

Power-Up the Business Case: Deep Dive Quantifying Multiple Benefits Using JUSTIFI

Worksheet for Session 3 (10/6/2026)

JUSTIFI Practice with Camper Canopies Example

Purpose: This worksheet guides you through practical exercises using the JUSTIFI tool to build a business case for operational improvements. By working with a fictional Camper Canopies example, you'll practice identifying and quantifying multiple benefits, such as productivity, safety, and quality, beyond energy cost savings. The activities include data collection, diagramming, and payback calculations, helping you apply structured assessment methods and strengthen your skills in evaluating real-world facility challenges.

We will go over answers in webinar Session 3 on 10/6/26. If time permits it is highly recommended **after** you complete this worksheet that you try modeling an example project from your own facility.

Please note: This is a work of fiction. Any similarity to actual people, living or dead, or actual events, is purely coincidental. Some values or situations have been exaggerated for teaching purposes.

Instructions: Read company background and operational team interviews section. Follow the worksheet prompts and answer the questions (20).

Company Background and Operational Interviews

JUSTIFI Practice: Camper Canopies

Value Proposition: "We Sell Shade."

Performance Metrics: Safety, Quality, On-Time Delivery, and Cost

Goals: Increase Revenue 20%, Reduce Defects 10%, and Reduce Cost 20%

Details

- Manufacturer makes custom, high-quality camper awnings with offerings including manual or electric, any length, and 15 colored patterns in vinyl or acrylic fabrics
- They have 2 lines: "small" for windows and doors and "large" for patio awnings which are full length of camper.
- Plant manager problems: safety incidents, defect rate on "small" line, unreliable compressor, "small" units market price pressure.

General Information	Annual Energy Information
Location: 15013 Denver W Pkwy, Golden, Co 80401	Electricity Use: 1,680,000 kWh
Building Age: 50 years	Electricity Cost: \$ 0.083/kWh
Building Area: 70,000 ft2	Demand Use: 1,500 kW
# of Employee (This facility/Total): 200	Demand Cost: \$7.00/kW
Annual Sales: \$20M	

Synthetic for teaching purposes

This is a compressed air assessment.

Notes from interview Operations Team

- Maintenance manager, Jeff Jenkinson says they have an end of life compressor which breaks down frequently 10 per year. Jeff says there is only have one repair vendor who has "the guy" who know

how to fix it. Cost \$1500 each visit + repair parts. Repair parts are rarely in stock. Repair parts have a long lead times. Each service visit is \$500 in repair parts.

- Hilary Smith, the Small awning line supervisor, says they use air tables to move fabrics and run most of the punching equipment. Operators blow off debris from punches and chop saws cutting the aluminum awning rail. Sometimes they get debris in their eyes. The Small awning line stops or drastically slows down due to compressor problems. She guessed this impact is probably less than 1% (guessed 0.5%) on productivity. It is certainly a nuisance. When compressor problems occur, the supervisors must temporarily move operators to other work streams. In the facility there are many air leaks. She says operators use colored duct tape to patch leaks themselves. It looks like a carnival in the plant and does not make a good impression on facility guests. It is also hot near the compressor room located in the Small Awnings department. The Small Awnings supervisor believes we could fix the temperature and noise in the area; operators wouldn't complain and stop propping exit doors open to cool off the area.
- The Safety Manager, Tom Wenning, says they have noisy air leaks and operators complain. Camper Canopies has a hearing conservation program which covers everyone. Operators prop open the emergency exit near the compressor room because it is very hot. One time an unknown person walked into plant through the propped open door. That caused quite a safety risk and distraction from schedule. The Safety Manager later estimates 20 operators could be excluded from hearing conservation program if the noisy leaks were eliminated. Because it was so hot last summer, operators plugged in too many fans, and they had a small electrical fire.
- The Plant Manager, Amy King, is concerned that the Small Awning line is not keeping up with demand. Also, a few defective awnings are being shipped back from customers from this line. If they can't shave some cost from the line, they may lose market share. She has mentioned to maintenance manager that the colored tape must go too.

JUSTIFI 3 Phases Approach (Note: as mentioned in session 2, energy assessment best practices have been organized into DMAIC methodology and simplified into 3 phases in JUSTIFI.)



Pre-visit - exercise

1. Use Camper Canopies background and interview notes information to **complete a Turtle Diagram**.
[Turtle Diagram Template](#)

In **JUSTIFI** – Load Canopy Training example and work through pre-visit phase using arrow prompts at bottom of screen

2. Add a stakeholder. Who did you add?
3. From the Facility Details information, what is the annual energy bill for this company?
4. Answer or edit 2 facility questions. Write down the answer or changes.

Explore KPIs/KPMs baseline values:

5. We learned from engineering that they must help reset equipment when there is a compressed air failure. What is the estimated cost/year for engineering support year for these kinds of problems?
6. Maintenance Labor Cost (KPM baseline) How many hours per year did maintenance estimate on labor costs fixing compressor?

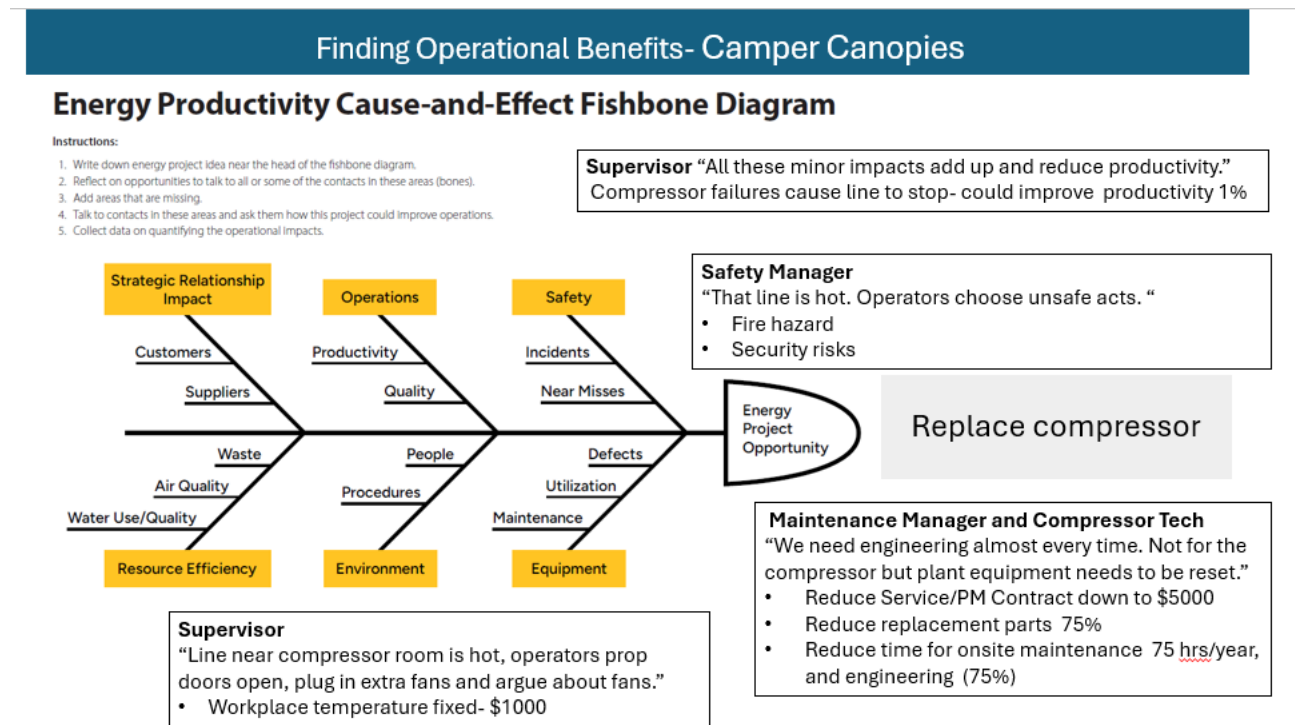
Industrial System Inventory

7. Industrial Use Equipment- Review Take Stock questions. How does this 1999 compressor support the plant?

Data Collection

8. In the Details tab, how much does it cost/year to run this compressor?
9. What are the two EEMs (energy efficiency measures/recommendations) made for this assessment?
10. On the EEM tab, for replace compressor recommendation, what is the estimated implementation cost?
11. For the fix air leaks recommendation, how is \$3000 implementation cost estimated?

From interviews with stakeholders a fishbone diagram has been completed. See below.
Within JUSTIFI- click through each multiple benefit added from this fishbone diagram to explore how value was calculated.



12. What is the financial impact for 75% less engineering time if the compressor is replaced?

13. Under vendor cost reduction benefit, what is the cost reduction captured?

14. How much is repair part cost savings estimated?

In JUSTIFI, select executive summary in Data Evaluation Summary

15. What is the payback period for energy only for these recommendations?

16. What is payback period with operational impact (multiple benefits) included?

Because in real life these numbers change based on new information or feedback. Make these changes.

17. Implementation costs for new compressor were too low, now enter \$80,000. What is the updated payback for the projects?

18. Add a new incentive for \$5000. What is the updated payback?

19. Download a backup file, what is the default file name and what kind of file type is?

20. What else is needed to get this project approved?

Try a project of your own.

If you have questions, please send email to Sarah.cooney@nlr.gov
