

Avoiding Common QFD Errors with Triptych

Triptych is a software tool in the SDI Tools suite that provides the capabilities of QFD, TRIZ, and Design Selection. Triptych allows the user to dynamically create interactive QFD Houses of Quality on Microsoft Excel™ worksheets.

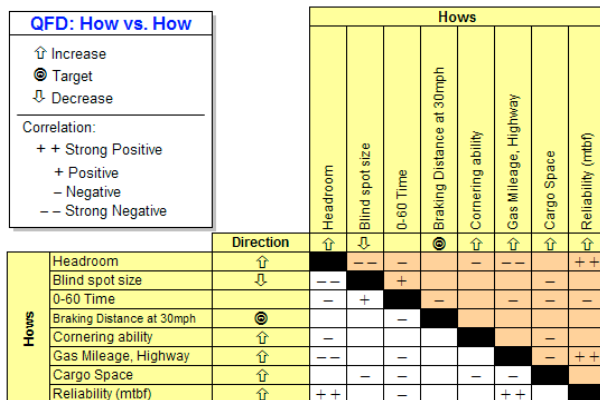
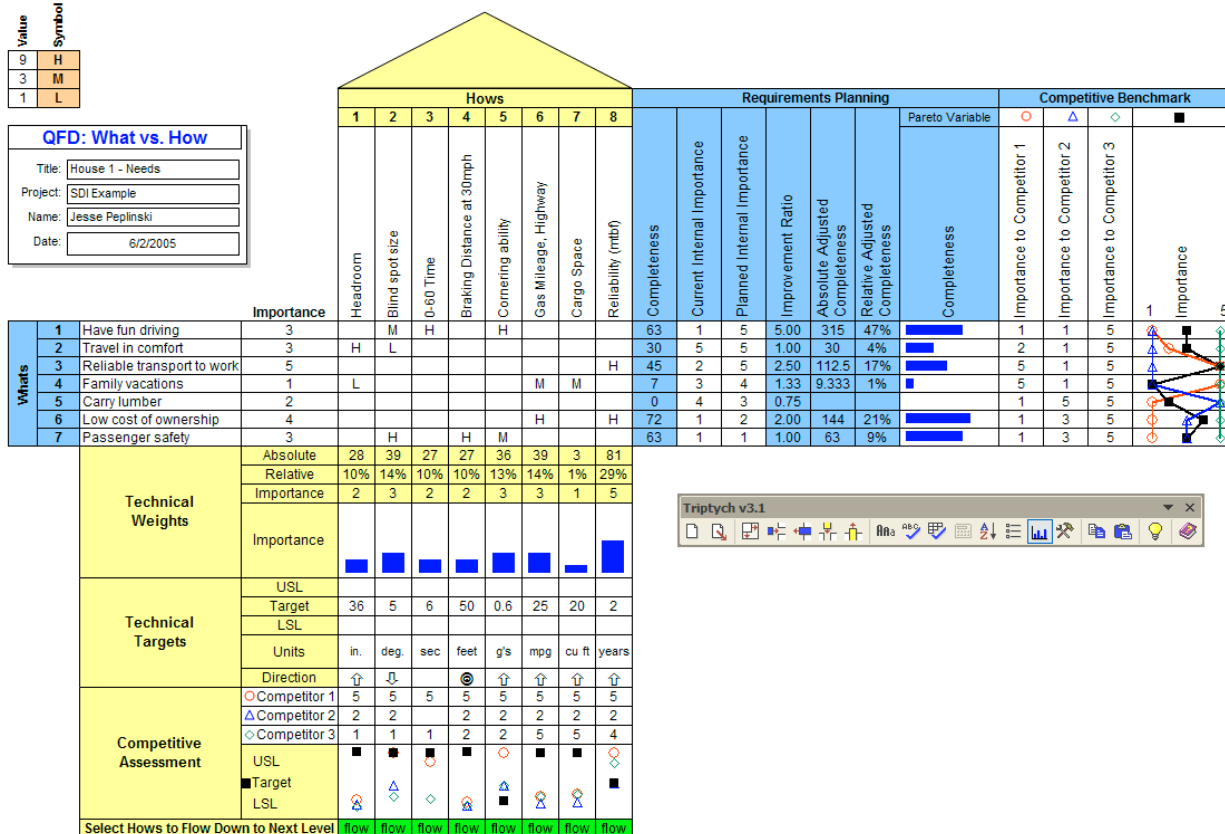


Figure 1. QFD House of Quality created with Triptych

Triptych has a unique, built-in function that checks the active House of Quality for common QFD errors. Pressing the Check Sheet button on the Triptych toolbar (see Fig. 2) will perform error-checking and report the results, as shown in Figure 3.



Figure 2. Triptych toolbar with the Check Sheet button highlighted.

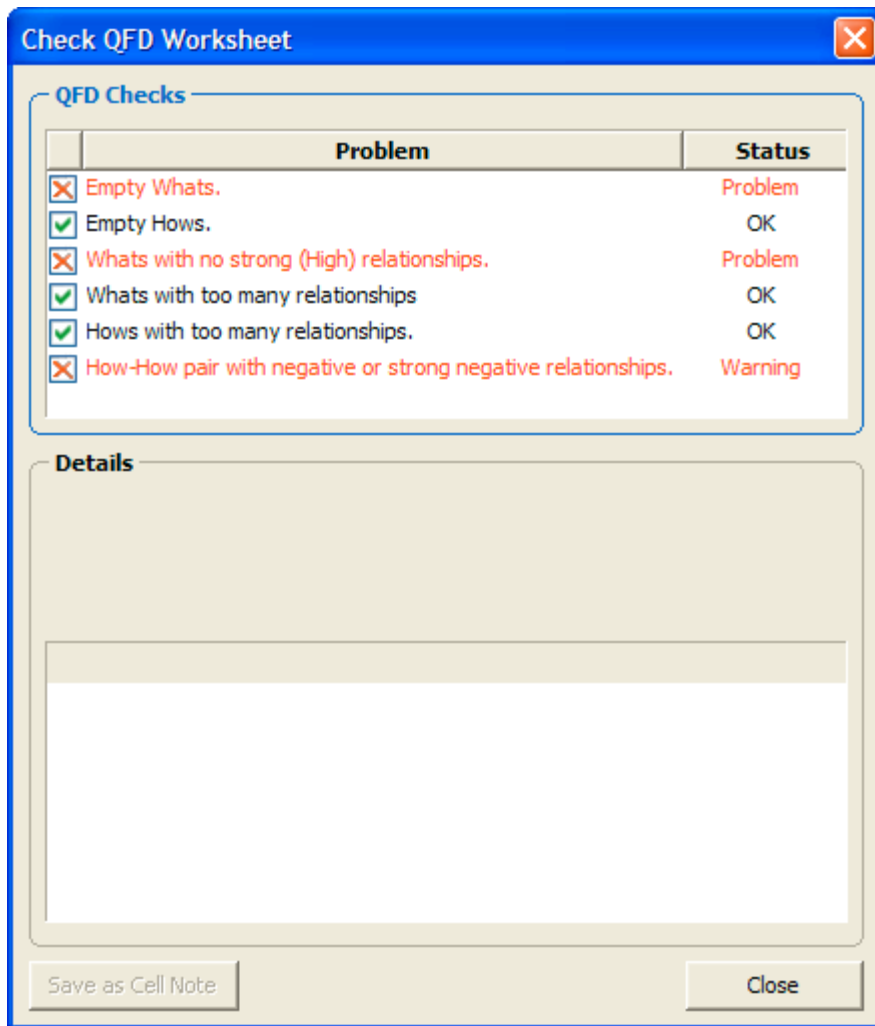


Figure 3. QFD Error checking report.

Tests for six common QFD errors are performed and the status for each test is reported as OK, Problem, or Warning. Clicking on one of the six problem areas will give a detailed description of problem and any action, if needed, to correct the problem. Should the test return a Problem or Warning status, the item(s) in the House of Quality that need to be examined are listed in the region on the bottom of the form. Figure 3 shows that the House of Quality in Figure 1 has two Problems and one Warning.

Problem #1

Clicking on **Empty Whats** gives more detail:

- **Problem:** Whats with no relating Hows mean that there is no way to assure that the What will be achieved
- **Action:** Define a new How.

and shows that the What labeled **5 – Carry Lumber** is the only one causing the problem (see Fig. 4). You can now go and add another How to the House of Quality that ensures that the What (Carry Lumber) is achieved.

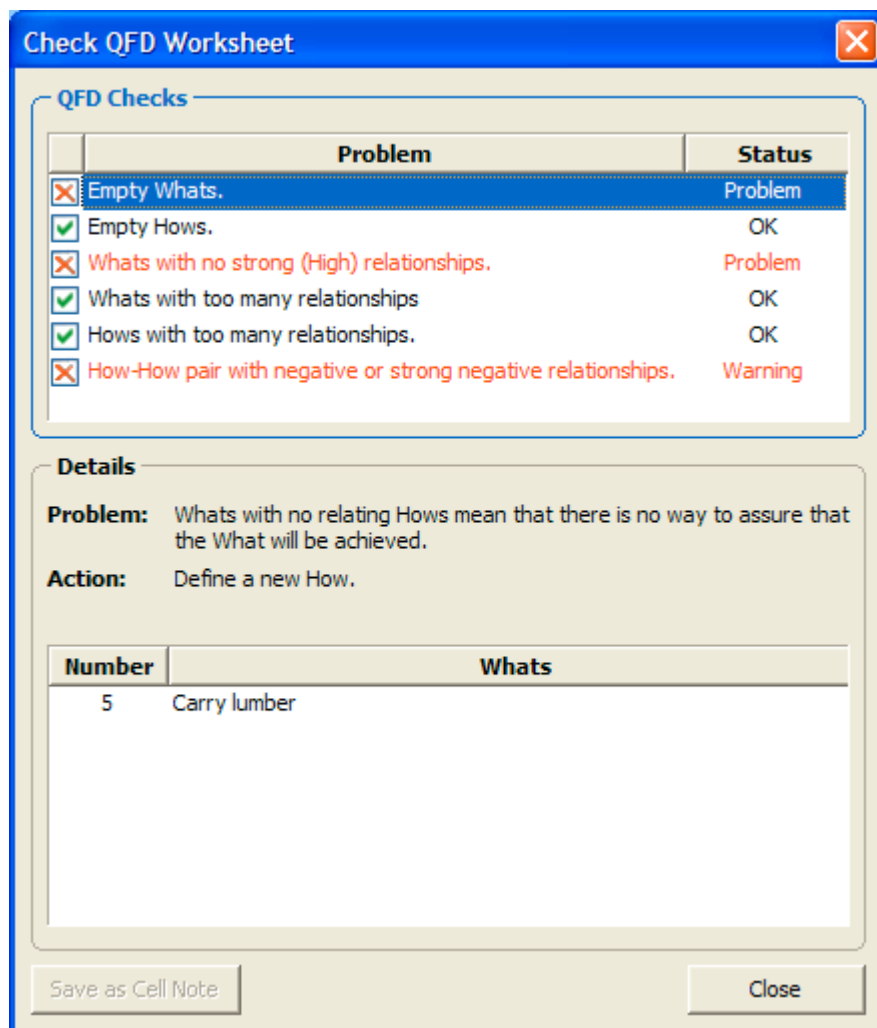


Figure 4. Details for the first problem (Empty Whats)

Problem #2

Clicking on **Whats with no strong (High) relationships** gives more detail:

- **Problem:** A What is difficult to achieve without at least one strong How
- **Action:** Brainstorm additional Hows, although it may not be possible to come up with a How that will have a strong relationship for the What in question.

This shows that the Whats labeled **4 – Family Vacations** and **5 – Carry Lumber** are the ones causing the problem (see Fig. 5). You can now go and add one or more Hows to the House of Quality that will have strong relationships with the two Whats (Family Vacations, Carry Lumber).

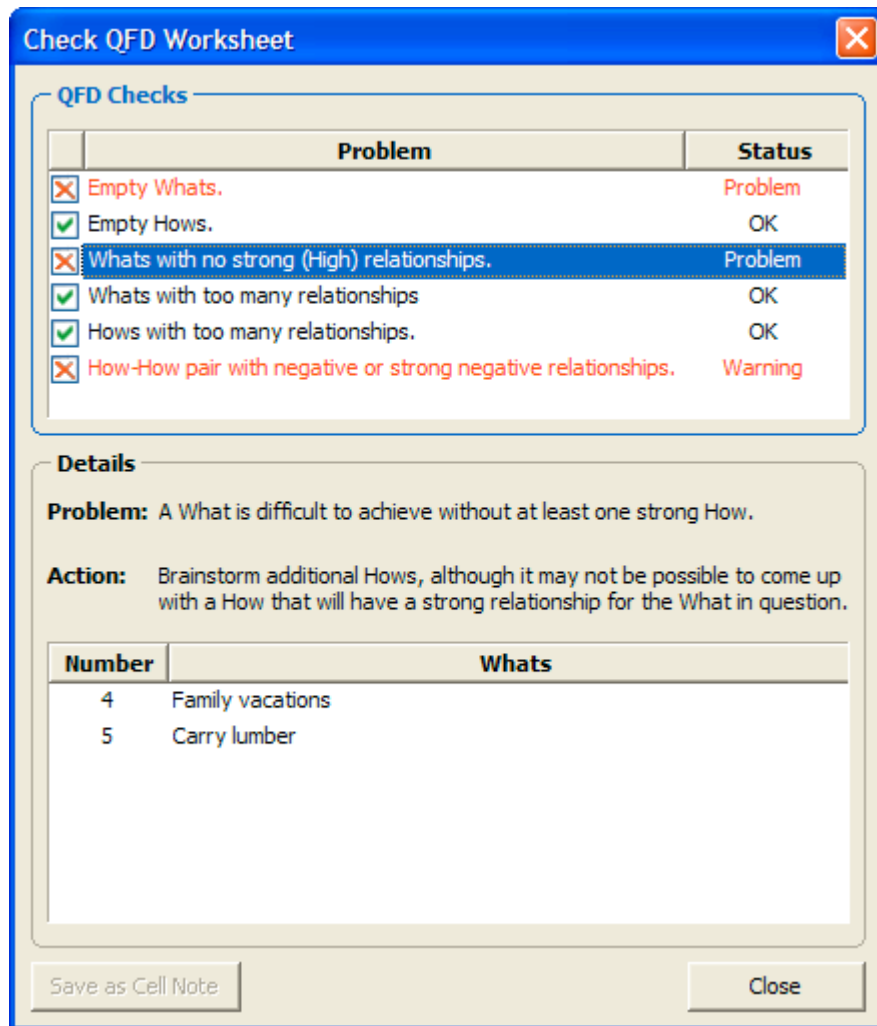


Figure 5. Details for the second problem (What with no strong relationships)

Warning

Clicking on **How-How pair with negative or strong negative relationship** gives more detail:

- **Problem:** A negative or strong negative correlation between Hows represents a trade-off.
- **Action:** Use TRIZ to generate new Hows that can eliminate the trade-offs.

This shows that there are multiple entries in the How vs. How matrix with negative (–) and strong negative (–) relationships. Having negative and strong negative relationships among the Hows is not a problem; however, it is best to identify the need for a trade-off or compromise early in the design cycle.

Clicking on an entry in the bottom region (**Gas Mileage, Highway / Headroom**) makes the **Save as Cell Note** button active (see Fig. 6). Pressing this button will add a cell note to the **Gas Mileage, Highway / Headroom** cell in the How vs. How matrix as a reminder of the problem and action, as shown in Figure 7. You can then launch **TRIZ** tool, also a part of Triptych, at any time to generate new Hows that address the trade-off.

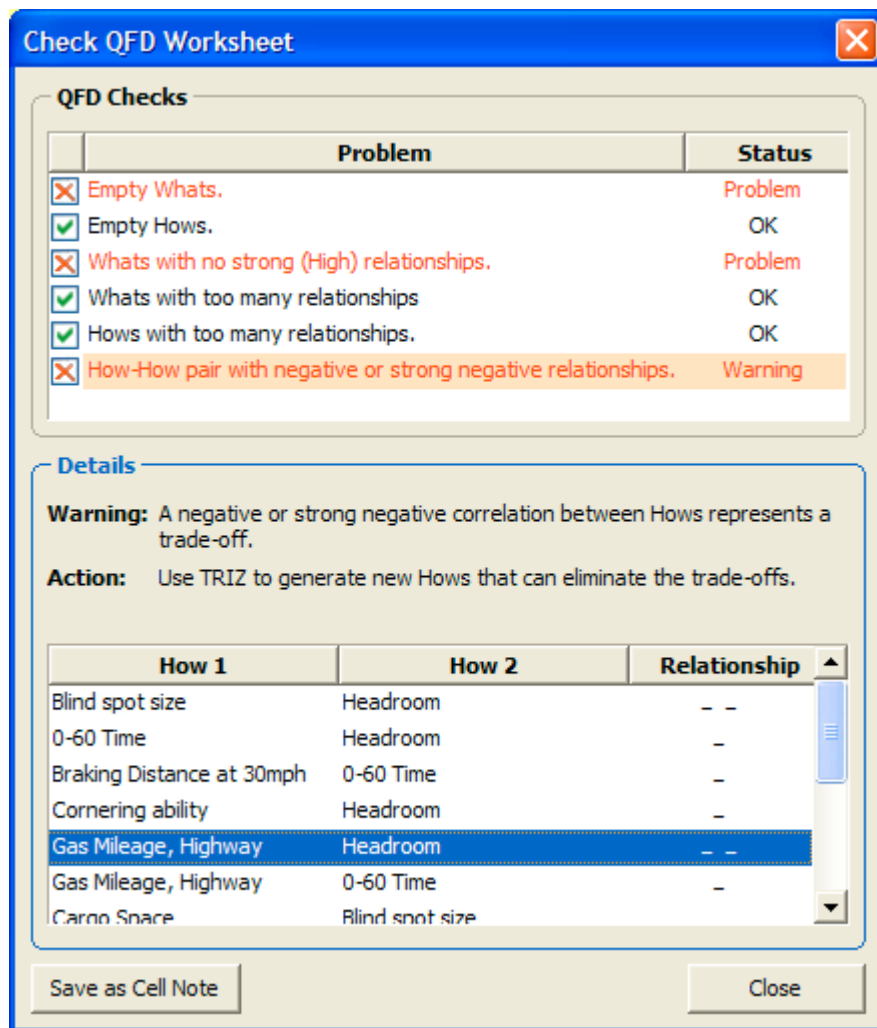


Figure 6. Details for the warning (How-how pairs with negative or strong-negative relationships)

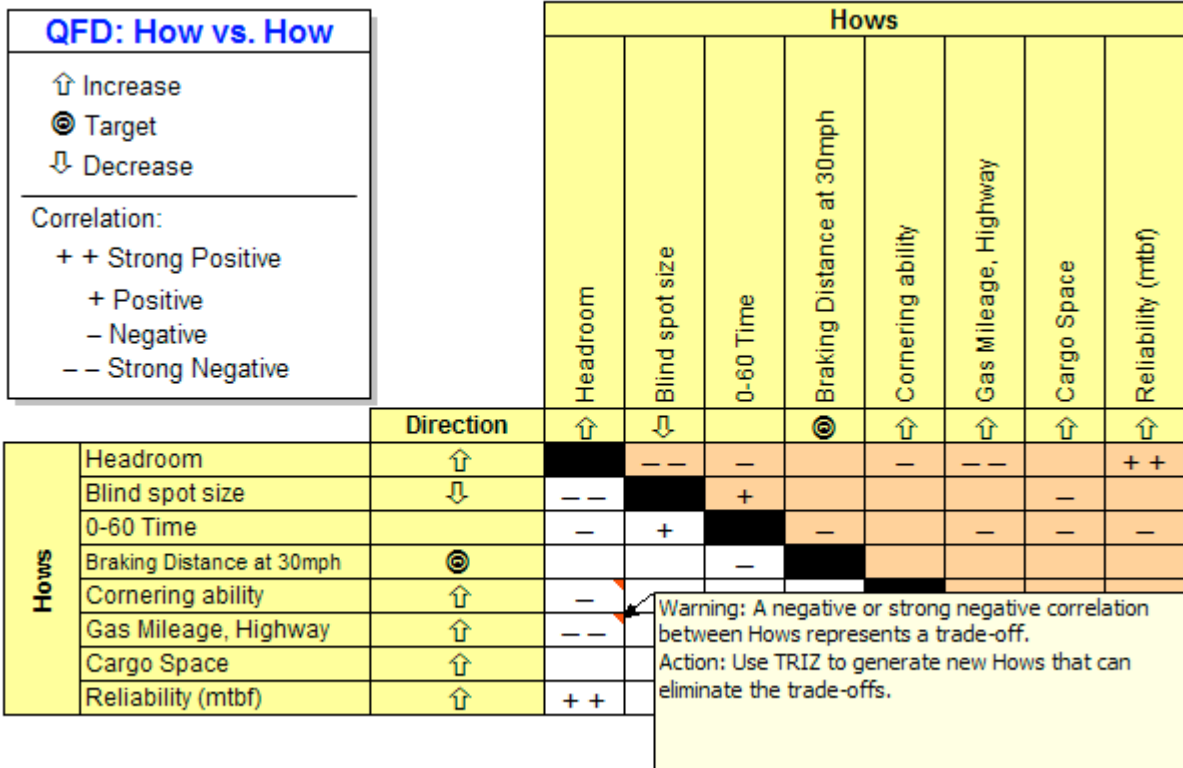


Figure 7. Cell note is added to the How vs. How matrix as a reminder.

Summary

You have seen an example of how common errors in QFD House of Quality can be easily identified in Triptych; thus ensuring that the voice of your customer (Whats) is correctly translated into actionable requirements (Hows). To learn more about the capabilities of Triptych, please visit www.stat-design.com.