6 Step Lean Problem Solving Software Self-Guided Walk Through

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Section 1: PHRED Company Overview

- PHRED was formed in October 1991 in the UK and became a US corporation in 1994.
- We focus on creating software systems for solving problems, capturing knowledge, keeping it and reusing it.
- Crucially, we know how to make problem solving work within the day to day realities of an organization’s existing production processes.
Who uses PHRED?

Common characteristics of PHRED customers:

- Multi-site, complex organizations
- Highly interdependent & global
- Complex, demanding customers
- Multiple, interdependent, geographically dispersed plants
- Highly diverse, skilled workforces
- Rely on the quality of their supply chains
Section 2: PHRED System Overview

Issue Identification - Issues are identified, worked and tracked on a single screen.

6 Step - Users develop root cause, permanent solutions and prevent reoccurrence.

Database - As issues are identified and the 6 Steps are being worked on, they are captured in the database.
Private to Shared Architecture

A secure environment for handling internal, customer and supplier problems. There is a private version for internal use and a shared version where suppliers or customers work together on problems.
Connections to Other Systems

A: Web Service Request

B: Web Service Response

Issue ID

PHRED

Overview

Architecture

• Balance

• Tech. Robust

• Implementation

• Configurable

• Plays with Others

6 Steps

Database

BIZ Benefits

PHRED Users

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PHRED clients typically have highly complex security, system access, integration, data storage and retrieval needs. They also, in apparent contradiction, need collaboration, openness, speed of access, ease of data retrieval and flexibility. PHRED balances both compliance and collaboration.

Problem solving is about thinking and communication. It is a highly people-centered process. Because of this, there are inherent difficulties as an IT system. If a system is not easy to use, people will go round it.

It’s our understanding of the ‘how to’ of collaboration and communication as a business system that makes PHRED so user friendly.
PHRED Software very rarely has problems.

It is robust and simple.

We have never needed a separate support organization. It’s not luck; we could not operate as we do without the flexibility, reliability and robustness demonstrated in the many years of PHRED software use.
PHRED

Overview
• Architecture
• Balance
• Tech. Robust

Implementation
• Configurable
• Plays with Others

Issue ID
6 Steps
Database
BIZ Benefits
PHRED Users

Easy to Implement

PHRED is intuitive, it is designed for the occasional user as well as a small number of regular problem solvers.

On-line training is included in the system. On-site training is initially provided by PHRED on a site-by-site basis. But, the system is inherently easy to use.

It spreads virally, with or without training.

“Starting in May ’08, Laurie from PHRED and I trained our plants across the US, Mexico, Germany, Romania and Italy. We were at each of our sites for 4 days training between 35 and 45 people per site. That gave us sufficient momentum to get the system up and running. We haven't needed PHRED to train us since.

-Mark Novak, Key Safety Systems
Configurable

PHRED software is highly customizable. It can be configured to match the system flow, words and data needs of your organization, it’s products, customers, supply chain, etc.

You can choose what data would be most helpful for your organization to track and make changes whenever you wish via the Administration function.

Reports can also be customized for your specific needs.
PHRED Plays Well with Other Software Systems
Section 3: Issue Identification

- All issues are identified and tracked on a single screen.
- Configured to reflect your tracking and data needs.
- Available across the organization and selected suppliers and customers.
- The issue can either be worked and closed here or, if the problem is significant enough, it can be escalated to a full 6 Step investigation.
A Common Page to Describe & Classify Issues

- Describe the issue to the level of detail you need
- Classify the issue so you know where it fits in your hierarchy
- Note who is involved in the issue and which people are working on the issue
- Capture the data elements related to the issue that the organization has determined are most helpful to track
Set Actions and Track their Completion

No guessing: “What did we agree to do?” Use the actions sections to:

- Describe the actions & keep them all in one place
- Assign actions & responsibilities
- Automatically email the actions when they are assigned
- Set a due date & note the completion date
- Enter completion/verification validation comments
- Log the last time an action was updated so everyone knows about the change
Attach Supporting Data

- Attachments provide a common, easy way to attach pictures, drawings, diagrams, charts and any form of electronically saved data.
- The data is always attached to the relevant issue or problem.
- Links to supporting data are part of the reports on the issue or problem.
Access Other Data

Via OBDC
- Link to other databases via ODBC connections
- Dynamically access data stored elsewhere and save it as part of the problem
- Export data on a scheduled basis to be picked up by other databases

Via Pop Ups
- Pop Ups will allow you to access web-based applications while you are inside a problem.
PHRED has many standard reports, self-generated reports and charts.

All reports come with the linked pictures, drawings and diagrams, providing as much information as possible.

PDF conversion allows customer specific report formats.

The standard set of reports is normally enough, but you can have specific, custom reports created.
PHRED has built in steps to make sure that ‘the loop’ is closed.

- Tracks that all actions have been closed
- Database allows full audit of the issue and actions taken
- Issue owner has complete visibility of the process to ensure completion
- Understand what has been done and that it has been done right
The database is an information repository to learn what happened, who did what and who experienced this before.

- Users can search across the organization, its products, customers, supply chains, and other data elements.
- Keyword searches look for occurrences of word strings within the problems.
- You can search for a particular problem ID number or a serial number of a part.
Expert Access

- The library shows who has had the problem before or has had a similar experience.
- PHRED helps find experts listed by function across the organization and supply chain.
- Experts can see problems across their areas of concern and can become involved with those problems.
Online Coach & Help

Coaching and Help is available to answer the basic questions of how to use the system. It is configurable via the administration function to match your organization’s language and needs.

Coaching & Help includes:

- How to fill out the issue identification form
- How to work the system, attach files and other technical information
Close Issue or Escalate to the 6 Step Process

- The issue/problem can either be closed here or, if the problem is significant enough, escalated to complete the entire 6 Step process.
- By individual problem, you can determine if this issue is worth investigating to root cause and permanent solution.
- Issue identification information is carried forward to the 6 Step investigation.

PHRED
Overview
Issue ID
- Describe/Classify
- Actions
- Attachments
- Access Data
- Reports
- Closing the Loop
- Database
- Experts
- Coach/Help
- Close/Escalate

6 Steps
Database
BIZ Benefits
PHRED Users
Section 4: 6 Step Closed Loop Problem Solving

- Problems are investigated through a rigorous, question-based reasoning process. Data to support reasoning is attached. Problem knowledge is captured in the database as the 6 Step Process progresses.

- The system guides users through the stages of the 6 Step process.
Step 1: Using a Team Approach

• PHRED handles the logistics of the problem, leaving the investigators to focus on the logic of the issue.

• The software walks the team through investigating the problem using a multiple perspective approach.

• Information is collected from those directly associated with and/or impacted by the problem.
Investigation Team Shares a Common Process & View

- PHRED is a central place to manage the problem as it progresses through the stages of the 6 Step process.
- The database collects all the information about the problem as the team works through its investigation.
- With PHRED, everyone is on the same page.
Common Neutral Questions Drive the Investigation

- At each stage, PHRED provides the investigator with the necessary questions to conduct a rigorous analysis of the problem.
- By reasoning around questions, not people and personalities, PHRED takes a lot of the potential conflict out of the investigation.
- PHRED asks the difficult questions and is the focus of the dialog, not the investigator.
Step by Step Actions: Visible/Shared & Tracked

All actions are kept in one place. They are manageable & verifiable by the team. The actions section is used to:

- Describe the actions
- Assign actions/responsibilities
- Automatically email the actions when they are assigned, reassigned or deleted.
- Set a due date & note the completion date
- Enter completion/verification validation comments
- Log when an action is updated so everyone knows about it
Common Database

- As the investigation team works through the 6 Steps, all the thinking and supporting evidence is available online.

- The database becomes the collective memory of the investigation. This includes:
  - what is the situation now
  - who is working on it
  - what actions are taken

- The database is also a powerful research tool to learn if something like this happened before.
Face to Face & Virtual Go See

Investigation

- PHRED drives the investigation team to go see the problem first-hand and talk to those closest to the problem.
- When the investigation team cannot go see in person, they use the system to drive the investigation and its associated actions globally.
- The common questions and process allow the investigation team to understand the local problem thinking and data.
Finding Experts to Help with the Investigation

- PHRED helps the investigation team find experts listed by function across the organization and supply chain.
- The database is also useful in finding experts because it shows who has had the problem before or has had a similar experience.
- Experts are able to see the investigation via the database. If they find it is in their area of interest or expertise they often will contact the investigation team directly.
Efficiently Work with Experts

- Experts typically have too many problems and not enough time. Incomplete problem information wastes expert time.
- PHRED helps the team provide detailed information to the experts so the expert has everything they need.
Knowledge Networks

- PHRED helps the team network outside their normal working relationships. For instance, I can find people who have had similar problems in other plants.

- PHRED allows problem investigators and the people with shared interests to network with the formal communities of practice, such as engineering design.
‘How To’ Coach & Help

- Each step of the process has Coaching and Help to guide the team with their investigation. The information appears in a pop up box over the current screen.
- The Coach provides the background detail for each question. The coaching is tailored to be specific to your company.
- Help lists how to navigate through PHRED.
Step 2: Describing the Problem

- A single screen is used to create a well-formed problem description.
- This is a clear, concise, multi-perspective, in-depth view of the problem collected from as many information holders as possible.

Talk to as many people as you can that are involved in the problem.
7 Universal Questions that Describe Any Problem

PHRED gives the investigators the right questions to ask to develop an understanding of the problem & collect the relevant data.

- What seems to be the problem?
- What is actually happening?
- What should be happening?
- Where does it happen?
- When does it happen?
- Who is involved?
- What is the extent of the problem?

Producing an in-depth, well formed problem description on a single screen.
What Seems to be the Problem?

Ideally, a problem statement should be well thought out, specific, and complete.

If the problem is difficult to fully identify, the user will enter what they understand so far, then they will be guided through developing a clearer understanding of the problem.
What is Actually Happening? What Should be Happening?

Differentiating between what is actually happening and what ideally should happen is crucial to developing a thorough understanding of the problem. Describe in specifics, not in generalizations. If you cannot provide specifics, you need to go see.
Where does it Happen? When does it Happen?

Pinpoint where and when the problem occurs.
You may find that different Functional Areas are involved in the problem and the problem occurs at different times with different people.
Who is Involved?

Find out those involved in the problem. Include internal and external customers that are affected by the problem. Answering this question will reveal who you will need to involve in later stages of the problem solving process to solve the problem and prevent recurrence. There can be more people involved in the problem than initially apparent.
What is the Extent of the Problem?

Here you need to work out how "big" the problem is. It can include costs, quality issues, safety issues, and even organizational image issues. For example, the following questions might be considered:

- How much is this costing us?
- How much loss or waste is there?
- Was anything put on hold?
- How long was the line down?
- Was anyone injured?
- Was there damage to equipment or facilities?
Go See

- PHRED drives the investigation team to go see the problem first-hand and talk to those closest to the problem.
- When they cannot go see in person, they use the system to ask the right questions so that those closest to the problem can go see and report back.
Similar Problems in the Database

Search by

Keyword or Name

Type

Has it happened before?

Have similar things happened in other areas?

How often does it happen?

- Has the problem or something like it happened before and what did we do about it?
- Search across the organization’s structure, products, customers, supply chains, and other data elements.
Check the Coach

- Coaching guides you in how to describe the problem and in what level of detail.
- The coaching is built up over time, with examples specific to your organization.
Assign Actions

Who needs to do what to gather the right information?

- Describe the actions
- Assign actions/responsibilities
- Automatically email the actions when they are assigned, reassigned or overdue
- Set a due date
- Note the completion date
- Enter completion/verification validation comments
- Log when an action is updated so everyone knows about it
Step 3: Temporary Fix

- Now that you know what’s wrong, it’s time to apply the band-aid.

- Some call it temporary countermeasures, others interim containment.

- Control the situation at the scene of the problem, in the supply base, at the customer and across the organization.

- These actions are temporary and must be removed when the problem is solved.
Steps to Describe the Temporary Fix

Describe the Temporary Fix & Notify the Necessary People

Risk Containment

Containment steps on a single screen
Describe the Temporary Fix & Notify the Necessary People

Temporary Fix is a work process, work activity or work instruction revision designed to temporarily remedy a problem until a Permanent Solution is developed for the as yet undetermined Root Cause.

Notify the Necessary People
Who needs to be aware of what was (or is going to be) done? This can include individuals who will need to contribute to or maintain the Temporary Fix.
Risk Containment

Is There a Safety Risk?
Did Defective Product Escape Out from our Production Facilities?
Did Defective Product Escape to Customer?

For instance, did a defective brake pedal assembly reach the car manufacturer? Did that defective part make it out to the final customer?
Create & Track Actions

Setting the right actions & monitoring them is a crucial step in creating a temporary fix. Use the actions section to:

- Describe the actions
- Assign actions/responsibilities
- Automatically email the actions when they are assigned
- Set a due date & note the completion date
- Enter completion/verification validation comments
- Log when an action is updated so everyone knows about it
Consult Experts about Risk

- Depending on the possible risks of your temporary fix, seek expert’s advice.
- Show the experts the problem as it has been developed so far.
- Check if they can add anything from their experience.
Search the Database for Previous Temporary Fixes

- Has a temporary fix like this been applied before?
  - Did it work?
  - Were there any unanticipated consequences?

Search by
- Keyword or Name
- Type

Has it happened before?

Have similar things happened in other areas?

How often does it happen?
Produce a Report on the Temporary Fix

- Notify the stakeholders of the temporary fix and the actions being taken.
- The team needs to report on how you will implement the temporary fix in enough detail so it can be removed later by someone other than the team.
Closing the Loop & Removing the Temporary Fix

PHRED ensures that the temporary fix is removed when the issue is closed and the relevant people are informed.
Step 4: 5 Why Root Cause Analysis

Now PHRED guides the team through the most complex and challenging stage of the investigation, finding root cause.

PHRED breaks down the process of finding root cause into a series of simple steps that everyone in the organization can use.
Steps & Questions to Find Root Cause

List Possible Causes?
Create a Why Chain for Each Possible Cause?
Will Addressing this Root Cause Prevent Reoccurrence?
Describe How this Root Cause is Verified
There are several loops in this stage, as shown in the flow chart.
List Possible Causes

Here the team identifies any Possible Causes. This is based on general experience, knowledge of the process, past experience, common sense and logic.
Create a Why Chain for Each Possible Cause

PHRED walks you through asking "why?" several times in order to find the Root Cause of a problem. Determining Root Cause normally requires answering "Why?" at minimum three to five times.
Do you want to Eliminate this Possible Cause?

Having found the final “Why?” we now make sure that we have truly hit Root Cause for this why chain.

If your answer is “Yes” you will be asked why you eliminated this root cause and to provide the thinking and data behind why you eliminated this root cause.
If Yes-Why did you Eliminate this Possible Cause?

Here, you describe how you decided that the last “Why?” was not the Root Cause. Many times it is verified through observation.
• Attach the data that supports your root cause analysis.
• The more complex your root cause analysis is, the more data is likely to be attached.
• Remember, a picture is worth a thousand words.
Getting Help with RCA

• Getting the involvement of experts at this stage is key. PHRED makes it easier for them to guide novice users.

• Jumping from possible cause to root cause is usually an educated guess.

• PHRED gives the investigators a clear way to show the thinking behind their root cause analysis. Experts use this level of detail to understand what is happening & provide feedback.
Using the Database to Research RCA

- The database acts as a library, a place for researching how root cause was found in similar areas and problems.
- The root cause analysis stored in the database provides engineers with the detailed information they need to design out defects.

Research who and how it has been done before.
Root Cause Report Out

- Once root cause has been found, we recommend giving a report out to co-workers, experts and managers.
- Holding regular, open forum discussions of why chains is one of the quickest ways to produce improvement in problem solving.
Step 5: Creating & Implementing a Solution

- Here, PHRED takes you through outlining a solution and presenting it for agreement, sign-off and implementation.
- PHRED tracks the multiple implementation actions.
4 Universal Questions to Create & Implement the Solution

What is the overall plan?

Who needs to be notified of the permanent solution?

How did you Verify that this will Prevent Reoccurrence?

How will you Verify that the Problem will not Happen Again?

Simple, single page solution development
What is the overall plan?

Describe the overall plan for implementing permanent Corrective and Preventive actions.
Who Needs to be Notified of the Permanent Solution?

List the people and functions who are impacted by the plan.
How Did You Verify that this will Prevent Reoccurrence?

Explain what you did to prove that implementing the plan will prevent the problem from happening again.

Describe how the solution was tested to make sure it works.
How will You Verify that the Problem will not Happen Again?

Explain when and how you will confirm that the problem does not happen again in the future?

What monitoring system will notify you if it does happen again?
The database will tell you what happened with previous solutions to similar problems.

This will help you avoid the same pitfalls while designing better solutions.
Presenting the Solution for Sign-Off

- Your organization probably has multiple, often conflicting priorities. Whether it is a small solution, requiring just an OK, or a large capital investment, presenting all the facts in a clear manner helps people make the right decision.

- PHRED’s clear reports make it easy for the team and management to understand exactly what will happen as the implementation goes forward.
Create/Track & Report on Actions

- At each stage of the 6 Step process, actions have been created and tracked. This feature of the PHRED system is most important in this implementation phase.

- Actions can be viewed from either the problem report page or the Action Summary Report.
Step 6: Preventing Reoccurrence

Close & Auditing

- Preventing reoccurrence of the problem
- Implemented solutions are audited for success.
- Knowledge is shared between expert groups, knowledge networks and possibly customers and the supply base.
Closing the Loops of the Problem

What did you change that will prevent organizational reoccurrence of the root cause?

What went well in the investigation?
What did not go well?

Temporary Fix Removed?
Containment Complete?

Make Sure that the Cause Codes are Correct

Close without Resolution
Close Problem

Closing Comments
Audit Comments

Simple, single page stages to correctly close the problem
What changed that will prevent reoccurrence of the root cause?

Describe what you changed in your system level procedures or controls that will prevent recurrence of the root cause.

How did you eliminate the conditions that allowed the Root Cause to exist?
What went well? What did not go well? & Recognition

Consider the positive and negative aspects of the process. Think about:

- Did the team work well together?
- Did solution meet stakeholder needs?
- Were procedures developed that may be applicable elsewhere?
- Did you find or solve additional problems?
- Did you learn anything?
- Were team members recognized for their accomplishments?
- Review what did not go well and recommend action to correct these issues for the next time.
Temporary Fix Removed?

Make sure all temporary fixes have been removed. Go see for yourself and check, either in person or virtually. Temporary Fixes tend to be put in place and forgotten. Cumulatively, this can add much waste into the system.

Closing the Loop

Temporary Fix Screen

Steps:
- Step 1: Team
- Step 2: Describe
- Step 3: Temp Fix
- Step 4: 5 Why
- Step 5: Solution
- Step 6: Close
  - Close Loops
    - Change?
    - Went Well?
  - Temp. Fix?
  - Containment
  - Cause Code
  - Resolution?
  - Close Problem
  - Comments
  - Audit Comments
- Report Out

Database
BIZ Benefits
PHRED Users
Containment Complete

Loop back and check that the containment was completed.
Make sure all containment steps have been removed.
Go see for yourself and check, either in person or virtually.

Temporary Fix Screen

When was the containment complete? (leave blank if n/a)

Date: {mm/dd/yyyy}  Time: {h:mm AM/PM}
Make Sure that the Cause Codes are Correct – Closing the Loop

Did you verify that the codes that you entered for the problem when it was first identified, i.e., cause code, subject code and trigger type, are correct?

Go see for yourself and check, either in person or virtually.
Close Without Resolution?

Some problems need to be closed out without resolving the problem.
For example, the problem was entered in error, another problem already existed or management decided there wasn’t enough resources to solve the problem.

Closing the Loop

Reason: Problem Abandoned
Close Problem - Close the Loop

This problem can NOT be closed until all of the following conditions have been met:

- You must have a Problem Statement
- All Actions must be closed
- Root Causes have been verified
- Complete solutions have been created
- Temporary Fix is removed
- Loop back to verify that the Cause Codes are correct
Traditionally, the eighth D is about recognizing problem solving efforts.

Some organizations take great pains to recognize individual efforts. This becomes an important part of the reward structure and succession planning.

In other organizations, unofficial recognition as an expert occurs naturally across the knowledge network.
Audit Comments

Some PHRED systems are configured for audit, others are not.
The system itself is the audit trail.
Reporting Out the Final Problem & Sharing Information

- The final report out shows what you did and how well the solution works.
- Small or large, this shows your work and value to the organization as much as anything else you do.
- At Toyota, a significant factor in promotion and status in the organization rests on the on-going quality of the problem reports.
Section 5: The Database

- As issues are identified and the 6 Steps are being worked on, they are captured in the database.
- The PHRED database becomes the collective memory of the organization, from what is going on at the moment to what happened before, how the problem was solved and who worked on it.
Search the Database

- Search by Keyword or Name
- Type
- Has it happened before?
- Have similar things happened in other areas?
- How often does it happen?

- Search within a particular plant, area, work process and work activity.
- Keyword searches enable you to explore outside the structure you have created.
- Bound your search by looking at specific date ranges or open and closed statuses.
- Find all problems where an individual was either a problem owner or a team member.
Create Reports

- PHRED is report rich; it has many standard reports, individually defined user query reports and charts.

- All reports come with the attached pictures, drawings and diagrams, providing as much information as possible.

- The standard set of reports is normally enough, but organizations will sometimes have specific, custom reports created.
PDF Conversion Reports

- PDF conversion allows reports to be shared externally. Simply convert it and attach it to an email.
- PDF reports can reflect customer specific report formats.
- PDF can reflect regulatory formats.

Customer Format (RedX, G6 Step)

Regulatory Format (ISO 22000)

Presentation Format (A3)
Charts

- PHRED’s simple charting function lets you display the cumulative issues and problems across the organization.

- The amount of time managers spend creating charts is dramatically reduced by the system.
Link to Other Databases

Via OBDC

- Link to other databases via ODBC connections
- Dynamically access data stored elsewhere and save it as part of the problem
- Export data on a scheduled basis to be picked up by other databases

Via Pop Ups

- Pop Ups will allow you to access web based applications while you are inside a problem.
Identify Opportunities to Drive Out Waste

- The database is the place to go to identify opportunities to drive out waste.
- It becomes an invaluable tool to understand problem trends, how to improve, design out problems and streamline systems.
- As the years go by, the PHRED database becomes more and more important to the organization. It should be the first place to go for research on problems.

Repeats

Similar Problem Areas

Hidden Problems: if it is happening in one area, it may be happening in the other (reported or not).
Finding Experienced People

- The database makes it easy to find other people and to network with them around issues of common interest. PHRED gradually becomes the hub of your organization’s knowledge community.

- The database tells you who was involved in problems, allowing you to connect with other knowledge holders.

- Few problems are completely new. Someone in the organization has had something similar happen before.
# Section 6: Business Benefits

## Happy Customers
- Collaborate with Customers and Keep their Business
- Be Confident that a Customer’s Problem is Solved Permanently
- Learn from Customer’s Problems to Improve & Innovate
- Ensure the Voice of the Customer is Heard

## Smooth Operations
- Identify & Drive Out Repeat Problems
- Improve Problem Resolution Rate & Quality
- Know if It has Happened Before & What you did About It
- Share Knowledge between People & Plants
- Make Better Use of Experts

## A ‘No Surprises’ Supply Chain
- Collaborate on Problems with the Supply Chain
- Design Out Defects in Supplier Products & Processes
- Reduce Time Spent Traveling to Solve Supplier’s Problems
- Make Suppliers Accountable and Active in Solving their Problems
- Compare & Contrast Supplier’s Problem Solving Performance
- Make Problems Visible throughout the Supply Chain

## A Better Organization
- Create an Organization of Problem Solvers
- Reduce Cash Investments in Inventory
- Reduce IT Costs & Make Knowledge Flow
- Keep your Managers Out of Jail through Governance & Audit
- Identify & Develop Your Best People
- Get Beyond: “If only we knew what we know.”
Collaborate with Your Customers & Keep their Business

- Be the supplier that your customers work with best. Be seen as the helpful expert.
- PHRED allows you to collaborate on an engineer to engineer level.
- Engineer to engineer collaboration normally increases your chances of keeping a customer and growing your business with them.

It is often a supplier’s engineer to engineer collaboration to fix problems that most impresses a customer.
Be Confident that a Customer’s Problem is Solved Permanently

- Do your customer’s need assurance that a problem is being dealt with and won’t reoccur?
- PHRED gives you a closed loop problem solving system-RCA and no reoccurrence
- Make sure you and your customers are confident that problems will be dealt with effectively. What is it worth to know that if a problem arises, root cause will be found and processes are in place to make sure that it doesn’t happen again?

Closed Loop 6 Step

A controlled, compliant, verifiable business system to find root cause, permanent solution & track that the problem does not occur again.
Learn from Customer’s Problems
to Improve & Innovate

- Customer’s problems give you the information to help you design out defects in your products and services. They are the ideal test bed for improvement.

- PHRED allows you to understand performance in the user’s environment, helping you find solutions and improve.

- What is the value of innovation in your market?

Key Safety Systems described that as motors have gotten quieter, seatbelt rattle has become a noise concern.

A big, early success with PHRED was being able to work out the root cause of rattles and design them out permanently.
Ensure the Voice of the Customer is Heard

• With many competing organizational voices, an individual customer’s needs and the implications of their problem can be lost.

• PHRED provides a clear customer point of view, the extent and implications of their problem, and a closed loop audit of the solution.

• What is the value of understanding your customer’s point of view and showing them that you have understood it?

PHRED
Overview
Issue ID
6 Steps
Database
BIZ Benefits
• Customers
  • Collaborate
  • Confidence
  • Learn
  • VOC
• Operations
• Supply Chain
• Organization
PHRED Users

Ensuring the Voice of the Customer is Heard

• Customers
• Collaboration
• Confidence
• Learning

VOC

Customer's Perspective & Needs Heard Across a Complex Organization

Supply Chain Engineers Orgs

Ops Plant Secondary Manufacture

Ops Plant Original Manufacture

Engineering
Identify & Drive Out Repeat Problems

- Currently, systems and people identify problems. They are then solved. Simple. So why do many reoccur? What's that cost? How can you get that saving?

- You don’t need to carry on accepting repeat problems as a normal cost of doing business. Use PHRED to identify repeat problems and find the root cause and permanent solution. Drive that cost out of your production processes.

- To calculate this opportunity, ask what the repeat problems across your organization are and what is their cost?

Quality managers from Alcoa, speaking at a conference in 2009, demonstrated a month on month decline in PPMs. She talks about a range of reductions across different plants, with the largest decline being more than 70% PPMs and in others a 40% reduction.
Most problem solving relies on an individual’s personal skills and their network. How root cause, temporary fix, and permanent solution are found is up to the skill of the individual. There is no standard for storing, sharing and reusing information.

Just as without standardized production processes, problem solving results will vary widely.

PHRED gives you a way to make problem solving into a standard, repeatable, improvable process.
Know if It has Happened Before & What you did About It

• Do you have to rely on people’s memories to figure out what you did the last time a problem occurred? Are these people sometimes unavailable or no longer working at the organization?

• PHRED captures problem knowledge as part of the operations production process. A complete database of all issues and problems are available real-time.

• How much does it cost you each time you have to solve a problem you’ve solved before?
Share Knowledge between People & Plants

- How much of your knowledge is local and how much of it is shared and available across the organization?

- As problems occur, PHRED captures the arguments and back-up data that is being used to resolve the problem. This process is transparent, people with similar problems don’t just see what is happening, they collaborate.

- To calculate the potential savings, ask yourself how many problems are solved at one site only to recur in another to have to be solved again?
Make Better Use of Experts

- Do you have too many problems and not enough problem solvers?
- With PHRED, experts are given a data-rich virtual go see, reducing problem cycle time.
- What is the value of increasing the number of problems experts are able to solve? What is it worth to you if your experts were freed-up to design problems out of the products and processes?
Collaborate on Problems with the Supply Chain

- Our suppliers are our best problem solvers for their own components, so let’s make it easy for them to work with us.
- PHRED provides a neutral knowledge sharing platform about the problem and guides both sides in producing a solution.
- What is a good, collaborative problem solving supplier relationship worth to you?

"Instead of discussing process, the form of how shall we approach a problem between us and our suppliers, with all the different perceptions of what say a 'root cause analysis' is, everyone is now on the same page. They get right down to problem solving. It is much more collaborative, we can get down to discussing the logic of the problem, not the logistics of how to approach it."

- The World’s Largest Chip Manufacturer
Design Out Defects in Supplier Products & Processes

• Is it more efficient for you or your suppliers to design out defects in your supplier’s components and processes?

• PHRED gives you the tools and processes to work with suppliers to improve and innovate their components.

• What is the value of supplier component improved reliability and innovation?

The reason that the World’s Largest Chip Manufacturer developed their PHRED system was to improve the capability of their suppliers to solve their own problems and innovate.
Reduce Time Spent Traveling to Solve Supplier’s Problems

Would you rather have your experts working in your plants, or on planes to China to solve your supplier’s problems?

PHRED provides a virtual go see of problems as they occur in real time in supplier factories and shows how root cause and permanent solutions are being applied.

What is your engineer’s time worth?

“I cannot observe the production process in the Suppliers factories in China. But with PHRED I can observe their problems and problem solving from my office in the US. It has become an observation tool, critical for supplier quality.”

- The World’s Largest Chip Manufacturer
Make Suppliers Accountable and Active in Solving their Problems

- Is the line between a supplier’s problem and yours blurred? Are defects often dealt with, with you absorbing hidden costs?
- PHRED helps you to clearly identify which problems are the supplier’s and which are yours.
- Problem costs can be recovered and supplier contracts re-evaluated.

Purchasing departments find PHRED useful in negotiating with the supply base. It allows them to accurately apportion responsibility for problems and use the information to negotiate concessions.
Compare & Contrast Supplier’s Problem Solving Performance

- Which suppliers are able to solve problems and make sure they don’t reoccur? Which one’s cause you the most grief?

- PHRED shows you all problems by suppliers, from the time to containment to the extent of the issue.

- This information helps you manage your supply base, removing problem suppliers and focusing on those who give you the least problems.
Make Problems Visible throughout the Supply Chain

• Do you know all of the problems currently occurring across the supply chain? What is the risk posed by problems that are not fully visible to the organization?

• PHRED captures and provides visibility to problems that must be managed and resolved across the supply chain.

• What is being “sure you’re sure” worth?
Creating an Organization of Problem Solvers

• In your company, is everybody involved in problem solving? Do they have a process that enables them to improve as they solve more problems?

• PHRED gives the organization a way to make everyone into a competent problem solver. As more and more problems are solved, people simply become better and better problem solvers and networkers.

• Who’s company has fewer problems and solves them quicker—you or your competitor? What is that worth to you?

“Advancing your problem solving capability addresses the single biggest ‘Outsourcing’ concern and differentiates your ability to offer higher value services.”
Reduce Cash Investments in Inventory

- There is a lot of cash that is tied up in safety inventories across the whole supply chain.
- As PHRED reduces the rate and frequency of problems, the need for safety inventory is reduced.
- How much hidden, free cash is available to be released once safety inventory becomes unnecessary in an area?
Reduce IT Costs & Make Knowledge Flow

- Most problem solving systems are home-grown, proliferating across the organization on Excel or Access. These scattered systems take up resources, without allowing uniformity and sharing of data.
- PHRED’s configurable, common, internet-based system allows you to replace all of the home-grown systems.
- Consolidate systems and improve information connectivity and flow.

What is the cost of proliferated home grown problem tracking systems across your organization?

What is the security and data integrity risk of having multiple, small, home grown systems?
Keep Your Managers Out of Jail through Governance & Audit

- It is becoming increasingly important that when problems occur, companies are able to show due diligence in their problem solving.
- PHRED allows you to show what problems have been worked on and to what degree.
- Reduce your liability and exposure to legal threat, while increasing the quality of your corporate governance and audit.

“My exposure to litigation is pretty high. Knowing that I have a complete audit trail, from the moment that the problem was discovered, outlining our investigation and showing due diligence in the process rather than having to justify after the fact, gives me a sense of confidence that I did not have before using PHRED.”

-Al Levert, INCO, PHRED Customer since 1997
In large corporations, it is often hard to identify thought leaders, naturally good problem solvers and experts.

PHRED allows you to identify employees who understand problem solving and execution.

Use PHRED to identify and invest in your best people. PHRED provides a fact-based, verifiable tool for succession planning.

Kathi Hanley (Ex-Toyota and Senior VP of Carpenter Technologies) uses PHRED to help her identify and invest in the talent pool in her organization.
Get Beyond: “If we only knew what we know.”

- The collective knowledge of the people in the company is one of its greatest assets. Unfortunately that knowledge is mostly tacit, hidden and scattered.
- PHRED makes this knowledge visible. It is captured, shared and reused.
- PHRED allows you to make far greater use of your key assets, your people.
Section 7: A to Z of PHRED Users

In this section, we will show how typical work roles use PHRED.

PHRED Users
- App. Engineering
- Audit
- Customer Support
- Dept. Manager
- Engineering
- Field Support
- Human Resources
- IT
- Inspection
- Legal
- Op. Group Leader
- Op. Leadership
- Op. Team Leader
- Op. Team Member
- Org. Development
- Purchasing
- Quality Assurance
- Safety
- Sales
- Snr. Leadership
- Six Sigma
- Supplier Development
Application Engineering

PHRED gives a detailed view of the conditions on the ground in a specific customer and a broad view of conditions across product groups.

Application Engineers use PHRED to:

• Search the database to find details about the customer’s problems, so they can design out problems in production and the supply chain.
• Make sure that the voice of the customer is heard when problem solving resources are prioritized. The voice of an individual customer can be drowned out by conflicting organization priorities.
• Show the commercial impact of a problem.
Audit

PHRED is an auditor’s dream. It documents all problems which should then be audited.

PHRED gives auditors:

• A database with complete information on all incidents and problems across the organization.

• Verification that actions have been completed and follow up standards have been met.

PHRED Users

• App. Engineering
• Audit
• Customer Support
• Dept. Manager
• Engineering
• Field Support
• Human Resources
• IT
• Inspection
• Legal
• Ops. Group Leader
• Ops. Leadership
• Ops. Team Leader
• Ops. Team Member
• Org. Development
• Purchasing
• Quality Assurance
• Safety
• Sales
• Snr. Leadership
• Six Sigma
• Supplier Development
Customer Support

PHRED’s problem identification and problem tracking capabilities enable customer support to know what is going on with a customer’s problem.

Functions that they use most are:

- Tracking actions and agreements to make sure that the customer is satisfied in the end.
- Having an easy way, via ODBC links or Pop Ups, to pull information from the organization’s other IT systems about the problem in the identification phase.
- Accessing the central database to learn about the current status of a problem.
Department Management

Problems are often hidden from this level. PHRED gives this group a window into the problems across their department. PHRED lets them see what is occurring without them having to ask for status reports.

PHRED provides:

- Visibility to know which problems are being worked on.
- Actions reports to see what has been done and what is going to be done.
PHRED gives this traditionally aloof group a structured way to collaborate and dialog.

Engineers get:

• Sufficiently detailed information so that problems can be designed out of products and services.

• A database of all the problems across the company.

• Neutral questions that speed collaboration with other engineers, operations, suppliers and customers.
Field Support

PHRED makes sure that the conditions at the customer’s site are understood by the organization.

Field Support uses PHRED to:

• Explain the customer’s problem to the organization.
• Find the necessary experts to help their customers with the problem.
• Collaborate with problem solvers across the organization and supply chain.
Human Resources

The system lets human resources identify high quality problem solvers for succession planning purposes.

With PHRED, human resources can:

• Identify invested staff.
• Identify thought leaders.
• Identify people who need coaching in problem solving.

“PHRED helps me identify employees who understand problem solving and execution. We firmly believe that the people who possess these critical skill sets are important for us to invest in.”

-Kathi Hanley, SVP Carpenter Technologies
PHRED is a business system that brings security, verifiability and control over the problem solving process.

PHRED provides IT with:

- A plug-in system that requires little or no support from IT.
- Easy ODBC and Pop Up integration with other systems.
- PHRED can run as a hosted solution from PHRED servers.

“We run seven ERPs and multiple PDMs. PHRED allows us to capture data and attach it to problems from all systems.”

-Mark Novak, Key Safety Systems
PHRED gives a quick and easy way for showing what is happening with the problem on arrival.

With PHRED, inspection and receiving can:

- Note all issues and problems in an easy, single screen format.
- Easily grab relevant data from other internal systems and put it all under one problem record.
- Track all issues so improvements can be made and supplier behavior targeted.
Legal

This group uses the system to keep managers out of jail.

PHRED gives the Legal department:

• Due diligence to prevent lawsuits and win them if they happen.
• Documented evidence of process, problems and countermeasures.

“PHRED helps us keep our managers out of jail.”
- Al Levert, INCO, PHRED Customer since 1997
Group leaders are constantly bombarded with multiple problems from multiple teams. PHRED is a tool to manage the day to day complexity of multiple issues and problems.

PHRED gives them:

- The information to decide which problems to put resources into.
- Structure for managing & reporting on issues and problems across the group.
- Access to similar issue holders across the organization.
Operations Leadership

The visibility and accountability of PHRED provides leadership with a way to limit the number of problem surprises.

They use PHRED to:

• Reduce PPMs and operating costs by driving out repeat problems.
• Be confident that when people say something is fixed, they have followed a process to find root cause and the problem will not reoccur.
• Highlight key problem solvers.
Operations Team Leader

This group uses PHRED on a day to day basis to manage the problems that occur in their area and to network with others who have similar issues.

PHRED provides:

• A process for team problem meetings.
• An actions section to manage the complexity of day to day problem solving.
• An electronic problem board and the reports and graphs to post in team areas.
Operations Team Members

This group uses the issue/problem identification section most. Key team members will sometimes take part in investigations. PHRED provides a clear process to make sure that their point of view and the data to back it up is understood.

Functions used most are:

- A simple, single screen issue/problem identification front end so everyone can note incidents as they occur.
- Common, neutral questions that allow blame-free dialog with the investigation team.
- An easy process to explain the problem by those experiencing it.
Organizational Development

PHRED is a basic organizational development tool that develops problem solvers and structures collaboration.

PHRED assists this group in:

- Creating a problem solving culture.
- Providing a way of finding others with common problems so they can communicate around areas of technical expertise.

“Thought leaders, good problem solvers and invested people were able to identify each other and they began collaborating together on problems and ideas to improve services.”

-Dr. John Farrin, Kaiser-Permanente Emergency Room
Purchasing

This group enjoys using the problem information to gain leverage in supplier negotiations.

PHRED helps them:

• Collect information from the database to apportion the cost of problems back to the supplier.
• Create a standard process to rapidly improve supplier quality by addressing frequent issues.
Quality Assurance

This is traditionally the main group who uses PHRED. PHRED helps quality assurance professionals go from being primarily problem solvers to facilitators of the problem solving process.

PHRED helps QA:

• Identify and track all problems to root cause and permanent solution.

• Understand what’s happening from the production cell to the global organization.

• Report on all problems across the organization and drive improvement.
Safety

PHRED helps HS&E conduct rigorous root cause analysis of safety incidents and near misses.

PHRED is mostly used to:

• Stop safety incident reoccurrence, find root cause and implement permanent solutions.

• Identify and track safety problems across the organization.

• Use PHRED SORT (Safety Observation Reporting & Tracking) for behavioral safety and PHRED SIR (Safety Incident Review) for Human Factors investigations.
Sales Departments

Sales departments rarely use the system directly to investigate a problem. They use the system to make sure the customer’s problems are understood and their needs are met.

This includes:

• Ensuring the voice of the customer and the commercial impact of the problem is heard.

• Creating a collaborative dialog between the company’s engineers and the customer via the problem report.

• Making problem solving into a competitive edge by showing customers that your organization’s structured problem solving process is better than your competitors.
PHRED gives this group a level of confidence that when they give their word to a customer that a problem is resolved, it definitely is.

The system gives senior leaders:

- A standard system to ensure that if a problem occurs, it is solved to root cause and does not reoccur.
- Real-time, useful information about all problems.
- A process so that problem knowledge is captured and reused for improvement.
Six Sigma Community

Six Sigma groups use the system extensively to gather information and manage their own Green and Black Belt projects.

• Embed the 6 Step problem resolution process as part of standard, day to day working practices.

• A virtual go see to understand what is happening with problems across the organization, the depth of the root cause analysis and to remotely guide and coach.

• A database of problems to analyze and improve from.
Supplier Development

This group uses PHRED as a system-level tool to improve supplier’s quality and product innovation.

• Provide the supplier with a verifiable process to find root causes and corrective actions.
• Capture improvements at one supplier and reapply to the rest of the supply base.
• A virtual go see into the supplier’s real time problems.