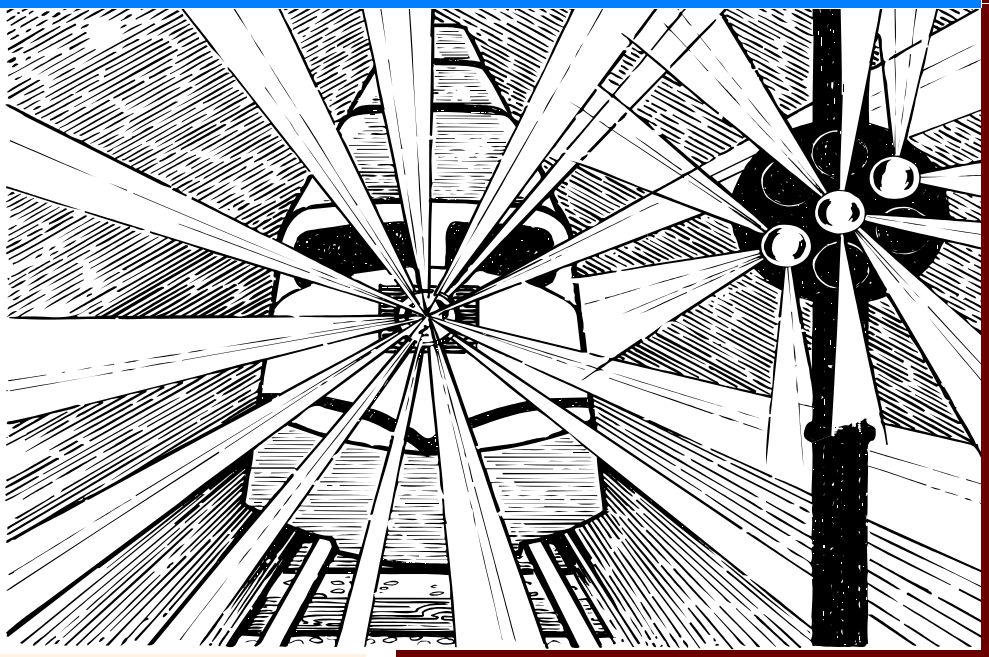
RAILROAD IMMERSION COURSE



Freight railroad operations are based upon two primary technologies stemming from the 1st & 2nd quarters of the last century, i.e., track circuits and voice radio, respectively. With the proliferation of private and commercial wireless data systems, the railroads, both individually and collectively as an industry, have an extraordinary opportunity to make advancements in efficiency and safety. To do so will require developing strategic technology plans in sync with strategic business plans.

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OVERVIEW

This one-day course is designed for both experienced rail engineers and those new to the freight rail industry. Its primary objective is to identify the opportunities to use technologies to advance railroad operations. It begins by developing a threshold of understanding of the rail industry as to its structure and environment, followed by an explanation of traditional railroad operations and technologies. With that basis established, the course addresses achieving ***revolutionary functionality via the evolutionary deployment of technologies*** by describing technology and management platforms that compliment and not replace the extensive current wireless and IT infrastructure. The course includes discussion on two key Federal mandates that should be driving investment in the industry, but aren't because of politics and the lack of technologists that can bring together business and technology issues. Additionally, the course looks beyond the boundary of the individual railroad and considers the opportunities for the industry overall given the extensive interchange of trains between railroads. The course closes with a discussion of the true market drivers for investment and a cursory review of suppliers in the industry.

AGENDA

The 1-day course can be modified somewhat to meet each client's particular requirements. The normal structure consists of 8 segments.

1. **Industry Environment**
2. **Rail Operations**
3. **Positive Train Control / Operability**
4. **Green Field RR Perspective**
5. **Strategic Railroading**
6. **Strategic Wireless**
7. **Market Drivers**
8. **Supplier Review**

Various versions of this course have been taken by CP Rail, Cisco, IBM, Motorola, Lockheed Martin, Bombardier, Alstom, Ansaldo, Wabtec, Qualcomm, Princeton Consultants, and others.

AVAILABILITY & PRICE

As well as having scheduled offerings, the course is available to individuals and organizations on a requested basis. It can be provided on the customer's site as well as via Webcast for handling multiple locations. Each individual attending the course is provided with a hard copy of the presentation deck that is used during the presentation. Additionally for Professional Engineers, a *Certificate of Attendance* is provided for each attendee indicating 8 hours of Professional Development Hours (excluding NY & FL).

The cost of the course varies by the number of attendees and ranges between $500 to $1,000 per individual with a minimal requirement of $8,000 per session. Expenses are additional.

CREDENTIALS

Ron Lindsey has 40 years in the railroad industry split between consulting and railroad management. As management he has held the positions of Chief Engineer Communications for a Class I as well as Director Advanced Train Control for Class I railroads. In the latter position Ron was the architect for the first overlay PTC system that provided the foundation for the PTC systems being deployed across most U.S. freight railroads to meet a Federal mandate. As an independent consultant, Ron represents no suppliers. In addition to strategic consulting assignments for railroads and suppliers alike, Ron has a ***Positive Train Control course*** which has been taken by Class I's and major suppliers. In addition to his own publication of 15 years, ***Full Spectrum***, he has been published in *Progressive Railroading*, *Journal of Transportation, IEEE Vehicular Technologies* and is a Contributing Editor for *Railway Age*. Ron is a frequent speaker at railroad conferences. Lastly, Ron was the Project Leader for a team selected to perform a PTC feasibility study for the Egyptian National Railways resulting in his design of Virtual CTC (VCTC) to increase the safety and efficiency of small and medium railroads.