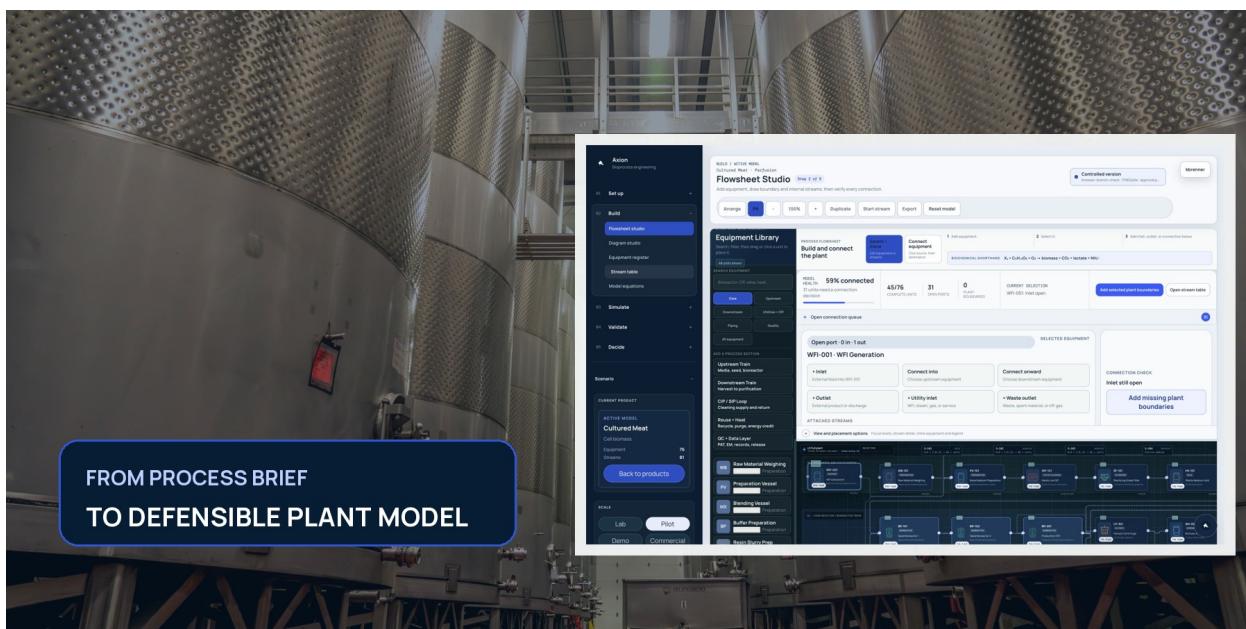




Axion Quickstart

Build your first complete screening model in 45 minutes



EDITION 2.6 • 18 AUGUST 2026 • ENGLISH

Axion · Bioprocess engineering software



How every lesson works

Read every lesson in the same order. The acceptance criterion is mandatory.

Element	Meaning
Goal	The one technical statement you should be able to make at the end.
Path	The exact navigation in the left workspace menu.
Action	The inputs and clicks in execution order.
Acceptance criterion	The visible result that must be satisfied before continuing.
Version	Save and briefly justify every decision-relevant change.

STOP RULE

Do not continue with blocking pre-run errors, unexplained open main-process connections, unknown units or a result marked Not decision-ready.

TRAINING OBJECTIVE

Build a fed-batch fermentation process as a training model. Use a new project and treat every result as screening. Each lesson ends with a visible acceptance criterion.



Training case

Field	Training value
Product	Fermentation-derived protein
Operating mode	Fed-batch
Reactor	100 m ³ nominal, 75% working volume
Decision	Is the concept structurally, energetically and economically plausible?
Maturity	Screening – not decision-ready

1 Navigation

2 Equipment library

3 Workbench

4 Modes + view

5 Flowsheet canvas

6 System Composer

The six areas used in this quickstart.

SAFETY

Use a new project. Do not overwrite an approved customer baseline and do not upload secrets.



Lesson 1: Create the project

Goal	Path in Axion
Create the project	Set up → New model

Steps

- Open a new project
- Select product and Fed-batch
- Enter intended use and scope
- Save as Screening

ACCEPTANCE CRITERION

Project name, owner, mode and maturity are visible.



Lesson 2: Review the process graph

Goal	Path in Axion
Review the process graph	Build → Flowsheet studio

Steps

- Open L0 Full plant
- Trace Main Process from inlet to outlet
- Show unconnected units
- Enable Fit and Flow labels

ACCEPTANCE CRITERION

No unexplained main-process island remains.

The screenshot displays the Axion Flowsheet Studio interface. On the left is a sidebar with navigation tabs: 01 Set up, 02 Build (selected), 03 Simulate, 04 Validate, and 05 Decide. Under '02 Build', 'Flowsheet studio' is selected. Below this is a 'Scenario' section with 'CURRENT PRODUCT' set to 'Cultured Meat' and 'ACTIVE MODEL' showing 'Cell biomass' (76 units) and 'Streams' (81 units). A 'Back to products' button is visible. The main area is titled 'Flowsheet Studio Step 2 of 5' and shows a process flow diagram. The diagram includes various equipment units like 'Raw Material Weighing', 'Preparation Vessel', 'Blending Vessel', and 'Buffer Preparation'. A 'PROCESS FLOW SHEET' section on the right shows '59% connected' and '31 units need a connection decision'. Below this is a 'CONNECTION CHECK' section indicating 'Inlet still open' and a button to 'Add missing plant boundaries'. The bottom of the interface shows a detailed process flow diagram with various equipment units and streams.

Use the real Axion flowsheet, not a simplified sketch.



Lesson 3: Connect equipment

Goal	Path in Axion
Connect equipment	Build → Equipment library

Steps

- Add a feed vessel
- Connect feed to the reactor
- Add a product outlet
- Check tags and stream direction

ACCEPTANCE CRITERION

Every new unit has at least one technically meaningful connection.



Lesson 4: Set operating parameters

Goal	Path in Axion
Set operating parameters	Build → Global parameters

Steps

- Set 100 m³ nominal volume
- Set 75% working volume
- Review feed profile and batch duration
- Add units and source status

ACCEPTANCE CRITERION

Every critical parameter shows value, unit, range and source/status.



Lesson 5: Run the simulation

Goal	Path in Axion
Run the simulation	Simulate → Simulation

Steps

- Open the pre-run check
- Resolve errors
- Start the run
- Read balance closure and warnings

ACCEPTANCE CRITERION

Run completed; balance deviation is accepted or explained.



Lesson 6: Review the schedule

Goal	Path in Axion
Review the schedule	Decide → Factory twin → Scheduling

Steps

- Generate base schedule
- Insert CIP after batch
- Check resource conflicts
- Document the bottleneck

ACCEPTANCE CRITERION

No double booking; cleaning and bottleneck are visible.



Lesson 7: Compare TEA/LCA

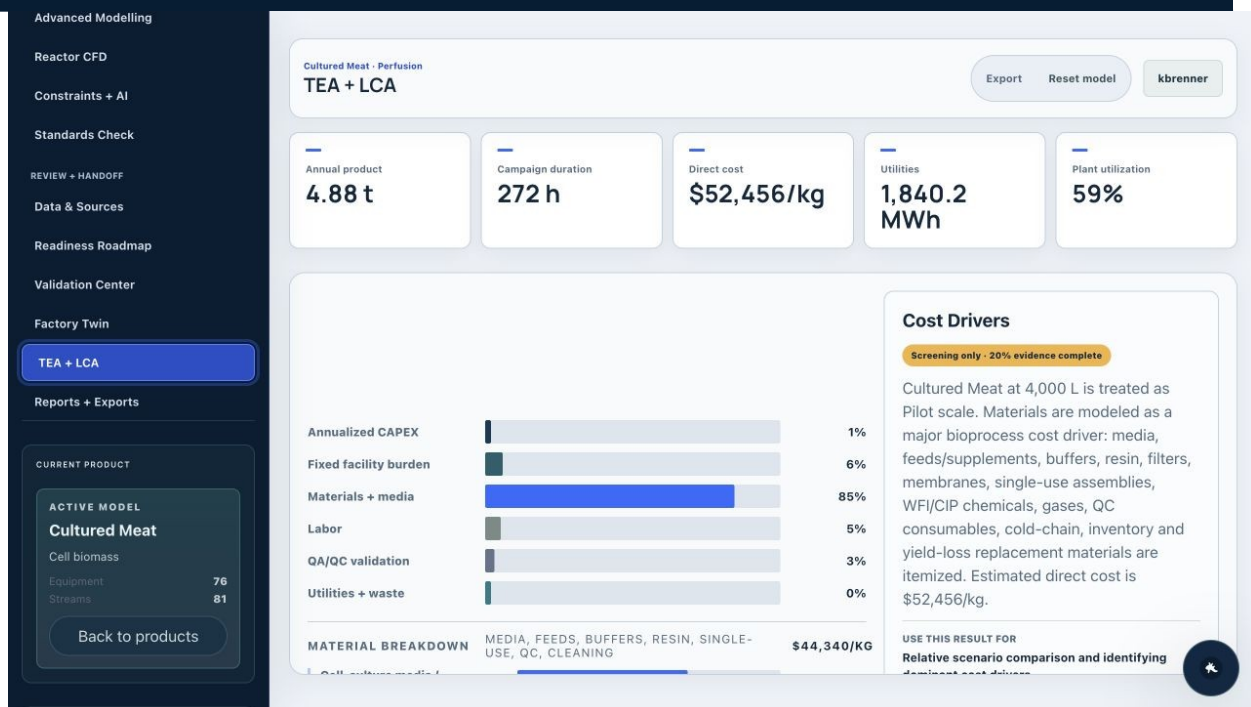
Goal	Path in Axion
Compare TEA/LCA	Decide → Economics / LCA

Steps

- Align the functional unit
- Review media cost
- Run sensitivity
- Compare hotspots

ACCEPTANCE CRITERION

Cost and impacts share one quantity basis and include ranges.



TEA and LCA share the same production basis.



Lesson 8: Validate and export

Goal	Path in Axion
Validate and export	Validate → Readiness · Decide → Downloads

Steps

- Confirm maturity
- Assign open gaps
- Save a version
- Export and open Complete package

ACCEPTANCE CRITERION

The export opens correctly and includes inputs, results, version and maturity.



Training complete

TRAINING COMPLETE

You can now create, connect, simulate, review and export a model. Use the full manual for CFD, ODE/PDE, scheduling, TEA/LCA, governance and administration.

- Repeat the exercise with one real company dataset.
- Create a branch and compare one process alternative.
- Have another user review the model and restore the previous version.

[Open Axion](#) [Book onboarding](#)