in participants' countries/jurisdictions.

✓ Explore best practice or desired standards for data collection tools.

INSTRUCTIONS

Pages 63–64

1. If participants have brought sample data collection tools to the workshop, ask them to share their data collection tool sample, describe how it's used, and discuss how well it works.

2. Refer participants to the section Improve Data Collection Tools in the Data Systems Manual on pages 63–64.
3. After they have shared and discussed their tools, ask them to answer the questions in the Workbook on their own.
   - ? **What kinds of data collection tools are available in your sector? Are they paper–based or electronic?**
   - ? **What tools work best? Why?**
   - ? **How do data collection tools vary by source or sector? Can any of these tools be shared?**
   - ? **What do you think is important about the data collection tools that are used or will be used? Describe the ideal characteristics.**
4. When individuals are finished, encourage home groups to compare and discuss their individual responses.
5. Discuss the activity with the large group.

Discuss the Activity

ASK
- ? **Describe some of the data collection tools in your sector.**
- ? **What tools work best and why?**
- ? **When designing or advising on an optimal data collection tool, what's important? What will you look for?**

DISCUSSION POINTS
Acknowledge all relevant responses. Highlight the points below.
- ✓ The Data Systems Manual recommends the following for revising or creating new data collection forms.
  - ▪ Seek and use the experience of those who will use the forms.
  - ▪ Seek advice from a statistician with expertise in data collection instruments.
  - ▪ Make forms easy on the eye (enough white space), easy to understand (define abbreviations), short, and easy to complete.
  - ▪ Pre–code forms for as many fields as possible.
  - ▪ Create a reference book for training.

- ▪ Test the form, make adjustments, and revise as necessary.
- ✓ Data collection forms should provide space to sketch the collision, including measurements and a description of events.
- ✓ Some software packages designed for data collection and processing include computerized forms to record data electronically at the crash scene. Field test before using.
- ✓ If your country/jurisdiction is currently collecting data via paper forms, you do not have to wait for the database system before beginning to collect data. Store and organize the paper forms so that you can enter the data electronically when your database is ready.

Encourage participants to record Take–Aways or Action Items on the* Data Collection Tools • My Take–Aways/Action Items *page in the Workbook.

System Requirements and Resources

Show slide 54.

- ✓ The third major building block of your traffic safety data collection system is the system itself—its requirements and the resources necessary to support the data system.

Data System's Components •Systems Requirements

- ✓ When thinking about the data collection system's requirements and the necessary resources to support it, consider the system's four main areas:
  - ▪ Workflow
  - ▪ Database features
  - ▪ Linkages
  - ▪ Data management and quality assurance
- ✓ When considering resources, think about initial costs such as: software platforms; training and consulting; ongoing costs, such as ongoing training needs; personnel costs; and finally,
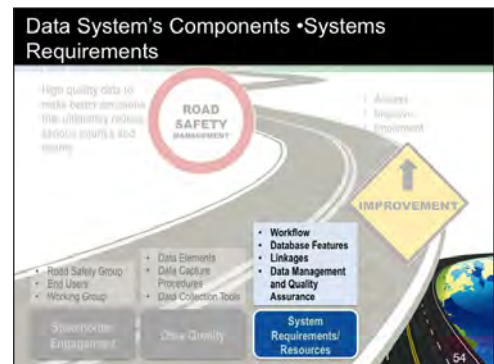
long term costs to support the maintenance and development of the system.

✓ Consider human resource investment in the planning stages.

✓ Decide on an "off–the–shelf" solution vs. a customized solution.

ASK

? **For those of you who have begun to improve your traffic safety data systems, what were the most important initial costs you considered?**

? **What kind of training and consultancy did you budget for?**

? **What kinds of ongoing costs did you include in your budget?**

? **Did you hire people right away? What new roles/skills did you need?**

Use the question above to create a mini discussion and information exchange. Acknowledge responses and transition to the topics below.

TRANSITION

It is important to understand what you require from the data collection system, including the human and financial resources available for its improvement and implementation, and what future resources you will need. In order to plan for systems improvement and management, it is important to understanding the data collection system's sub component areas.
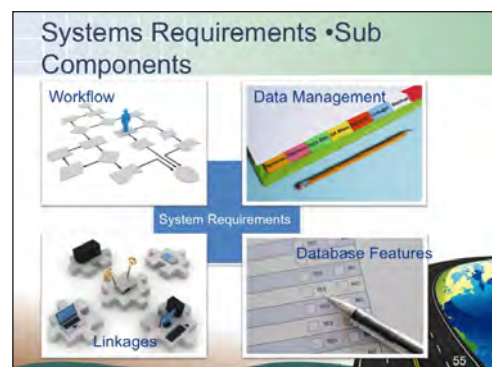
Show slide 55.

✓ As you've seen earlier, these are the sub components of the data system.
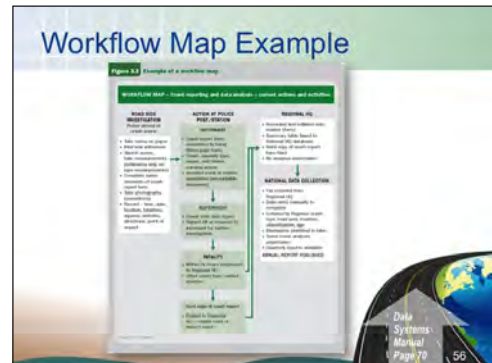

TRANSITION

Let's review them one by one.

Workflow

Show slide 56. Talk through the example on the slide (page 70 of the Data Systems Manual). Use the points below to elaborate.

Workflow Map Example

✓ Workflow can be mapped.
✓ Workflow mapping shows how crash data moves through the system—from collection at the crash scene to analysis and dissemination.
✓ A visual representation of the workflow will help you identify procedural/process problems that have a negative impact on the overall data system.
✓ In the Situational Assessment you and your team will create a workflow map.
✓ The purpose of the workflow map is to identify the processes in which data moves through the system and who is responsible at each step.
✓ Workflow maps document the actual state, not the ideal state.
✓ You need to validate the workflow map with your Working Group. This group will then identify areas where improvements should be made to improve the data system.

ASK
? **Has anyone begun to map the data workflow yet?**
? **If so, what did you learn? What worked well? What mistakes did you encounter?**

Use the question above to create a mini discussion and information exchange. Acknowledge responses and transition to the topics below.

TRANSITION
As you consider your data system's requirements and the workflow, you will inevitably consider the database features.
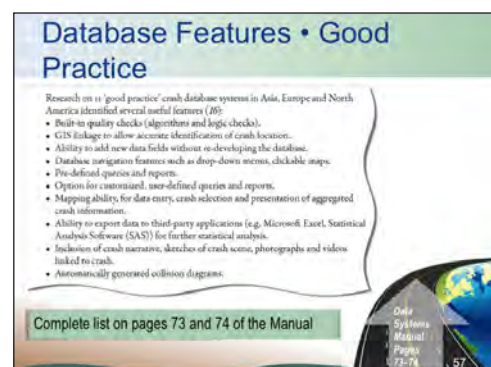
Database Features

Explain the points below.

✓ The right database features will help your group achieve its data system goal.

✓ When you perform the Situational Assessment, the assessment will compare stakeholder's data needs with related end–user requirements.

✓ You will also document the current system's features.

✓ Once your working group solidifies its goals, charts its priorities, and decides on the minimum dataset, you can decide what database features your data system will require.

✓ To fully assess database features, you will likely want to seek assistance from someone with extensive expertise in database creation and management.

✓ Ideally this person/agency will have up–to–date knowledge in database models, software platforms, development technology, and data security.

✓ This expert will be able to help you identify how to alter your existing database(s) and whether the existing software platform is capable of supporting the changes.

✓ Don't forget to ensure consistent ongoing technical support!

✓ Ideally, the same company can chart the course and provide ongoing support.

Show slide 57.

Pages 73–74

✓ Pages 73–74 of the Manual shows research on "11 'good practice'" useful features for crash database systems in Asia, Europe and North America.

✓ Note only a partial list is shown on the slide. The list continues on page 74 of the Manual.

✓ Note that databases systems can operate without these "good practice" features. However, the research suggests that these features would improve the accuracy, efficiency, and utility of data provision through the system.

Database Features • Good Practice

Research on 11 'good practice' crash database systems in Asia, Europe and North America identified several useful features (16):
- Built-in quality checks (algorithms and logic checks).
- GIS linkage to allow accurate identification of crash location.
- Ability to add new data fields without re-developing the database.
- Database navigation features such as drop-down menus, clickable maps.
- Pre-defined queries and reports.
- Option for customized, user-defined queries and reports.
- Mapping ability, for data entry, crash selection and presentation of aggregated crash information.
- Ability to export data to third-party applications (e.g. Microsoft Excel, Statistical Analysis Software (SAS) for further statistical analysis.
- Inclusion of crash narrative, sketches of crash scene, photographs and videos linked to crash.
- Automatically generated collision diagrams.

Complete list on pages 73 and 74 of the Manual

ASK

? **Does anyone have a database in place?**

? **If so, did you begin with an existing system or need to create a new system?**

? **How did you decide what features were important?**

Use the question above to create a mini discussion and information exchange. Acknowledge responses and transition to the topics below.

TRANSITION

As you assess your data system's requirements—the workflow and the database features—you'll want to consider potential linkages.

Linkages

Explain the points below.

✓ For linkages to add value to the data quality, they must be accurate, up–to–date, and collected in a stable system and accessible format.

✓ If your country is developing its traffic safety data system for the first time, and other databases such as road inventory, vehicle registration, or driver licensing are also under development, there are opportunities for easier linkage as the databases can be developed in a compatible manner.

✓ Considerations include confidentiality concerns, compatibility of definitions, data fields that can be used to match records, and compatible data formats and software platforms.

✓ Linking police data and other data sources is often a way to improve data quality, however, it *may not be the best place to begin your data systems improvement project.*

   ▪ Rather, it is best to focus on a strategy for information sharing among the participating sectors.

✓ Your Improvement Working Group could meet regularly to review and compare data from different sources and discuss linkage mechanisms.

✓ If it is not possible to establish linkages among databases, it may be possible to include data from other sources by using centralized data entry.

Pages 38

Data System Considerations

Point out the list of questions at the top of page 83 of the Manual that can help further identify systems requirements.

Tell participants that these questions are better answered after they have conducted the Situational Assessment, and after a Working Group has been convened. With that said, the questions will help the group work through data systems considerations and decision–making.

Highlight the points below.
✓ The structure, or architecture, of the database directly affects users' ability to search and retrieve records quickly.
✓ With the input of your stakeholders, you will discover more thorough answers to these questions.
✓ A clear goal also impacts the database development and the types of analysis that will be possible from the generated data.
✓ A trusted, reliable, and expert data systems IT person and/or organization will be of value.
✓ In the Situational Assessment, you want to determine whether an off–the–shelf software platform will meet your requirements or if you will need a customized system.

TRANSITION
The final consideration when assessing your data system's requirements is the data management plan, including a plan and process to ensure data systems quality.

Data Management and Quality Assurance (QA)

Explain the points below.

✓ Your data management plan will document the intended workflow (process map) for data collection, entry, processing and analysis.

✓ This plan will also specify the roles, responsibilities, and involved agencies.

✓ Page 76 of the Data Systems Manual lists a number of items to include in your data management plan.

✓ Include data protection procedures. Consult an IT expert to establish back–up protocol and security mechanisms.

✓ Plan for and allocate resources for trained staff.

✓ Plan for and execute regular quality assurance checks such as random checks for data completeness and accuracy.

✓ Conduct in–depth validations to ensure the data system is meeting its goals; that data are timely, accurate and useful; and that data outputs can be effectively used to improve the road safety.

✓ Conduct your first validation about six months after systems implementation. Validate again in one year.

✓ Assess under–reporting every five years.

Pages 76

ASK

? **What will you need to do to keep your data management plan up to date?**

? **Who will need to be involved?**

DISCUSSION POINTS

Highlight the points below. Acknowledge all relevant responses.

✓ Consider what you discussed today as input and forethought to feed into your comprehensive plan. You will be able to

develop a comprehensive plan after you have conducted the Situational Assessment.

✓ In most cases, your plan will reflect tasks that build on the existing system and fill the gaps you identified in your Situational Assessment.

✓ Putting the plan to paper is the best practice that will help you and the Working Group best manage this large–scale project.

Summary

Show slide 58 and summarize.

✓ In this lesson we reviewed and discussed the building block components of a traffic safety data system.

✓ Understanding these core components will help you improve your data system.

✓ An improved data system leads to effective road safety management and ultimately less road crash deaths and serious injuries.

✓ *Stakeholder engagement* is the first building block. To improve your data system, you will engage the appropriate stakeholders and work with three primary groups.

✓ *Data quality* is an essential component. The data collection and management processes focus on *data elements, data capture procedures and data collection tools.* Factors that can compromise data quality include problems with *definitions, under–reporting, missing data,* and *errors* in the data capture.
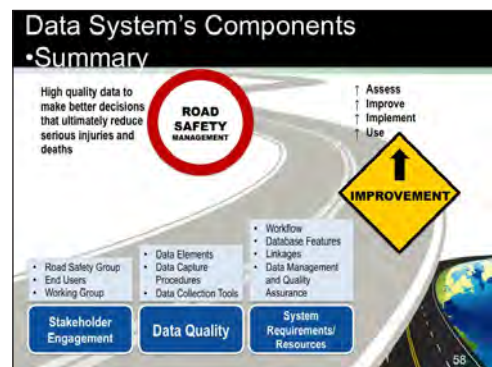
✓ The foundational requirements of your data system include an effective *workflow,* applicable *database features*, appropriate *linkages,* and a solid data management and QA plan.

✓ The traffic safety data system requires resources and political will to improve.

Ask the class to take 10 minutes to individually summarize their Action Items/Take–Aways in the Workbook. Also suggest that they look back at their Action Items from the Situational Assessment lesson and add appropriate items.

TRANSITION

With a better understanding of these essential components of an effective traffic safety data system, and a sense of how to get started and perform a Situational Assessment, let's put these core concepts together and revisit our Boldonia case study.

Notes

7

IMPROVING DATA SYSTEM

Improving the Data System

Lesson Time:
1.25 hours

To Monitor Road Safety: Putting It All Together

Overview and Goals for Lesson 7

Show slide 59.
The goal of this lesson is to apply what you've learned in this workshop to a fictitious case study.

Putting It All Together
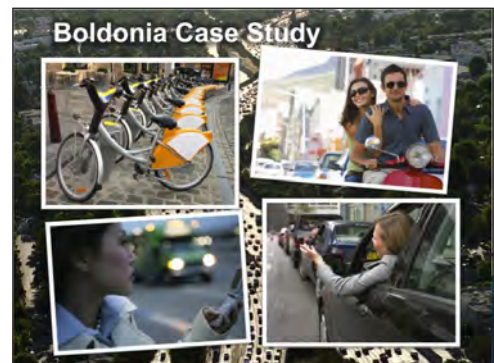
ACTIVITY • Boldonia Case Study

Activity Time:
1 hour

Show slide 60.
Goals for activity:
✓ To develop realistic improvement strategies.
✓ Understand how evaluation concepts relate to improvement strategies.
✓ Apply knowledge.

INSTRUCTIONS
1. Give the following instructions.
   ▪ You will work in your home groups and have about 45 minutes to work the case all the way through.
   ▪ Re–read the case study in the Workbook Appendix.
   ▪ Answer the questions in the Workbook.
   ▪ Discuss with your group.
2. Discuss the activity with the large group.

CASE STUDY QUESTIONS AND SUGGESTED ANSWERS
1. What is Boldonia's target?

SUGGESTED ANSWER:

- Reduction of fatalities by 20%

2. What improvement strategies will help Boldonia's data system generate the most reliable outputs? Outline several strategies and list the main steps you need to see the strategy through.

SUGGESTED ANSWERS:

- Define stakeholder group and plan engagement strategy.
- Define minimum data elements across sectors and databases.
- Gain agreements across sectors.
- Determine the variables that contribute to the "large gaps in the scope of data collected."
- Analyze how crash data is collected and define why missing data/errors are taking place.
- Redesign and standardize (as much as possible) crash data forms.
- Make sure injury severity definition is the same for all sectors and has clear categories.
- Work with District Chiefs on their issues.
- Analyze the vital registration database and the Ministry of Justice's databases for inconsistencies.
- Design a way for minimum data elements to be captured in both data bases so they can be compared 1:1.
- Analyze/compare police and heath sectors data systems.
- Etc.

3. List potential safety performance indicators that the data system must track.

Page 131–132

SUGGESTED ANSWERS:

- Incidence of drinking and driving
- Speeding measures
- Seat belt usage
- Use of child restraints
- Helmet wearing rates
- Etc.

4. What kind of effort will be needed and who has to put the effort forth for the Ministry of Transport to obtain the data they need?

SUGGESTED ANSWERS:
- ▪ Document characteristic of drivers and vehicles at the crash site
- ▪ Document road conditions/characters at crash sites

5. Presuming Boldonia will use all of the minimum data elements, review the minimum data elements in the Manual and determine if you have the data elements necessary to obtain the data that the Ministry of transport wants. Are they enough or does the data system require additional elements?

Pages 94–113

SUGGESTED ANSWER:
- ▪ The documented Minimum Data Elements appear to suffice

6. What initial safety performance indicators and outputs do you want the data system to capture?

7. If you are able to generate quality data on safety performance indicators and process indicators (outputs), how does this data contribute to road safety management?

8. What kind of resource allocation and planning will you need to meet your targets?

Accept all reasonable responses. Make suggestions as appropriate.

Discuss the Activity

Ask participants to share their improvement strategies. Discuss the viability of the proposed strategies.

Use the questions below to facilitate a group discussion.

ASK

? **What did you learn? What surprised you?**

? **Where are data elements either undefined or not defined with specificity? (That is, in what areas?)**

? **Who will help you finalize common definitions and understanding?**

? **What kind of resources, support, leadership, or political will is needed?**

Notes

8

WHAT'S NEXT

What's Next?

**Lesson Time:
30 minutes**

Overview and Goals for Lesson 8

Show slide 61.
The goal of this lesson is to recap and clarify next steps.

Recap

Show slide 62.
Review this slide by asking volunteers to describe the systems components, the improvement process, and how they relate to road safety management.

**Activity Time:
30 minutes**

ACTIVITY • Summary

Goal for activity:
✓ To allow participants to reflect on their experiences and synthesize material with both sides of the brain (whole brain activity).

INSTRUCTIONS
1. Put participants their home groups.
2. Ask them to create a brief summary of what they've learned—as individuals and as a group. Allow about 10 minutes for groups to create and 2–5 minutes to present.

Discuss the Activity
Ask the groups to present in a swift paced round–robin fashion. Keep the tone light, swift, and accepting of everything that happens.

Use the following questions to create a concluding discussion.

ASK

? **What new knowledge are you walking away with?**
? **What priority items are on your Action Lists?**
? **What are your next steps when you arrive home?**

Process Support

Review options for support—both for Situational Assessment and the Improvement processes.

Help Each Other

If the workshop participants come from different countries, encourage them to stay in touch via e–mail or by other means while they work on their Situational Assessments. Encourage them to support one another through the process, as much can be learned through the challenges and successes of others.

If teaching a group from the same country, ensure that they have a plan for continuing to work as a group.

Conclude

Thank all participants for their work and for sharing their thoughts and ideas. Wish them luck as they continue their journey towards Road Safety Management.

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