

Railroaders' Guide to Healthy Sleep **Website: Lessons Learned from** **Facilitating Awareness and Use**

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About Volpe

Background

- ❑ Volpe established in 1970
- ❑ Part of U.S. Department of Transportation (DOT) Office of Research and Technology

Volpe supports US DOT goals

- ❑ Safety
- ❑ State of good repair
- ❑ Economic competitiveness
- ❑ Livable communities
- ❑ Environmental sustainability



EXPLORE
sleep

IMPROVE
sleep

BALANCE
work & life

Screen Yourself
FOR SLEEP DISORDERS

How Well Do You Sleep?

Learn your sleep disorder risk using the Anonymous Sleep Disorders Screening Tool.

Assess Your Risk



Railroaders' Guide to Healthy Sleep (02:40)



Awake and Safe: Railroaders Talk (06:03)



Getting Rest, Working the Rails (06:07)



Apnea on the Rails: The Snoring Sickness (04:34)

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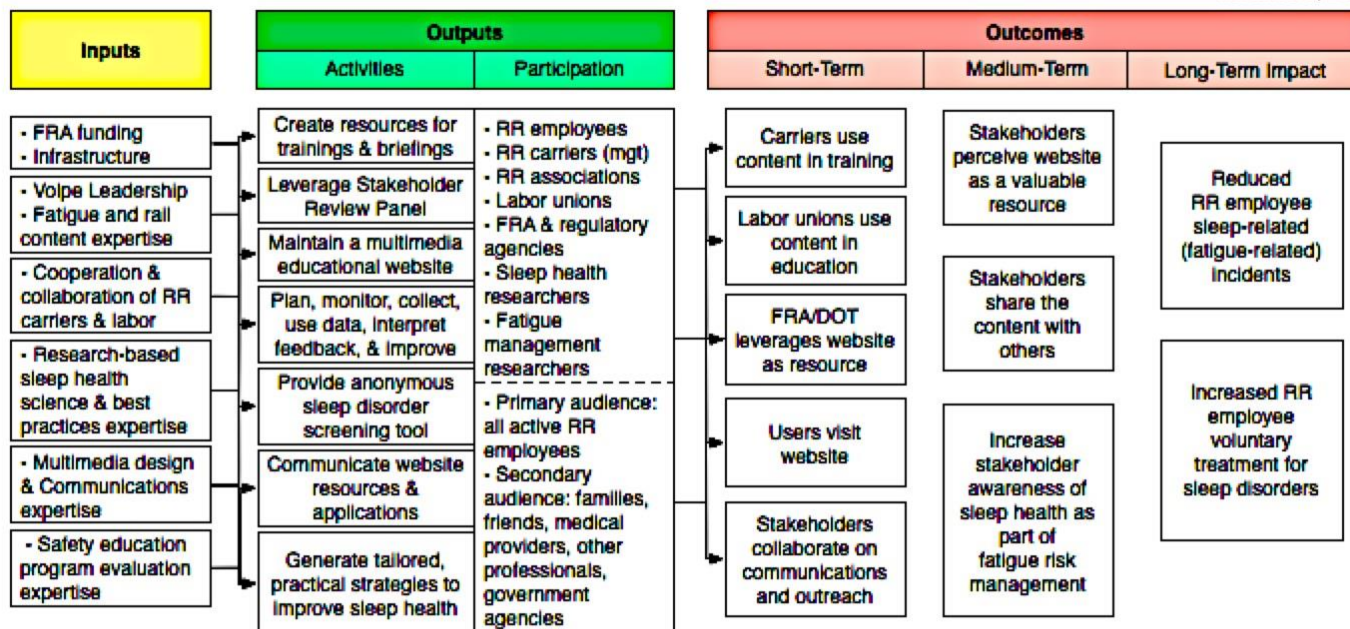
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Railroaders' Guide to Healthy Sleep Website Development Logic Model

November 3, 2016



Situation	Poor sleep health and/or inadequate sleep practices contribute to railroad employee fatigue that increases the risk of on-the-job sleep-related safety incidents.		
Mission	Provide railroaders and their families with scientifically valid information about the importance of sleep, a tailored tool to assess personal risk for sleep disorders, and proven, practical strategies for improving sleep health. Prevent RR incidents by increasing employee sleep health & fatigue risk-management practices through sleep-science education and sleep-disorder treatment.		
External Factors	Challenging context: Productivity-driven safety culture.	Evaluation	Utilization-Focused, Participatory Approach Focus – Question – Observe & Monitor – Analyze & Interpret – Facilitate & Recommend: Implementation & Use Strategies
Assumptions	Stakeholders collaborate to change RR practice.		

Methods for Facilitating Awareness & Use

□ Understand & Engage Target Audience

- Needs Assessment
- Testimonial Interviews
- Stakeholder Review Panel

□ Implement Site & Grow User Base

- Website Analytics
- Digital Communications/Subscriptions Platform
- Presentations & promotional booth at Union Regional Meetings

□ Evaluate Efficacy & Use

- User Testing
- Case Examples
 - *Screening at union meetings, then formal OSA diagnosis and CPAP treatment*
 - *Training modules with major carrier, ~35K employees “touched”*

Website Target Audience

- *Primary:* T&E crews
 - Those with unpredictable work schedules, on all classes of freight and passenger service on U.S. railroads

- *Secondary:* Other active railroaders; those who interact with, and have influence on, these railroaders

Needs Assessment Results

Sample = 1,010

- Data collected by labor unions
- **98%** male
- **59%** ≥ 45 years of age
- **53%** conductors; **39%** locomotive engineers
- **82%** work schedules that “mostly change” week to week
- **36%** high school/GED or voc/trade school; **38%** some college
- **57%** spend <10 hours per week online
- **36%** had not used web to find medical information in last 6 mo.

Website Technology Features

- ❑ Research-based information conveyed using various formats including:
 - Articles
 - Illustrations
 - Interactive activities
 - Testimonials
 - Videos with doctors, railroaders and families

- ❑ KEY feature – self-assessment:
 - ***Anonymous Sleep Disorders Screening Tool***
 - Determine individual risk for common sleep disorders
 - Print screening results to share with physician
 - Find local sleep specialists using postal zip code

Anonymous Sleep Disorders Screening Tool

- ❑ Developed by Division of Sleep Medicine, Harvard Medical School/Brigham and Women's Hospital
 - Scales validated for sleep disorder risk assessment in other, similar demographic/shiftworker samples of police and firefighters.

- ❑ Short, self-assessment
 - OSA, Insomnia, RLS, Shift Work Sleep Disorder, Narcolepsy
 - Notification explaining sleep disorder risk based on responses
 - Link to zip-code lookup feature allows user to locate qualified sleep specialist in their area

[Return to the Railroaders' Healthy Sleep Site ↗](#)

PROGRESS



Have you been told that you snore? Yes
 No
 Don't know

Has anyone told you that you quit breathing during your sleep? nearly every day
 3-4 times a week
 1-2 times a week
 1-2 times a month
 never or nearly never

I feel tired or fatigued after sleep... nearly every day
 3-4 times a week
 1-2 times a week
 1-2 times a month
 never or nearly never

During my waking hours, I feel tired, fatigued or not up to par... nearly every day
 3-4 times a week
 1-2 times a week
 1-2 times a month
 never or nearly never

I have nodded off or fallen asleep while driving a vehicle... Yes
 No

Anonymous Sleep Disorders Screening Tool Results

Thank you for completing the anonymous Sleep Disorders Screening Tool. None of the information you entered will be saved, and your results will be deleted after you exit the Tool.

The Screening Tool calculated your risk for common sleep disorders. The answers you provided indicate that you are at high risk for:

Obstructive Sleep Apnea

Insomnia

Narcolepsy

Based on your results, it is strongly recommended that you follow up with your primary care physician and/or a qualified sleep specialist for further evaluation (and treatment, if necessary). You can locate a qualified sleep specialist in your area using this link: <http://www.sleepcenters.org/>. More information about sleep disorders can be found at the [American Academy of Sleep Medicine](#).


Please consider printing this notice and showing it to your physician. It contains information intended to help you understand your risk so that you can do what is best for you. While the results of the Screening Tool indicate that you are at high risk for the above sleep disorder(s), these are general guidelines that do not take into account information specific to you that your physician may know. You are not required to seek evaluation or treatment.

If you are concerned for **any** reason about your sleep, a sleep disorder, or another health condition, you should see your physician regardless of the results of the Screening Tool. Below is a brief description of the sleep disorder(s) for which you were found to be at high risk during this evaluation.

Obstructive Sleep Apnea (OSA) affects more than 18 million Americans and is a disorder in which a person's airway becomes partially or completely blocked repeatedly during sleep. Each time this happens, the individual must wake up long enough to regain muscle control in the throat and to reopen the airway. In someone with severe OSA, this may occur hundreds of times per night, interrupting breathing for 30 seconds or more each time. The result is severely disrupted sleep. Fatigue due to OSA may increase both the risk of errors that result in incidents and injuries, and drowsy driving that may lead to an automobile crash.

Insomnia affects 30 to 40 million Americans every day. They have trouble falling asleep or staying asleep, or they may wake up earlier than they would like and find it impossible to get back to sleep. These are the major symptoms of insomnia, the most common sleep disorder. Insomnia often results from poor sleep habits, such as an over stimulating routine before bedtime, or from drinking too much alcohol or caffeine. Certain medication products can also bring on bouts of insomnia. In some people, insomnia is caused or made worse by stress, as well as by psychiatric or medical conditions including anxiety, depression, arthritis, and asthma. Fatigue due to insomnia may increase both the risk of errors that result in incidents and injuries, and drowsy driving that may

Zip Code Entry to Locate Sleep Specialist



SLEEP CENTERS.ORG
from the American Academy of Sleep Medicine

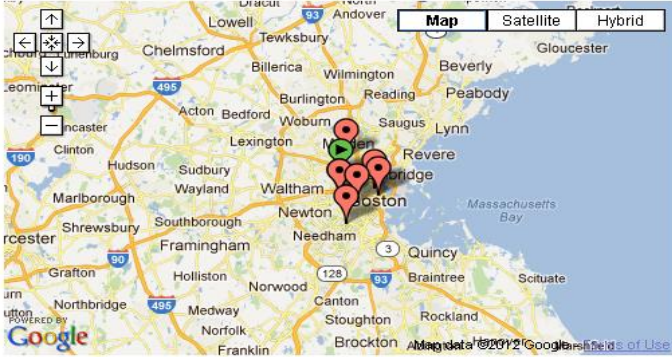
January 21, 2012

▶ Home
▶ Website Builder
▶ Sign In

Locate A Sleep Center in the United States by Zip Code:

Address Zip Code

Distance (miles)



City	Center Name	Distance (miles)
Brighton	Sleep HealthCenter affiliated with Beth Israel Deaconess Medical Center	2.49

SLEEP NEWS

The American Sleep Medicine Foundation (ASMF) announces the 2012 ASMF High School Topical Review in Sleep Science Contest

Sleep Deprivation Affects Air Traffic Controllers & Other Shift Workers

Sleep: Nature's Study Aid

Nighttime Sleep Essential for Mental Development in Young Children

Beauty Sleep More Than a Myth

Restless Legs in Pregnancy Predict Later RLS

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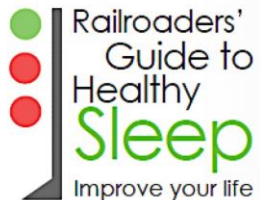
Promote Site & Grow User Base



Implementation & Promotion

- ❑ Go-live: June 2012; “Refresh”: February 2016
- ❑ Media outreach via
 - Facebook and Twitter posts
 - Official PR piece: DOT “News Digest”
 - Press from outside organizations coinciding with June go-live
- ❑ Meetings/conventions
 - Demo booths
 - In-person feedback
 - Presentations
- ❑ Promotional print and news media
 - Flyers, brochures, promotional items
 - News stories

Flyer



Sleep Better.

Visit www.RailroaderSleep.org for steps to improve your sleep and make a real difference in your life.

Whether you are a railroader family member or friend, you know it's crucial to keep an eye on shut-eye.

Visit the *Railroaders' Guide to Healthy Sleep* website to:

- Learn more about sleep health
- Find practical tips and resources you can use to improve sleep and maintain alertness
- Strive for work/life balance, even when working unpredictable hours
- Determine your risk for sleep disorders using the Anonymous Sleep Disorders Screening Tool

Visit www.RailroaderSleep.org

A resource originally created by the Division of Sleep Medicine at Harvard Medical School in 2012 and updated by Volpe, The National Transportation Systems Center in 2015. Owned and funded by the Federal Railroad Administration, an operating mode of the U.S. Department of Transportation.

One Pager

Am I at Risk?

- Do you snore loudly?
- Do you often feel sleepy or foggy while awake?
- Has someone seen you stop breathing, choke, or gasp in your sleep?
- Are you overweight?

If you answered YES, you have symptoms that suggest you may have sleep apnea.

What Is Sleep Apnea?

When we breathe, air enters the nose or mouth and travels through the airway to the lungs. Throat muscles typically keep the airway entrance open, but if you have sleep apnea, they fail to do that during sleep and breathing stops completely for a few seconds—up to a minute or more.

This can recur dozens of times during each hour of sleep. People with sleep apnea wake up repeatedly, then breathing resumes. They seldom remember waking up, but are aware that they slept poorly.

You Can Screen Yourself

You can find out more about your risk for sleep apnea—and other sleep disorders—at www.RailroaderSleep.org and by filling out the *Anonymous Sleep Disorders Screening Tool* at www.railroadersleep.org/screen-yourself/overview. It takes only 10-15 minutes to complete. When you exit the screen, any information you entered is automatically deleted.

Print your results and discuss them with your healthcare provider. This person may refer you to a sleep specialist for further evaluation.

What Treatment Options Are Available?

Usually covered by insurance, you may need to take part in a home or lab sleep study. If you are diagnosed with sleep apnea, any of the following treatment options and lifestyle changes may help:

- Continuous positive airway pressure (CPAP) machine
- Dental device to open airway
- Avoiding alcohol
- Quitting smoking
- Losing weight
- Sleeping on side instead of back

Treatment can help you sleep better, feel better while awake, and perform well in your safety-critical railroad job.

Updated: March 2017

Analytics & Digital Communications

❑ Google Analytics

- RGHS Sessions (visitors) since 2012 launch ~210,000
 - Screening Tool ~8,200

❑ Gov Delivery/Granicus

- Total number of subscribers ~14,200
 - Sign ups at labor meetings, through website, subscribers through network
- Targeted Communications x 3
 - Introductory/Welcome bulletin
 - “Tell us your story” requesting use cases
 - Follow up reminder

Website Analytics

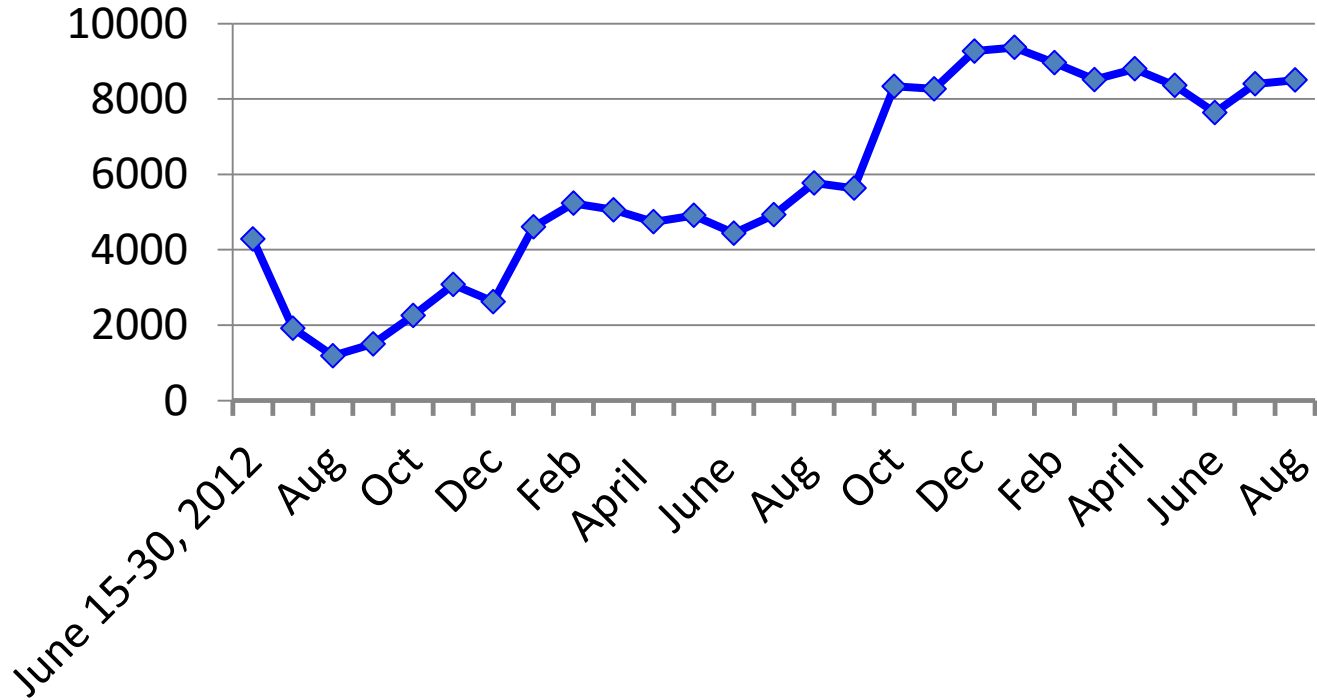
What Do They Tell Us?

- ❑ Who visits your website?
 - Demographic data (e.g., location)
- ❑ How they got there?
 - What did they search to get there?
- ❑ What they did once they landed there?
 - What pages did they view?
- ❑ Where they went afterward?
 - What links did they follow?

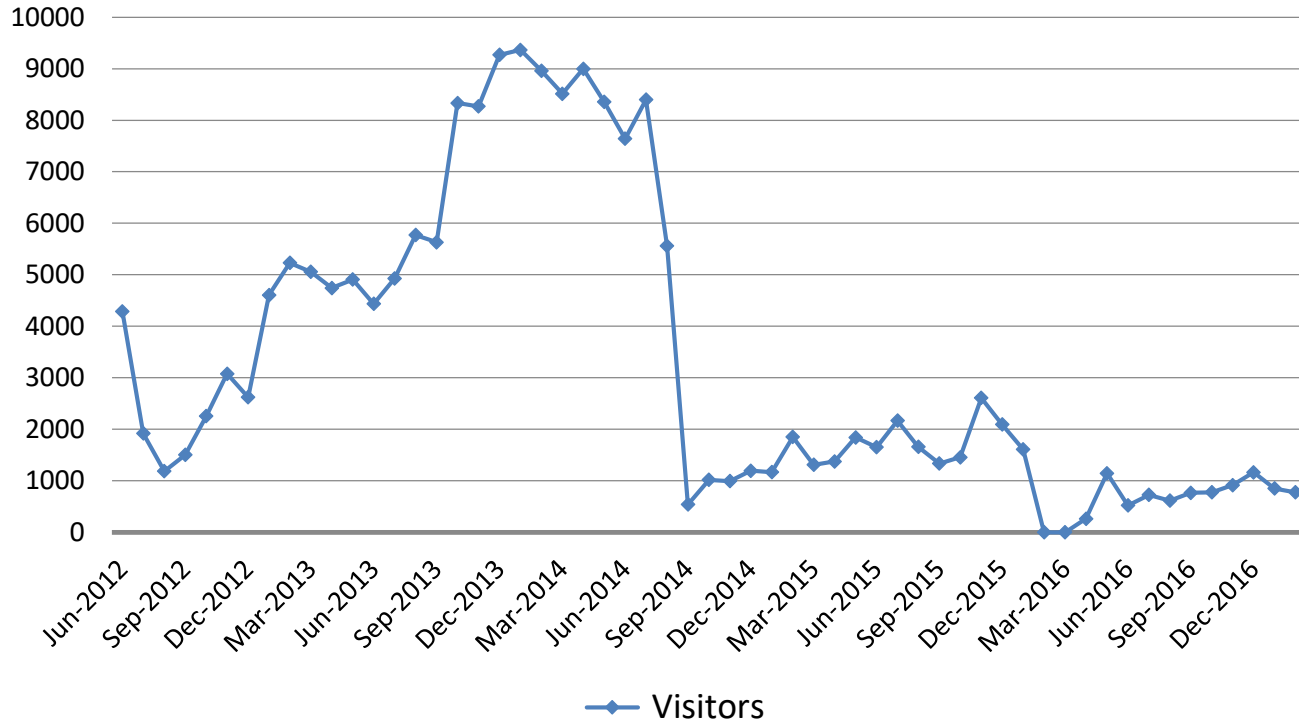
What Don't They Tell Us?

- ❑ Everything else about the people who visit the website.
 - Target audience? Secondary audience?
- ❑ What drove them to the website?
 - Need? Curiosity?
- ❑ How did they use the information?
 - Did they modify routines?
 - Pass on the website info to others?

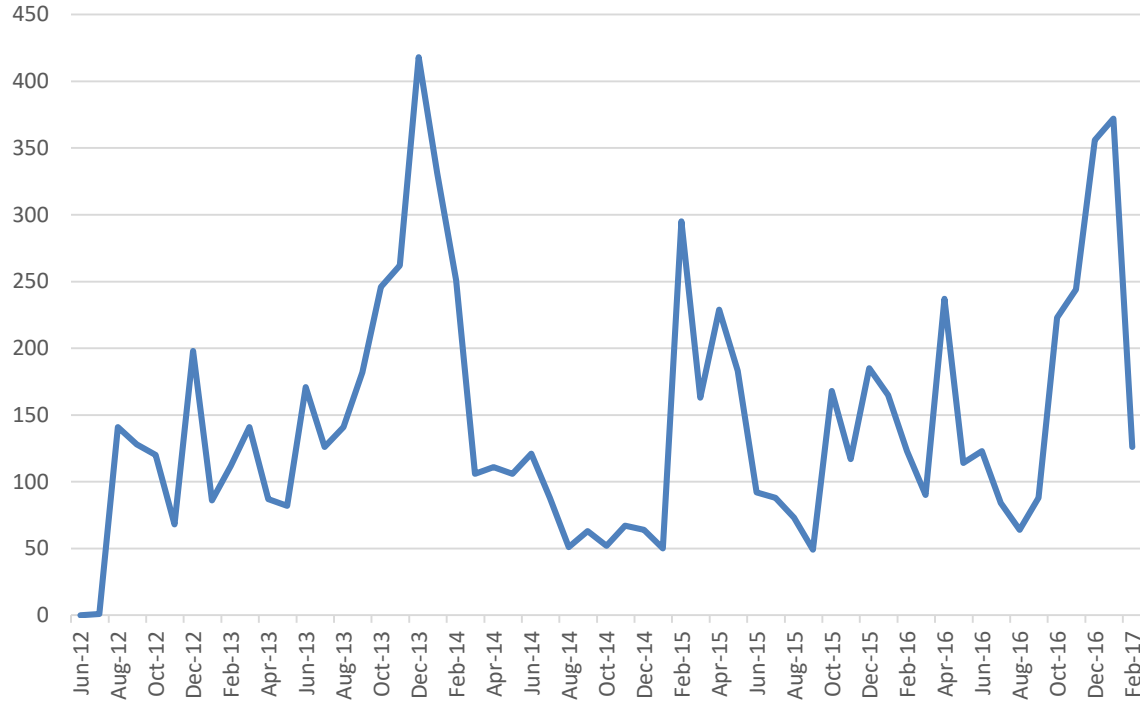
Website Analytics: Visitors by Month

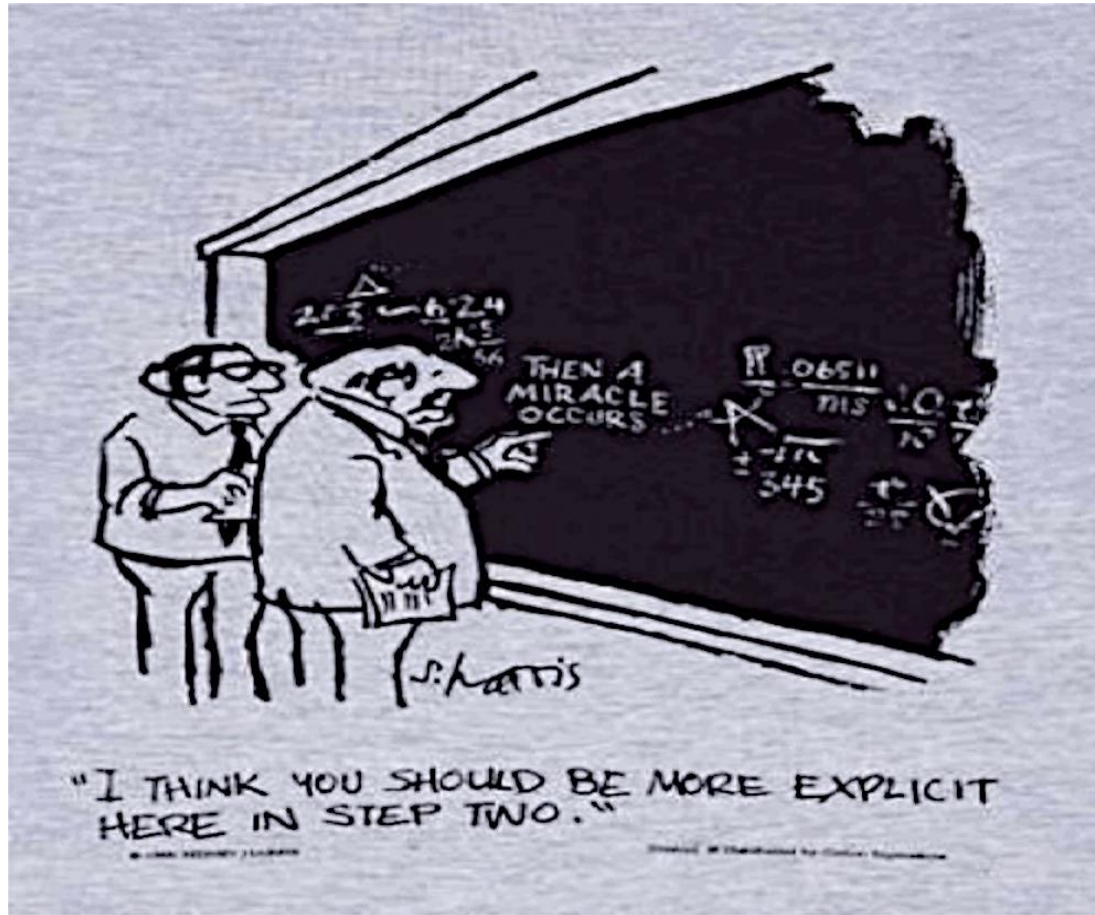


Website Impact: Visitors by Month

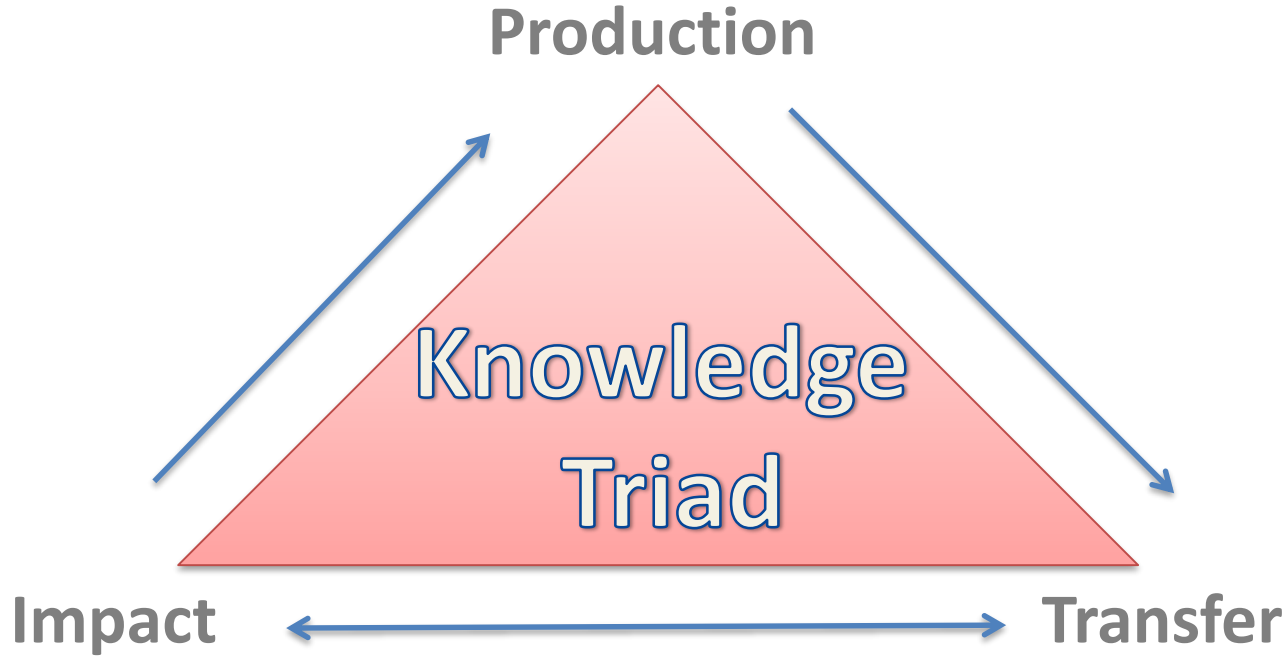


Screening Tool: Visitors By Month





Inextricably Linked



Ongoing Independent External Evaluation

❑ Need

- Context is complex, at times contentious. Building site might not mean “they will come” or they will use.
- Integrate evaluation into project phases to ensure attention to multiple perspectives are reflected.

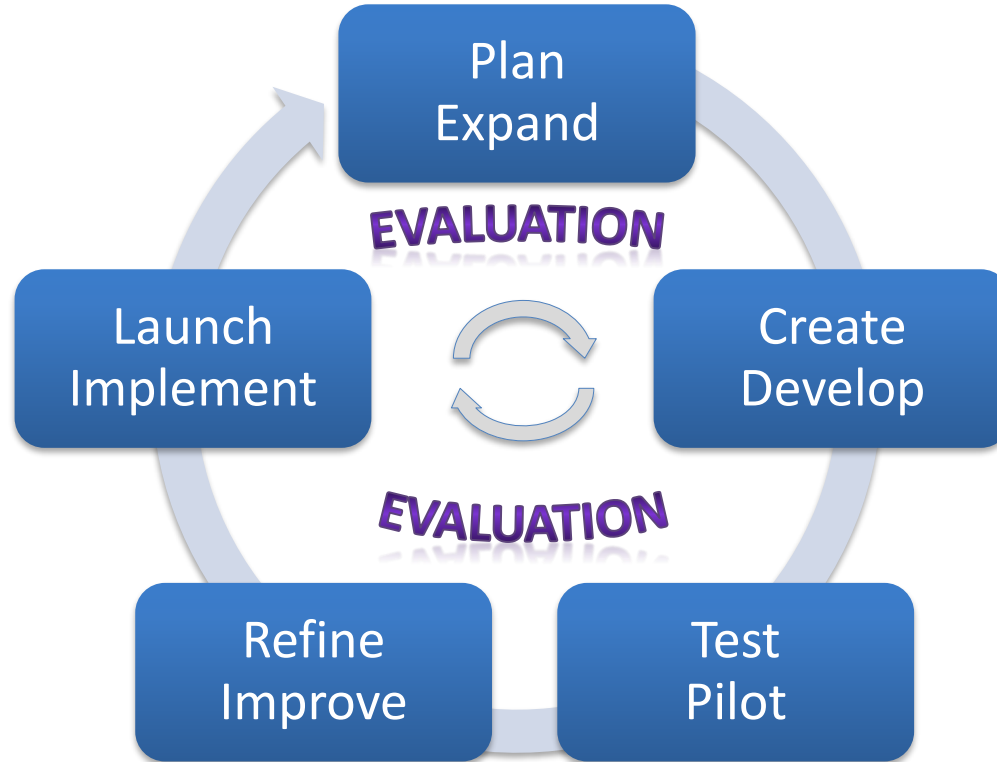
❑ Goals

- Understand website use and utility.
- Inform stakeholders about merit and worth of project based on systematic assessment.

❑ Use

- Inform project decision-making, improve design, plan implementation strategy, accountability.

Program Planning Cycle Utilizing Evaluation



User Testing

Think-Aloud Interviews

- ❑ Too text heavy
 - Long scrolling pages
- ❑ Very dark color pallet
- ❑ Confusing to navigate
 - Especially to find solutions to the challenges of the lifestyle of a railroader with an unpredictable schedule and its effects on families
- ❑ Interested in more caffeine information
- ❑ Reaction-time game

Evaluate Efficacy & Use

□ Stakeholder Review Panel

- Strategic Framework
- Vet content
- Opinion leaders & Change Agents

□ Case Examples

- Screening at union meetings, then formal OSA diagnosis and CPAP treatment
- Class I RRs:
 - Training modules, ~35K employees “touched” at major carrier
 - Training: occupational health nurses
 - Employee-led safety training

Lessons Learned: *Pathways to Success*

- ❑ Stakeholder involvement is key
 - Vertical-integration strategy has fostered “buy-in” across stakeholders

- ❑ Anonymous web metrics do not tell the entire story
 - Evaluation study and other systematic feedback mechanisms are crucial to tell the story, and define and illustrate success

- ❑ Begin communications & outreach planning early
 - A collaborative network has emerged through this project, and is contributing to knowledge-transfer penetration across the railroad industry

Thank you!