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IN-PLANT RAILCAR SWITCHING TIME FOR A CHANGE?

HIGHLIGHTS

Railroading is a modern marvel, but also an extremely difficult and hazardous business.

These difficulties and hazards are especially true for in-plant railcar switching operations.

In-plant switching operations should be thoroughly evaluated and all solutions considered.

THE 3 IN-PLANT RAIL SWITCHING SOLUTIONS:

- Self-serve switching
- 3rd Party switching services
- Railroad switching services

KEYS TO SUCCESSFUL SWITCHING:

- Expert industry experience
- Specialized knowledge
- Maintaining absolute safety
- Equipment upkeep
- Continual training
- Cost management
- Movement efficiency

Without these key aspects, a rail switching operation will likely incur greater costs and hassles.

IS THERE A BETTER WAY TO OPERATE RAIL SWITCHING?

Railcar switching operations involve a great degree of difficulty, perilousness, and uncertainty, even though the operations have existed and remain relatively unchanged for over 100 years. Trains, locomotives, and railroads remain one of the best ways to transport goods from point A to point B. An essential element in the supply chain is the in-plant loading, unloading, and switching of railcars that occurs.

In-plant switching movements are made at slow speeds, but that doesn't mean operational safety and expertise can be sacrificed. Additionally, federal regulations have little influence and oversight over in-plant switching operations. As a result, an in-plant rail switching solution must be thoroughly evaluated to balance safety along with business needs.

THE SWITCHING SOLUTIONS

The three main operational solutions for in-plant railcar switching are: **Self-serve, 3rd Party,** and **Railroad Services.**

SELF-SERVE switching requires a business to interlock rail switching with its core operations.

Benefits include:

1. **Expert knowledge of products and product handling**
2. **Controlling labor and maintenance costs**
3. **Managing switching needs without restrictions or delays**

Disadvantages include:

1. **Distractions from core business interests**
2. **Guesstimating safety guidelines**
3. **Developing resource protocols as rail switching experience is gained**

3RD PARTY SWITCHING SERVICES are performed by companies specializing in rail switching as their core business.

Benefits include:

1. **Expert knowledge, experience, resources, and personnel for rail switching**
2. **Customized services for increased plant safety, efficiency, capacity, and accelerated supply chain velocity**
3. **Your team can focus on your business, leaving rail switching to the experts**

Disadvantages include:

1. **Long-term contracts**
2. **The occasional 3rd party company who is not familiar with specific products and industries**

RAILROAD switching engages the services of a main or short line railroad to perform the switching.

Benefits include:

1. **No long-term contracts and service is provided as needed**
2. **Can be beneficial for small operations or operations with sporadic needs**

Disadvantages include:

1. **Operating at the mercy and availability of the railroad line for switching needs, which is troubling for efficiency, deadlines, and supply chain velocity**

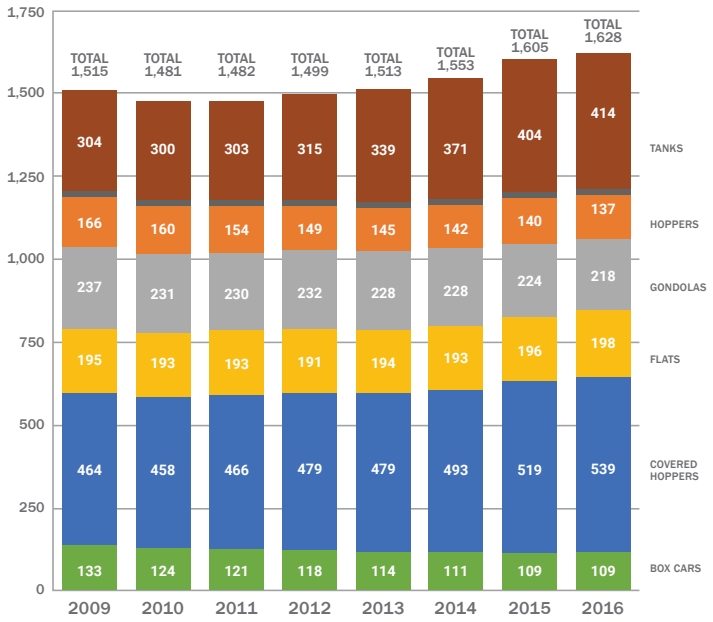
While there is no definitive right or wrong answer for a business, this article is meant to help spark the question, "Is there a better way?" by examining in-plant switching's hidden, indirect, and often overlooked costs.

The following case study depicts an all-too common scenario of self-serve, in-plant rail switching. As previously mentioned, FRA regulations and safety measures minimally apply to in-plant rail operations. A self-serve, in-plant rail switching operation may simply be unaware of how to prevent accidents and operate safely, due to lack of experience or turnover, as illustrated above. A self-serve operator may also experience significant incident, maintenance, and other costs for switching, but incorrectly assume it's an unavoidable part of the railroading business.

NORTH AMERICAN FREIGHT CAR FLEET – BY CAR TYPE

COUNTS AT YEAR-END AND SHOWN IN THOUSANDS

As the economy grows and the number of railcars in service continues to increase, the need for expert rail switching services will be even more profound.



Source: The North American Freight Railcar Review 2017

IGNORANCE ISN'T BLISS

General Manufacturing Company (name changed to protect identity) is a leader in their industry, producing high-quality goods. However, General is not an expert in rail operations, even though it has been operating in-plant rail switching for many years. General owns five locomotives and one trackmobile; manages four 6-man crews; handles 30-40 inbound/outbound railcars per week; and stores 400-500 railcars in their yard at any given time.

The average length of employment at General's switching operation is five years, although the median length is closer to two years—a lack of cumulative experience indeed. Lack of quality experience and adequate training amounts to a mountain of issues: inadequate equipment and track maintenance, insufficient inspections, inefficient railcar movements, delays and conflicts with the railroad, and safety protocols not adhered to or properly enforced.

GENERAL'S BREAKDOWN

Initially, General contracted with the railroad for railcar switching; however it found this extremely inefficient, restricting, and cumbersome. The company reasoned **it would be more beneficial to operate its own in-plant switching on the following three bases:**

- **Expert knowledge of products and product handling**
- **Controlling labor and maintenance costs**
- **Managing switching needs without restrictions or delays**

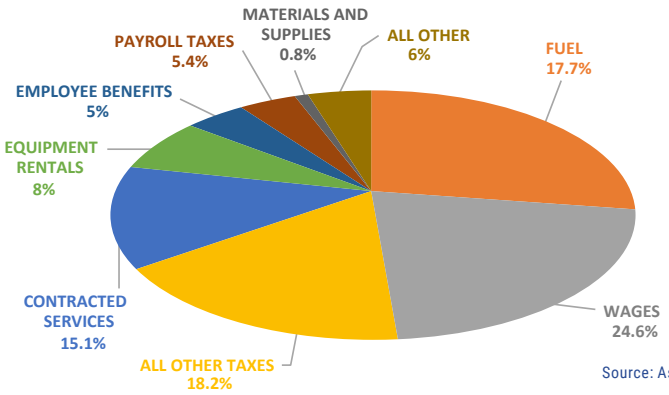
General's rationale for moving to self-serve rail switching—that it would reduce costs, increase production, and improve efficiencies—all made sense on paper.

Consequently, an operational plan was developed, locomotives were leased, maintenance costs were forecast, and labor needs were calculated. However, it wasn't long before General realized flaws in their operational plan, as unanticipated issues and risks soon became apparent and operational costs escalated. Safety incidents, as General discovered, can be extremely costly, and are rarely accounted for when a company performs cost-benefit analysis for self-serve, in-plant switching. For example, one particular month, General suffered a destructive derailment causing a large chemical spill that crippled the company's whole manufacturing operation. Raw materials could not be received and finished products could not be dispatched for eight days, resulting in millions of dollars in lost revenue and disaster clean up expenses. To make matters worse, five weeks later a General switchman lost his footing and suffered a debilitating leg injury and amputation. The ongoing medical procedures and legal actions from this incident are still being assessed and the bills keep adding up.

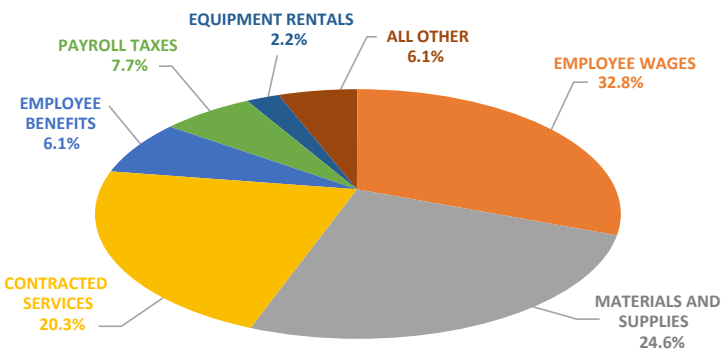
In addition to the obvious costs of equipment, labor and maintenance, General found that **other significant hidden, indirect, and overlooked costs of switching include:**

- **Safety (including injuries, death, derailment, collisions, and detrimental lawsuits)**
- **Continual training and certifications**
- **Diluted business core competencies**
- **Inefficiencies causing production gridlock**

COST BREAKDOWN TO OPERATE RAIL SWITCHING



EQUIPMENT AND RAIL MAINTENANCE COST BREAKDOWN

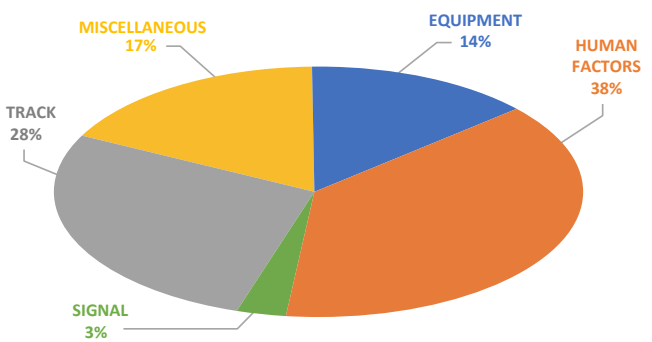


Source: Association of American Railroads

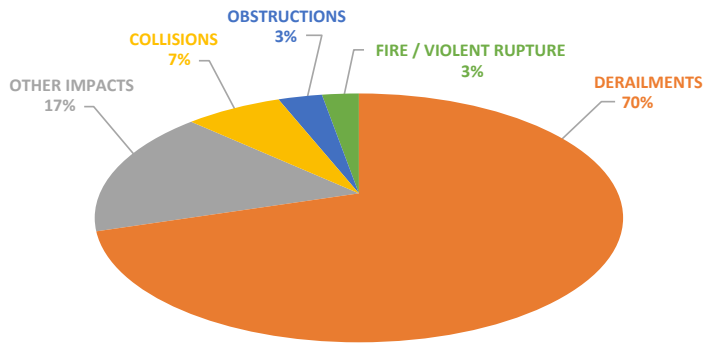
THE SWITCH

As a result of these incidents, General was compelled to ask themselves the question, "Is there a better way to operate rail switching?" The company calculated their operating expenses and all indirect costs of their rail switching operations and came to the following conclusion: Rail switching is not within their business core competency, and, if financially sensible, they would rather simplify and allow rail experts to operate and assume liability of their rail operation.

TRAIN ACCIDENT CAUSES - FY 2015



RAIL ACCIDENTS BY TYPE – FY 2016

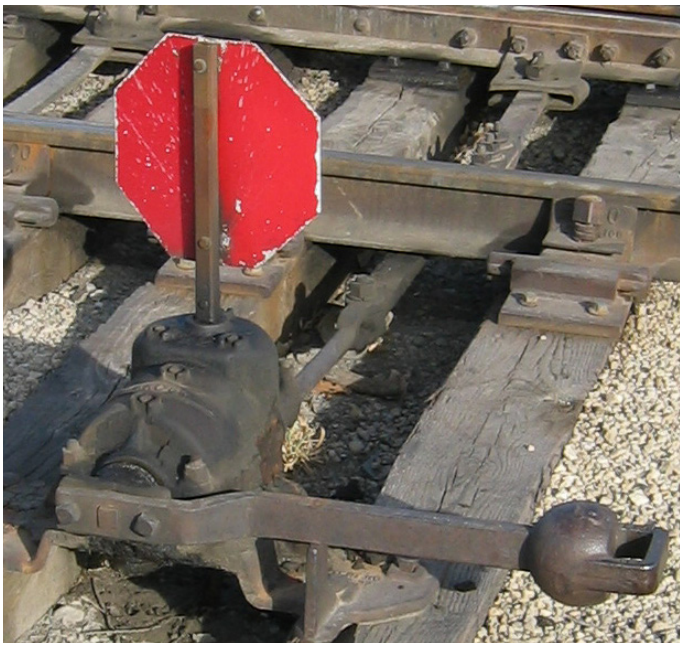


Source: U.S. Department of Transportation, Federal Railroad Administration

General vetted several third-party switching companies and found the cost to contract these experts was very comparable to their total cost of self-operating the rail switching.
The direct and indirect savings and benefits came as:

- **Increased efficiency of railcar movements and less production process bottlenecking**
- **Improved use of track space and awareness of plant-track activity**
- **Improved railcar fleet utilization attributable to decreased cycle time**
- **Improved operating efficiencies to increase carload volume**
- **Elimination of equipment, maintenance, and fuel expenses**
- **Regular inspections and rail maintenance to prevent future incidents**
- **Reduction or elimination of weighing and demurrage charges**
- **Reduction in labor force (the rail experts could operate with 25% less labor)**
- **Elimination of training and safety costs, with the bonus of a safety**

DON'T FOUL THE SWITCH



General found that most third party rail switching companies offer a suite of rail services to fulfill any company's needs (see appendix A). As with the rail switching benefits listed above, these services can greatly enhance a company's production processes and efficiency.

Every business is different and there isn't a one-size-fits-all solution, so it's important to do your homework to determine the right approach before investing in rail switching resources.

Is a third-party solution right for your business? We invite you to work through the In-Plant Rail Switching Needs Audit in Appendix B.
The questions there can help you evaluate in-plant rail switching needs and explore the options available to your company.

Additional and Valuable 3rd Party Services	
Derailment Investigation	Gathering crucial data and diagnose the cause of an incident
Emergency Response Services	Liquid and solid transfers, flaring, M1002 railcar certification, derailment response, spill remediation, confined space entry, etc.
Equipment Maintenance Services	Development and execution of maintenance plans for facilities and equipment
Fleet Sizing and Cycle Time Analysis	Systems to monitor and analyze cycle time to optimize fleet sizing requirements and train configuration
Heating	Control material temperature in the railcar as required to facilitate the unloading process and maintain product integrity
Locomotive Fueling and Tracking	On-track delivery of fuel, lube oil, sand, water, and removal of waste; also real-time tracking data on fuel levels and locations, and front-end cameras to enhance safety
Locomotive Servicing and Cleaning	Cab cleaning, maintenance, and inspections
Marine Logistics	Barge/vessel operation, loading/unloading, and terminal operations
Modern Equipment	Advanced equipment and technology utilization
Packaging and Shipping	Bulk solid and liquid partitioning and packaging, testing and sampling, blending and sizing
Plant Analysis	Develop site specific training and operating procedures
Railcar Fleet Acquisition	Assistance with purchase or lease of railcar fleet
Railcar Inventory Management	Real-time, in-plant and en-route tracking of railcars
Railcar Maintenance, Inspections, and Cleaning	Expert maintenance and inspection services, and railcars are cleaned to be loaded with different types of materials
Railcar Repair	Including offline car repairs to monitor costs, authorize repairs and ensure the work is done properly
Railroad Design, Construction, Expansion	Engineering and project management to guide through all phases from conceptual design to construction completion
SIT Yard Operation	Railcar storage and teams to switch and move cars within SIT (Storage in Transit) yards to plant
Technology Utilization	Enhanced supply chain visibility, streamlined communication, and facilities collaboration in real-time data to anticipate and effectively respond to supply chain fluctuations
Terminal Management	Complete inventory management, product handling, logistics coordination, clerical administration, and workforce supervision for an entire terminal operation
Track Maintenance Planning	In-plant track inspections and maintenance plan development to proactively manage track condition with minimal disruptions
Track Repair	Light to heavy track repair services to maintain rail, tie, OTM, ballast, and special track work integrity
Transloading	Loading/unloading of bulk solid and liquid commodities of all types and hazards between truck, rail, and marine systems, or placing into storage
Trailer Handling	Jockeying trailers to precise positions to be loaded and unloaded
Trucking	Full trucking services and equipment tailored to transporting any product
Vacuum Truck Services	Ensures facilities stay clean and running with everyday cleaning, spill cleaning, and tank clean up
Warehousing, Storage, and Inventory Management	Material storage - via tanks, silos, ground storage, etc., and management of products as they move to market

✓	In-Plant Rail Switching Needs Audit
✓	**Do you need...?**
	Increased efficiency of railcar movements
	Reduced production process bottlenecking due to switching
	Improved use of track space and awareness of plant-track activity
	Improved railcar fleet utilization attributable to decreased cycle time
	Improved operating efficiencies to increase carload volume
	Reduced equipment, maintenance, and fuel expenses
	Regular equipment and rail inspections
	Regular equipment and rail maintenance to prevent future incidents
	Decreased or eliminated weighing and demurrage charges
	Reduced labor force due to rail switching operations
	A safety focused and trained team of rail experts
	Reduced administration, oversight, headaches, and hassle
	A partner with mainline railroad relationships to accelerate logistics and service
	Rail experts with vast knowledge of rail switching and product handling
	Personnel familiar with plant operations being permanently assigned to the plant
	Elimination of liability and related expenses from rail switching operations

Primary author: Cody Kartchner, Savage Business Manager. 2017.

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