



Bring Data Skills to Your Workforce

Start making better decisions today



We intend to provide periodic updates and more advanced topics in the future. We look forward to gaining feedback (see the survey at the end of this document) that this guide may better serve organizations in the future.

Preface

Data skills are necessary for the success of your organization. **Forrester Consulting study commissioned by Tableau** found that “Data literacy efforts lead to significant benefits in increased innovation, greater customer and employee experience, and more.” However, organizations need to do more. According to the **Forrester study**, only 40% of employees say their organization has provided the data skills expected of them.

To help fill this gap and contribute to **our mission to help close the data skills gap** and help build a better future with free data education, we have created this guide to provide organizations with a framework to inspire and deploy foundational data skills training at scale. This guide provides an easy to use curriculum for those tasked with deploying fundamental data literacy training in their organization. There are many resources available and it can be overwhelming to decide where to start and which resources to use. This guide includes a foundational data literacy learning path, recommendations for solutions to common challenges, and tips on how to establish an education program at an organization.

Contents

Essential Elements.

What do those tasked with bringing data skills to their employees need to be successful? How can learners be recognized for their success? What can be done to overcome challenges when establishing a data literacy education program?

Data Literacy Learning Path.

What topics do you need to cover? What eLearning is available? What learning activities can be used to help learners apply their knowledge to their day to day tasks?

Keep on Learning!

How do I build community and keep learners engaged after they have completed their training?

Resources and further reading.

How can I explore more about data skills?
What are some great books to add to my reading list?



Essential Elements

While presenting the appropriate learning path is necessary in implementing an internal education program, other elements are crucial for establishing a successful program.

Sponsorship and Support

First, sponsorship from **executive leadership** is vital to establishing and maintaining a new program. Without buy-in from executive leadership, finding time, financial support, and space to deploy will be difficult.

Champions are also important for leveraging data and data education. These internal advocates are typically willing to evangelize the importance of a data-driven organization, and can be called upon to mentor others and help facilitate learning.

In addition to buy-in from executive leadership and champions, technical and non-technical support are critical. Support from Information Technology (IT) and analytics teams to gain access to data and related platforms and help navigating organization governance standards. From a non-technical perspective, management will need to provide support. People managers need to advocate up to their leaders for the importance of data skills education and the value it brings to the organization. They also should provide financial support to incentivize learners and for any operational needs that arise.

Last, leaders, facilitators and the end-users will need time. Without committed time success is unlikely for all but the most self-motivated. This time must be carved out and protected by managers or it will be consumed by warring priorities, and adding additional time to an employee's day is not a substitute for modifying expectations for everyday work to accommodate the time necessary to complete training. The amount of time given should match the expectation of when the organization would like to see completion. For example, if completion is expected to happen rapidly then more time must be given at regular intervals. If a longer window of time is given, then less time at regular intervals will be sufficient.



69% of decision-makers say a lack of data skills stops employees from using data effectively in decision-making.

– Forrester,
Building Data Literacy





Everyone, regardless of their position or department, must know and embrace the language of data to help their organization tackle its difficult problems (e.g., new or developing market trends, customer activity and needs, or unexpected crises)

- [Tableau Blueprint](#)

Incentives and Recognition

Learning data skills requires a commitment of time and energy amidst an already full work schedule. Incentives and recognizing 'learning well-done' is a key ingredient for a successful program with engaged learners.

A learning path with badges that reward completion can help keep learners engaged and committed during the program. Planning incentives according to the interests of learners, or providing prizes and introducing some healthy competition can bring fun and interest to the program. Managers and leaders need to reward and recognize people for their learning achievements. Similar to saying 'job well-done', sending a message of 'learning well-done' will build an environment where learning is valued and employees are fully engaged in the training program.

Inspiring continued participation can be difficult. To mitigate training fatigue, make goals attainable and avoid setting monumental goals where participants will not receive any recognition until the very end. In practice this looks like setting midway goals, or milestone goals, where the learner is rewarded partway through the process with small incentives that make it just enticing enough to keep going rather than having no recognition until the very end. Where budget is available, purchase small incentives for milestone goals (coffee card or similar) and larger incentives (tshirt, lunch vouchers, or similar) for full completions.

Community

Learning can be hard and learning alone can be harder. Create an internal community to provide a safe space for support and sharing. [Tableau Data Community](#) and [Tableau Blueprint](#) provide guidance on how to start an internal community at your organization. In addition to an internal community, external communities such as the [Tableau Community](#) or the [Trailblazer Community](#) can be a venue for learners to connect, share, and find support.



Overcoming Challenges and Barriers

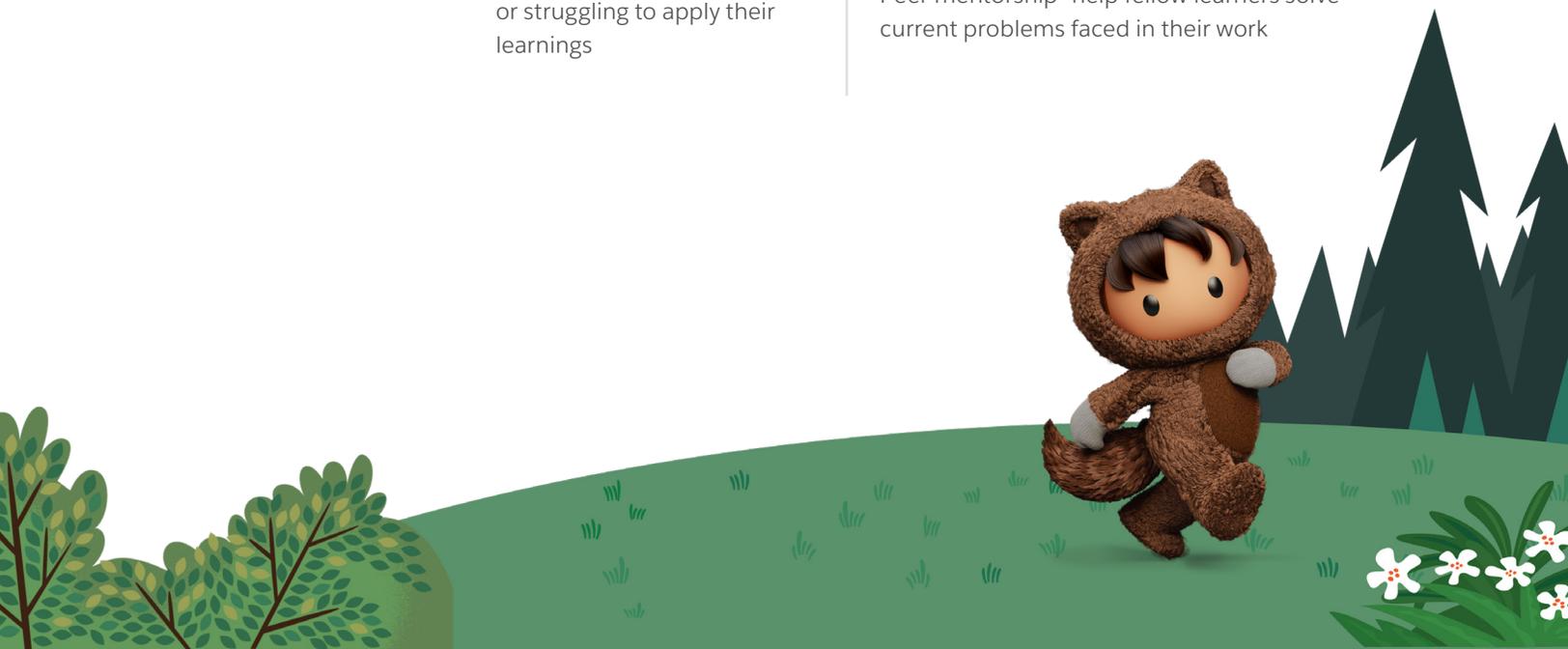
Even when we have all of the necessary elements mentioned above, establishing an education or training program can pose challenges.



Far better an approximate answer to the right question, which is often vague, than the exact answer to the wrong question, which can always be made precise.

– John Tukey

| Common Challenge | Tips to Overcome |
|--|--|
| Lack of engagement | <p>Provide incentives. Simple gamification can encourage engagement (for example, prizes for first to complete badges).</p> <p>Ask for feedback from learners during the program and respond to their needs. Give learners a voice in their learning.</p> |
| Fear and apprehension | <p>Use activities to foster encouragement and collaboration among learners (see activities in the learning path below).</p> <p>To prevent people clamming up for fear of looking unqualified, acknowledge that these aren't skills that everyone inherently has.</p> |
| Lack of time | <p>Use bite-sized learning that requires short time commitments.</p> <p>Maintain leadership support to protect employee time that is dedicated to learning.</p> |
| Not connecting to the content or struggling to apply their learnings | Peer mentorship–help fellow learners solve current problems faced in their work |



Data Literacy Learning Path



This learning path covers foundational data literacy concepts and includes suggested eLearning modules, readings, videos, exercises to aid learning, and activities to practice and apply the concepts. This learning path can serve as a prerequisite for more advanced topics such as data analytics, data governance, decision making with Artificial Intelligence (AI), or change management topics to create a data culture.



Data communicators should ground data analysis and communication in empathy

– Do No Harm Guide,
Urban Institute

Commit to Learning

Both organization leaders and learners need to commit to data literacy education, giving time and space for learners to achieve their learning goals. Allow approximately fourteen to eighteen hours to complete the entire learning path with a pace of approximately two to three hours per week over six weeks. The timing can be consolidated or stretched to accommodate variable schedules (estimated time requirements for eLearning, readings, videos, and activities are included below). While eLearning, readings, and activities can be done asynchronously, planning at least one in-person or synchronous meeting will provide learners an opportunity to engage and build relationships with each other.

How to Learn

Some learners may have apprehension about signing up for a new data literacy educational program. Facilitators need to provide a safe space for learners to share and practice. Learners need to feel connected to and believe in the importance of learning data skills. A first step in creating this connection to the learning path is to have learners reflect on their experiences and needs. The “Where are you on your data journey?” can be a great starting point to engage learners.

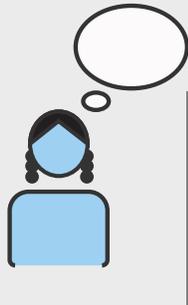


The “Where are you on your data journey” activity can serve as a great first meeting activity to help your learners reflect, engage, and build relationships and needs with data.

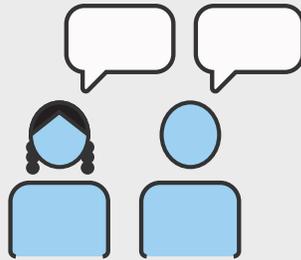
ACTIVITY

Where are you on your data journey?

(allow about 45-90 minutes)



THINK



PAIR



SHARE

1. Have learners reflect on their experiences with data and answer the following questions:

- What are some types of information that you would consider to be data?
- Share a moment in the past where having supporting information would have made a decision easier.
- What blockers are preventing you from learning more about how to use data in your day-to-day?
- What are some areas in your current role where you could use data to improve a process, or outcome

2. After completion, have learners share in pairs (or small groups).

3. Discuss with the larger group or class.

Facilitator Notes:

- For adaptation to a virtual setting, consider assigning paired video meetings or journal writing activity.
- When learning settings allow, the activity can be used as an opportunity to allow learners to reflect on positive or negative learning experiences. Questions such as “What are your positive and negative experiences with data from home, work, volunteering, or school?”, “How can the learning experience be improved?”, “Are there any attitudes or beliefs that may be barriers to learning?”, or “How can peers be supportive of each other?” can be added to the above questions. This exercise can allow you to address any fear or anxiety that learners may have.

ACTIVITY

Data Learning Journal

(5 minutes after each learning session)

When learning new concepts, remembering and applying these concepts after the education program is completed can be challenging. To deepen learning and help apply the concepts, ask learners to record at least one example from their day to day lives the same day that they engage the content. This activity can be a 'data learning journal' that also helps learners reflect on their progress and discover ways to help improve their own work and the work of their teams.

ACTIVITY

Peer Mentorship

(60-90 minutes)

Success stories from people who have completed (or are on) the journey in learning data data skills can promote an encouraging environment. Provide time and space for those who have begun or completed the training program to share their experiences with new learners. Ask them to share about the challenges that they overcame and how they applied the learning in their work.

↑
BACK TO
LEARNING
PATH



Data Topics

Data Literacy is the ability to explore, understand, and communicate with data. These topics cover fundamental concepts to help learners begin their journey in exploring and working with data.

Learning Objectives – You will be able to:

Data Literacy Foundation

- Define Data Literacy
- Ask Great Questions
- Describe how data is collected and types of data sources
- Describe ethical implications of collecting and using data

Understanding with data

- Understand how data is structured and organized
- Identify types of Data
- Learn how different levels of granularity reveal data insights in visualizations
- Describe distributions
- Make comparisons with data
- Understand variation
- Make decisions using data

Communicating with data

- Understand best practices for visualizing data.
- Identify misleading charts
- Interact with visualizations
- Define the principles of the storytelling process.
- Understand best practices for data stories.



The learning plan shown below uses the [Build Your Data Literacy Trail](#) and a variety of articles and videos to achieve these learning objectives.

[Build Your Data Literacy Trail](#) consists of seven badges: Data Literacy Basics, Well-Structured Data, Variables and Field Types, Aggregation and Granularity, Distributions, Variation for Wise Comparisons, and Correlation and Regression. Similar eLearning is offered in Tableau eLearning [Data Literacy for All](#).



Data Topics Learning Plan

| Data Literacy Foundation | |
|--|---|
| Learning Objective | eLearning, Articles, and Videos |
| Define Data Literacy | eLearning: Data Literacy Basics (30 minutes) |
| Ask Great Questions | |
| Describe how data is collected and types of data sources | |
| Describe ethical implications of collecting and using data | Article: Data Ethics for Business (7 minutes) Video: Do No Harm Guide (7 minutes) |
| Understanding With Data | |
| Learning Objective | eLearning, Articles, and Videos |
| Understand how data is structured and organized | eLearning: Well-structured Data (30 minutes) |
| Identify types of data | eLearning: Variables and Field Types (20 minutes) |
| learn how different levels of granularity reveal data insights in visualizations | eLearning: Aggregation and Granularity (20 minutes) |
| Describe Distributions | eLearning: Distribution (35 minutes) |
| Make Comparisons with data | eLearning: Data Literacy Basics review (10 min) eLearning: Variation and Comparisons (40 minutes) |
| Make Decisions using data | eLearning: Correlation and Regression (20 minutes) Article: Cycle of Visual Analysis (7 minutes) |
| Communicating with Data | |
| Learning Objective | eLearning, Articles, and Videos |
| Understand best practices for visualizing data | Articles: A Guide to Charts (45-60 minutes) Interactive Dashboard: Visual Vocabulary (60 minutes) |
| Identify misleading charts | Article: Misleading Axes on Graphs (20 minutes) |
| Interact with data visualizations | Article: Benefits of Interactive Visualization (4 minutes) Activity: Practice Escape Room (30 minutes) |
| Understand best practices for data stories | Article: Best practices for telling great stories (10 minutes) |



Practice

An important step in learning data skills is practice in applying the skills in work and life. This part of learning can be the most challenging to implement. These activities will help learners apply the concept covered with data and data visualizations that they encounter in their day to day work and lives.

ACTIVITY**Good Chart/Deficient Chart** (or that need help or improvement) .

(allow 90-180 minutes)

Part I Find chart

With the data literacy concepts that you are learning in mind, find at least one 'good' and one deficient or misleading chart in your day-to-day life. Look for charts in presentations that you encounter in your work, news sources that you read, social media posts, or any media that interests you.

Part II Critique charts

Describe why your 'good chart' is good and why your 'deficient chart' is deficient or misleading referring to specific data literacy concepts. Share your chart critiques with a peer (in person or via online discussion board).

Part III Peer review

Give feedback on your peer's critiques. Guidance in giving feedback:

- Ask a question and support why you asked the question.
- Validate their critique by sharing your experiences or other examples.
- Share an insight you've made by reading their critique.
- Expand on the critique

Facilitator Note:

This exercise can be done during an in-person classroom setting or done via an online discussion board.

ACTIVITY

Internal Case Studies

(allow 90-180 minutes)

Create an internal case study and apply concepts using data from your organization. If possible, use this training as an opportunity to apply data literacy concepts to a current work project.

TIP

Discovering the right use case when beginning a program can be challenging. Learn from your learners. In the How to Learn section, learners are encouraged to keep a 'data learning journal' and record how the concepts apply to their day to day activities. Encourage them to share their stories and reflections. These stories can provide some great examples that can be used in future courses as case studies. Oftentimes, the best examples are right in front of us in our day to day work activities!

Assessment

Trailhead badge completions can serve as assessments.
(Note: more badges covering listed topics coming soon!)

Completion of the chart critique activity can serve as assessment for remaining learning objectives.



Keep on Learning!

After learners complete the learning path, encourage and incentivise them to stay involved in the education program. Giving 'graduates' of the program opportunities to be mentors can grow their careers while allowing facilitators to reach more learners. Their involvement will help build and maintain a thriving internal community.

In addition to involvement internally, encourage involvement in external communities. The [Tableau Community](#) and the [Trailblazer Community](#) offer many opportunities to share and learn from people around the world and give back.

Resources and References

[A Guide to Charts](#)

[Benefits of Interactive Visualization](#)

[Best practices for telling great stories](#)

[Build Your Data Literacy Trail eLearning](#)

[Building Data Literacy Forrester study](#)

[Cycle of Visual Analysis](#)

[Data Ethics for Business](#)

[Data Literacy for All eLearning](#)

[Do No Harm Guide](#)

[Interactivity Practice Escape Room](#)

[Misleading Axes on Graphs](#)

[Tableau Blueprint](#)

[Tableau Community](#)

[Trailblazer Community](#)

[Visual Vocabulary](#)

For further reading:

The Big Picture

Steve Wexler, 2021,

McGraw Hill

Now You See It

Second Edition

Stephen Few, 2020,

Analytics Press

Data Literacy

Fundamentals

Ben Jones, 2020 Data

Literacy Press

How Charts Lie

Alberto Cairo, 2019, W.W.

Norton and Company



Help us Keep On Learning and improve this guide in the future. We consider this guide a ‘beta test’ and intend to make improvements with periodic updates. Please fill out this [short survey](#) and help us better serve you.



