

Participant Workbook

Data Literacy for Workforce Decision-Making

Turning Data Into Wisdom

www.turningdataintowisdom.com

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How to Use This Workbook

This workbook is yours to write in. You will run one investigation across the two days, so keep your earlier pages handy. What you write in one module feeds the next.

Around each activity you will find:

1. **Keep in mind:** the one idea the activity uses, in a sentence.
2. **Worked example:** what a good answer looks like, from the running case.
3. **On your own work:** apply the same move to a real problem you brought. This is your second thread, running next to the case.
4. **Back at work, Monday morning:** one habit to carry out the door.

You will rate yourself at the start and again at the end. Keep a running action plan for afterwards. The Case Exhibits at the back hold the data each activity needs. Collect the reference cards as you go.

The Journey, in Eight Steps

QUESTION → EVIDENCE → READ → EXPLORE → EXPLAIN → VISUALIZE → RECOMMEND → TELL

Where You're Starting

Before we begin, rate yourself honestly. There are no wrong answers, and no one else sees this. You will rate the same skills again at the end, and the change is the point.

Skill	Low	1	2	3	4	5	High
Turn a vague concern into a clear, answerable question	1	2	3	4	5		
Treat data as evidence, and say how much I trust it	1	2	3	4	5		
Read a metric carefully before drawing meaning from it	1	2	3	4	5		
Explore data for patterns without jumping to a cause	1	2	3	4	5		
Build and defend the best-supported explanation	1	2	3	4	5		
Choose and design a chart that is clear and honest	1	2	3	4	5		
Turn a finding into a recommendation I can stand behind	1	2	3	4	5		
Tell a data story without bending the truth	1	2	3	4	5		

The skill I most want to get better at this week:

Your Own Work

The case teaches the method cleanly. Your own work is where it has to pay off. Pick something real now, and carry it alongside the case through every module.

Pick One of Each, from Your Actual Work

A decision you are wrestling with. *Something a bit stuck, where better evidence would help.*

A number or chart you do not fully trust. *A metric or dashboard you rely on but quietly doubt.*

How the Thread Works

At each module, the amber “on your own work” box asks you to run that module's move on the decision or chart above. You will reach the capstone having taken your own problem through the whole discipline, not just the case.

The Case You'll Investigate

Workforce readiness is slipping. Leadership believes it is a pay problem and wants it fixed. Over the two days, evidence arrives in stages, and your team investigates. The data you need for each activity is in the Case Exhibits at the back of this workbook.

Capture what each new piece of evidence does to your thinking:

Data Literacy Today

The failures we see are judgment failures, not tool failures.

Keep in Mind

Look for the missing judgment step, not the missing tool. Ask what question was skipped.

Worked Example · From the Running Case

A team saw overtime rise 20% and cut headcount. The judgment failure: no denominator. Per person, overtime had not moved.

Activity: Four Failed Decisions

1. Read the vignette your table is given.
2. Name the decision that was made, and the judgment failure behind it.

The decision that was made

The judgment failure behind it

How it could have been avoided

Reflect *Where have you seen a dashboard that never actually led to a decision?*

On Your Own Work

Name a decision at your work where the data was there but the judgment step got skipped.

Back at Work, Monday Morning

The next time a number prompts a quick decision, name the judgment step being skipped before you act.

Frame Better Questions

Turn a vague concern into a specific, answerable question.

Keep in Mind

Three jobs, in order: frame the decision, make it testable, then collect. Walk the concern down to an analytical question and a hypothesis you could disprove.

Worked Example · From the Running Case

Concern: is the leadership program working? Decision: expand it, hold it, or redirect the budget. Analytical question: do graduates lead better-performing teams than comparable non-graduates? Hypothesis: the program improves manager effectiveness. What would disprove it: graduates were already stronger before they attended.

Activity: Run It Through the Funnel

Use Exhibit A (the readiness snapshot) for context.

1. Take the readiness concern down the funnel.
2. Reach an analytical question and a testable hypothesis.
3. State the one piece of evidence that would change your mind.

Size the decision first · Reversibility

Stakes: what does it cost if we get this wrong?

Uncertainty: how much do we genuinely not know?

So the bar for this decision is

The decision this supports

What success would look like

Assumptions we are making

The analytical question

Our hypothesis

What would change our mind

Reflect *When did you last chase a number that would not have changed the decision?*

On Your Own Work

Take your own decision down the funnel: write the real analytical question, and the one thing that would change your mind.

Back at Work, Monday Morning

Before your next analysis, write the one piece of evidence that would change your mind, and go looking for it.

Data as Evidence

Data is not reality. It is evidence, with a strength and a confidence.

Keep in Mind

Every metric is a proxy that stands in for something, and leaves a gap. Name the gap.

Worked Example · From the Running Case

Dashboard: turnover up 4 points, weak. A manager's certainty that it is pay, weak. Recruiting: offers still accepted at the usual rate, which is hard to square with a pay story. They measure different things. Evidence: mixed and weak. Confidence: low. Action: gather.

Activity: Three Sources. They Do Not Agree.

Use Exhibit A. Your other two sources are on the slide.

1. Place each of the three sources on the evidence pyramid.
2. Explain why they point different ways. Do not average them.
3. Write one sentence: evidence strength, confidence, and the action it earns.

Where each source sits on the pyramid, and why

Why the three disagree

What the strongest source can, and cannot, establish

Our sentence: strength, confidence, action

Confidence that “it's compensation” (circle one): **LOW** **MODERATE** **HIGH**

Reflect Which number do you treat as truth that is really just a proxy?

On Your Own Work

For the number you brought, write what it stands for and the gap it leaves.

Back at Work, Monday Morning

The next dashboard you get, name what each metric stands for and the gap it leaves before you react.

Reading Data Correctly

Slow down before making meaning. Understand, Interpret, Evaluate.

Keep in Mind

Read the number before you make meaning from it. Understand what it is, interpret carefully, evaluate whether to trust it.

UIE, in Short

Understand What am I looking at? Who is included? Compared to what?

Interpret: What is this actually showing me? What else could explain it? Where does data stop and assumption start?

Evaluate Trustworthy? Enough to act? What does it actually support?

Worked Example · From the Running Case

Vacancy time up 30%. Understand: for which roles, versus when? Interpret: a hiring freeze, or real attrition? Evaluate: enough to act? Not yet.

Activity: Read It Before You Believe It

Use Exhibit A. Pick the vacancy-time or engagement figure.

1. Take one metric from the snapshot.
2. Run it through the three moves.
3. Name the one question you most want answered.

UNDERSTAND: two things to understand first

INTERPRET: two alternative explanations

EVALUATE: how far I would trust it to act

The one question I most want answered

Reflect What is a chart you acted on before you really read it?

On Your Own Work

Run UIE on the chart you brought. Where does it cross from what the data shows to what you assumed?

Back at Work, Monday Morning

Run UIE on the next chart someone hands you, before you react to it.

Exploring the Data

Explore before you explain. Find patterns, do not explain them yet.

Keep in Mind

Run the moves to surface patterns. Produce patterns and sharper questions, not causes.

The Six Analytical Moves

Compare before you conclude · Segment before you generalize · Check the rate, not just the count · Separate level from movement · Look for what moves together · Chase the outlier before you trust the average

Worked Example · From the Running Case

Move used: Change versus level. Pattern: graduates rated 3.9 before attending, non-graduates 3.6. The question it raises: how much of the gap existed before the program?

Activity: Run the Investigation

Use Exhibits B, C, and D (turnover by unit, by supervisor tenure, by pay grade).

1. Run at least four moves on the compensation claim.
2. Write two patterns you can defend.
3. Name the question they raise. Do not explain them yet.

Two patterns we can defend

The question these patterns raise

Reflect *When did a first pattern you spotted turn out to be the wrong one to chase?*

On Your Own Work

Which move would test the pattern you suspect in your own data? Write the move and what you expect.

Back at Work, Monday Morning

On your next problem, run at least three of the six moves before you form a view.

From Pattern to Cause

Build the best-supported explanation. Which one has the strongest case?

Keep in Mind

List the competing explanations, weigh them by evidence, and name the strongest one you set aside, with the reason.

Worked Example · From the Running Case

Best-supported: the program selects strong managers, at moderate confidence. Strongest set aside: that the program develops them, because most of the gap predates attendance.

Activity: Build the Case · Use the Explanation Canvas

Use Exhibits C, D, E, F, and G to weigh the explanations.

Observed pattern:

Explanation	Evidence for	Evidence against	Missing	Confidence

Strongest alternative set aside, and why:

Best-supported explanation, and next step (act / gather more / reject):

ReflectWhere have you defended an explanation because it was yours, not because it was best?

On Your Own Work

For your own situation, name two competing explanations and the evidence that would separate them.

Back at Work, Monday Morning

Next time you have an explanation, write down the two you rejected and why.

Day One: What Shifted

Take five minutes before you leave. Consolidating today is what makes tomorrow build on it.

The idea from today I will keep thinking about:

Where I have made one of today's mistakes before:

What I want to watch for tomorrow:

Where We Are

Day one earned the conclusion: a framed question, evidence read honestly, patterns explored, and a best-supported explanation held at moderate confidence. Day two carries that conclusion to other people, without bending it.

Visual Thinking

The question picks the chart, not the software.

Keep in Mind

Write the question in words first. The question type and the zero rule pick the chart.

Six Question Types to Families

Comparison · Trend · Part-to-whole · Relationship · Distribution · Flow

One rule: bars need a true zero; lines and dots do not.

Worked Example · From the Running Case

Finding: most of the rating gap existed before the program. Question type: comparison, before versus after. True zero? yes, so a bar chart, not a line.

Activity: Pick the Chart

Use your findings from Exhibits B, C, and F.

1. For each finding, write the question in words first.
2. Name the question type and whether the measure has a true zero.
3. Pick the chart, and say why it, not the alternative.

Finding 1

Question in words:

Type / true zero? / chart + why:

Finding 2

Question in words:

Type / true zero? / chart + why:

Finding 3

Question in words:

Type / true zero? / chart + why:

Reflect What is a chart you have seen that answered a different question than the one being asked?

On Your Own Work

Take a finding from your own work. Write the question in words, then the chart that fits.

Back at Work, Monday Morning

Before you build a chart, write the question in words first.

Designing Better Visualizations

The right chart, built wrong, still lies. Clarity and honesty.

Keep in Mind

Design has two jobs, clarity and honesty. Let the title state the finding, and remove what does not carry it.

Worked Example · From the Running Case

Old title: “Q1–Q4 training completion.” New title: “Two departments are below the 90% target.” One honesty fix: start the axis at zero, not 60.

Activity: Redesign the Dashboard

Use Exhibit A as the cluttered starting view.

1. Pick one cluttered view.
2. List what you removed, your emphasis choice, and one honesty fix.
3. Write a new title that states the finding.

Three things I removed for clarity

What the eye should hit first

One honesty fix (baseline, denominator, distribution, color)

A new title that states the finding

Reflect Where has a default chart setting quietly misled you or your audience?

On Your Own Work

Take the chart you brought. Write one honesty fix and a title that states the finding.

Back at Work, Monday Morning

On your next chart, write a title that states the finding, not the topic.

Driving Decisions

A finding is what is true. A recommendation is what to do.

Keep in Mind

A finding is not a recommendation. Say what to do, no stronger than the evidence allows, and name what it does not tell you.

Worked Example · From the Running Case

Recommendation: do not expand the program yet. Run one cohort with managers assigned rather than volunteering.

Confidence: low to moderate. Limitation: ratings miss what the program may add.

Activity: The Two-Minute Brief · Fill the Recommendation Canvas

Use Exhibit H (the constraint) as you decide how far to go.

Situation *what is happening*

Tension *why it cannot wait*

Evidence *what supports it, and confidence (low / moderate / high)*

Recommendation *what to do*

Assumptions *what must be true for it to work*

Limitations *what it cannot establish*

Reflect *Where have you presented a finding and left the room still asking “so what do we do?”*

On Your Own Work

Turn one of your own findings into a recommendation: what to do, your confidence, and one limitation.

Back at Work, Monday Morning

The next finding you present, end with what it does not tell you.

Telling the Story

Data plus story equals impact. A story stays bound to the evidence.

Keep in Mind

Cut to one insight, pick an arc for your audience, and keep one honest limitation in the telling.

The Data Story Arc

Skeleton: Challenge → Change → Impact

Stages: Hook · Context · Process · Insight · Impact · Resolution · Future

Worked Example · From the Running Case

One insight: most of the gap predates the program. Arc: inverted, for the executive who decides the budget. Limitation kept: ratings do not capture everything the program may add.

Reflect When has a compelling data story you heard turned out to have quietly dropped a caveat?

On Your Own Work

For your own recommendation, name the one insight and the audience you would tell it to.

Back at Work, Monday Morning

The next time you present data, cut it to one insight before you build the story.

Capstone: Present the Full Case

Bring it all together: the recommendation, told as a story.

Keep in Mind

The whole spine, in one telling: the question you framed, the evidence, the explanation, the recommendation, and the honest limits.

Worked Example · From the Running Case

We thought it was pay. The evidence pointed to supervision, at moderate confidence. So we fund a targeted fix in two units now, and gather the missing manager data before scaling.

Plan Your Presentation

My one insight (after FOCUS)

Audience, and arc (standard / inverted / truncated)

The telling

The one limitation I will name

My Action Plan

The two days end here, and this page is the point. Be specific. Vague intentions die in the parking lot; concrete ones, with a first situation and someone who knows, get done.

Action 1

Something I will do differently:

The first real situation I will try it in:

Action 2

Something I will do differently:

The first real situation I will try it in:

Action 3

Something I will do differently:

The first real situation I will try it in:

Make It Stick

Who I will tell that I am doing this (and by when):

Where You Landed

Rate the same skills again. Compare to your starting page. The gap is what these two days were for.

Skill	Low	1	2	3	4	5	High
Turn a vague concern into a clear, answerable question	1	2	3	4	5		
Treat data as evidence, and say how much I trust it	1	2	3	4	5		
Read a metric carefully before drawing meaning from it	1	2	3	4	5		
Explore data for patterns without jumping to a cause	1	2	3	4	5		
Build and defend the best-supported explanation	1	2	3	4	5		
Choose and design a chart that is clear and honest	1	2	3	4	5		
Turn a finding into a recommendation I can stand behind	1	2	3	4	5		
Tell a data story without bending the truth	1	2	3	4	5		

The one skill I grew the most in:

The one I still want to work on:

My Open Questions

A running list across the two days. Each module answers some and raises others.

Appendix: Case Exhibits

The data behind the running case. Turn here whenever an activity asks for it.

Exhibit A. The Readiness Snapshot (what leadership saw)

Measure	Now	Trend
Workforce readiness index	71	down 7 pts over 4 quarters
Average time to fill a vacancy	60 days	up 30% (from 46)
Training completion	82%	flat
Voluntary turnover	16%	up 4 pts (from 12%)
Engagement score	3.4 / 5	down from 3.7

Leadership's read: "People are leaving for better pay. Fix compensation."

Exhibit B. Voluntary Turnover by Unit (last 12 months)

Unit	A	B	C	D	E	F	G
Turnover	9%	11%	27%	10%	8%	25%	12%

Two units, C and F, drive most of the increase.

Exhibit C. Turnover by Supervisor Tenure

Supervisor time in role	Average turnover
Under 1 year	24%
1 to 3 years	14%
3+ years	8%

Exhibit D. Turnover by Pay Position

Pay vs market	Average turnover
More than 10% below market	13%
Within market	12%
Above market	11%

Turnover is flat across pay position. It does not track pay.

Exhibit E. Exit-Interview Themes (n = 40, more than one reason allowed)

Reason cited	Share of leavers
My manager / supervision	45%
Workload / overtime	30%
Career growth	20%
Pay	15%
Other	10%

Exhibit F. Engagement by Supervisor Tenure

Supervisor time in role	Engagement (of 5)
Under 1 year	2.9
1 to 3 years	3.5
3+ years	3.8

Exhibit G. Certification Lapses vs Exits (timing)

In the two high-turnover units, lapses rose the quarter after the exits, not before. The backlog follows the exits; it is a symptom, not a cause.

Exhibit H. The Constraint (this quarter)

The budget will fund a targeted intervention in up to two units, or a small across-the-board step. Not both.

After the Training: Start Here

This page is the one to come back to. Find the situation you are actually in, and it points you at the move and the card.

When this happens	Do this	Where
A number looks wrong, or too good	Run UIE before you react. Understand what it is, interpret carefully, evaluate how far it reaches.	Module 4 · UIE Quick Card
Leadership wants an answer by tomorrow	Size the decision first. A reversible pilot and an irreversible policy do not need the same evidence.	Module 2 · Decision Classification
You have been asked for a report and you are not sure why	Find the decision behind the request. Run the funnel before you pull anything.	Module 2 · Framing Funnel
Two sources disagree	Do not average them. Ask why they differ: different populations, different rigour, different things measured.	Module 3
The number moved and nothing obvious changed	Rule out a change in the counting before you explain a change in the world.	Modules 3 and 4
You are comparing groups of different sizes	Counts track size. Rates track the problem. Find the denominator.	Module 5 · Analytical Moves
You have a pattern and someone is already naming a cause	Write down three explanations, then the strongest one you set aside, and why.	Module 6 · Explanation Canvas
You are not sure which chart to build	Write the question in words first. The question type and the true-zero rule pick the chart.	Module 7 · Which Chart
Someone is reading your chart wrong	Check the baseline, check the denominator, and check whether an average is hiding a spread.	Module 8
You presented a finding and nobody acted	A finding is not a recommendation. Say what to do, at what confidence, with one limitation.	Module 9 · Recommendation Canvas
Your recommendation is being ignored	Adapt the telling, never the evidence. Cut to one insight and pick the arc for that audience.	Module 10 · Data Story Arc
You are being pushed to sound more certain than you are	Say the confidence in the words we used, and name what it does not tell you. That earns trust rather than spending it.	Module 9

The Ten Modules, in Brief

Not a recap of the slides. The idea behind each module, the move it asks of you, and what it protects you from.

1. Data Literacy Today

The one idea Judgment, not tools, is what makes data useful. A number has to travel to become a decision, and the travel is judgment.

The move you make Ask what judgment step is being skipped, not what software is missing.

What it prevents Acting on a dashboard because it is current, clean and confident.

Your card none yet

Watch for it at work *The report that arrives every week and has never once changed a decision.*

2. Frame Better Questions

The one idea A concern is not a question. Analysis cannot rescue a poorly framed question.

The move you make Walk the concern down the funnel to an analytical question, then name in advance what would change your mind.

What it prevents Answering, perfectly, a question nobody needed answered.

Your card Decision Classification

Watch for it at work *A request that names a deliverable, “build me a dashboard”, rather than a decision.*

3. Data as Evidence

The one idea Data is evidence about reality, not reality itself. Evidence has a strength; you have a confidence. They are not the same thing.

The move you make Say what the metric stands for and what gap it leaves. Place your sources on the pyramid.

What it prevents Treating one metric as proof, and averaging sources that disagree.

Your card Shared Language

Watch for it at work *A single number quoted as settled fact, with no one asking where it came from.*

4. Reading Data Correctly

The one idea Before you make meaning from a number, know what the number is. This question comes first.

The move you make Understand, Interpret, Evaluate. Then mark the point where the data stops and you start.

What it prevents Confident readings of numbers nobody has defined.

Your card UIE Quick Card, Reading Red Flags

Watch for it at work *A percentage with no denominator, and a comparison with no baseline.*

5. Exploring the Data

The one idea Explore before you explain. The output is patterns and sharper questions, never causes.

The move you make Run the six moves. Produce two patterns you can defend and the question they raise.

What it prevents Naming a cause because the first cut looked convincing.

Your card Analytical Moves

Watch for it at work *Company-wide averages that hide two units doing something completely different.*

6. From Pattern to Cause

The one idea The question is never what the answer is. It is which explanation currently has the strongest case.

The move you make Build the whole field of explanations, weigh each one, and name the strongest you set aside.

What it prevents Single-cause lock-in, and confirmation dressed up as analysis.

Your card [Explanation Canvas](#)

Watch for it at work *The explanation that arrived first and never had to face a rival.*

7. Visual Thinking

The one idea The question picks the chart, not the software.

The move you make Write the question in words, name its type, check whether the measure has a true zero.

What it prevents Charts that look good and answer a different question than the one asked.

Your card [Which Chart](#)

Watch for it at work *A chart chosen because it was the default, or because it looked impressive.*

8. Designing Better Visualizations

The one idea The right chart, built wrong, still lies. Design has two jobs: clarity and honesty.

The move you make Remove what carries no meaning, choose one emphasis, fix one honesty problem, and let the title state the finding.

What it prevents Misleading people by default rather than by intent.

Your card [Which Chart, configure checklist](#)

Watch for it at work *Truncated axes, counts where rates belong, averages hiding a spread.*

9. Driving Decisions

The one idea A finding is what is true. A recommendation is what to do. Most analysis stops one step short.

The move you make Fill the canvas, then say it as context, tension, evidence, recommendation, consequence.

What it prevents Analysis that is correct and leaves the room no better able to decide.

Your card [Recommendation Canvas](#)

Watch for it at work *Recommendations that outrun their evidence, and briefs with no named limitation.*

10. Telling the Story

The one idea The story changes. The evidence does not.

The move you make FOCUS down to one insight, arrange it on the arc, and keep the limitation in the telling.

What it prevents Data dumps that move nobody, and persuasion that quietly drops a caveat.

Your card [Data Story Arc](#)

Watch for it at work *The caveat that disappears somewhere between the draft and the meeting.*
