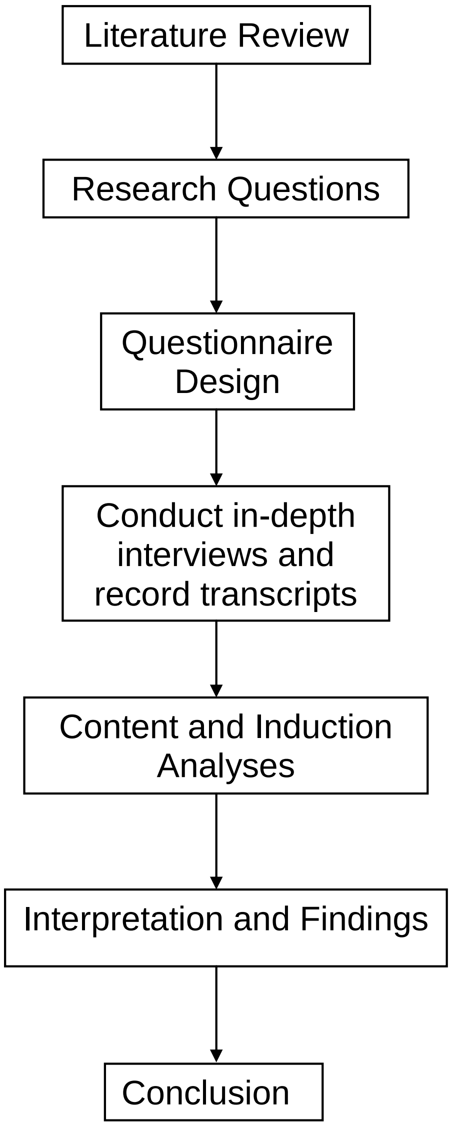
APPENDICES

APPENDIX A: Research Methodology



APPENDIX B: Consistency Matrix

Sub problems	Research Questions	Questionnaire Items	Sources of research questions	Analysis of Data
A. To ascertain how the yield management concept might be adapted for /to the freight rail industry.	1. What are the current perspectives of railroad management on the adaptation of YM to the freight rail industry?	1. What is your understanding of the yield/revenue management concept? 2. How would the revenue management concept be adapted for the freight rail industry (in terms of "*the right capacity for the right customer at the right time*"? 3. In terms of yield management, what is the '*unit of capacity*' for a freight railroad (for e.g., seats in airlines and rooms for hotels)?	Kimes, S.E (1989); Lieberman, W. H. (1990); Shuman (1991); Strasser, S. (1996)	Content and induction analysis of interview transcripts.
B. To determine how such ideas for adaptation might influence the approach to implementing the yield management concept	2. What approaches to yield manage-ment have been developed for the freight rail industry?	4. How would you approach yield management in the railroad industry? 5. Would you pursue or focus on the following goals/benefits for yield management?	Kraft, E. R. (1998); Kraft, Edwin R., Srikar Bellur N., Phillips, Robert L. (2000);; Baker, T. K. (1994); Baker; T. K. & Collier, D. A. (1999); Belobaba, P. P. (1987a); Belobaba, P. P. (1987b)	Content and induction analysis of interview transcripts.
C. To develop (or identify) a yield management assessment *framework for the freight rail industry, from service industries* where yield management has been applied successfully.	3. Are the service industry characteristics that favour the application of yield management, evident in the freight rail industry? 4. Which market segments (of a railroad's overall customer-base) would conform to these characteristics? 5. Are the functions or activities associated with yield management prevalent in the freight rail industry? (Consider car- and intermodal traffic)	6. Are the following service industry characteristics, usually associated with yield management, prevalent in the freight rail industry? (Consider car- and intermodal traffic) 7. Which market segments of a railroad would favour the application of yield management (and by implication exhibit the characteristics above)? 8. Which of the following policies associated with yield management could be implemented in a freight railroad?	Kraft, E. R. (1998); Kraft, Edwin R., Srikar Bellur N., Phillips, Robert L. (2000); Rennicke, William J. & Clute, G (1995); Shuman, D. (1991); Strasser, S. (1996); Van der Meulen, D (1994); McGill, J. I. & Van Ryzin, G. J (1999); Weatherford, L. R. (1995); Rennicke, William J. & Clute, G (1995);; Weatherford, L. R & Bodily, S. E. (1992)	Content and induction analysis of interview transcripts.
D. To identify the context (if any) for the application of yield management	6. What do customers expect from a freight rail	9. What are the 5 key service specifications from your latest customer survey?	Daudel, S. & Vialle, G. (1994); Rennicke, W. J. & Clute, G. (1995); Mitev, N. N. (1996);	Content and induction analysis of interview

Sub problems	Research Questions	Questionnaire Items	Sources of research questions	Analysis of Data
within the selected domain.	service? 7. What are the responsibilities or mandate of the managers of freight railroads?	10. What are the 5 key management responsibilities (as determined by shareholders) with regard to overall railroad performance?	Queille, C. & Silva, A (1994); Campbell, K (1996); Strasser, S. (1996) Weatherford, L. R & Bodily, S. E. (1992)	transcripts.
E. To determine whether the freight rail industry presents unique challenges to the application of the yield management concept.	8. What are some of the (operational) complexities associated with freight rail that could hinder the application of YM/RM?	11. What are the 5 most important challenges for implementing RM/YM in the freight rail industry?	Kraft, E. R. (1998); Kraft, Edwin R., Srikar Bellur N, Phillips, Robert L. (2000); Van der Meulen, D (1994)	Content and induction analysis of interview transcripts.
F. To determine whether there are any differences between the management views of commercial and state owned enterprises (*or parastatals*) with regards to yield management	9. What, according to management, would be the critical success factors of YM in freight rail industry?	12. What would be the 5 critical success factors of YM/RM in the freight rail industry? 13. What would be the advantages of YM/RM in the freight rail industry? 14. What would be the disadvantages of YM/RM in the freight rail industry? 15. Would state-owned enterprises or parastatals be permitted to practice yield management?	Harris, R. & P. Peacock (1995); Rennicke, William J. & Clute, G (1995); Queille, C. & Silva, A (1994); Campbell, K (1996); Weatherford, L. R & Bodily, S. E. (1992); Cross (1997); Lieberman (1993)	Content and induction analysis of interview transcripts.

APPENDIX C: Interview Schedule

Given that Yield Management is generally defined as:

a) "…*the right capacity for the right customer at the right time", and*
b) *"..the optimal revenue management of perishable assets through price segmentation"*

1. **What is your understanding of the YM/RM concept?**

2. **How would this concept be adapted to the freight rail industry as a (transport) service organisation (in terms of ""…*the right capacity for the right customer at the right time")*?**

3. **In terms of yield management, what is the '*unit of capacity*' for a freight railroad (for e.g., seats in airlines and rooms for hotels)?**
   a. Cars (or wagons)
   b. Locomotives
   c. Train slots/line capacity
   d. Train capacity (i.e., available car/wagon space as part of overall train length limits)
   e. Other: ____

4. **How would you approach yield management in the railroad industry?**
   a. ROAM (Return on assets managed)
   b. ROI (Return on investment)
   c. Corridor focus (~ traffic density and revenue potential)
   d. Rail transport service categories (cost-to-serve in terms of frequent or ad hoc services)
   e. Customer and/or commodity segments (revenue potential)
   f. Other: ____

5. **Would you pursue or focus on the following goals/benefits for yield management?**
   a. Short-term benefits
   b. Long-term benefits
   c. Both

6. **Are the following service industry characteristics, usually associated with yield management, prevalent in the freight rail industry? (Consider car- and intermodal traffic)**

	SERVICE INDUSTRY CHARACTERISTIC	YES	NO
a	'Perishable' capacity (revenue-earning opportunities decrease with time)	☐	☐
b	Fixed-capacity (assuming that extra capacity is expensive to acquire/add in short-term)	☐	☐
c	Capacity can be reserved in advance	☐	☐
d	Visible market segmentation (pricing based on service levels)	☐	☐
e	Low variable costs	☐	☐
f	Variable demand and seasonality	☐	☐
g	Direct relationship/contact with customers (no intermediary)	☐	☐

7. Which market segments of a railroad would favour the application of yield management (and by implication exhibit the characteristics above)?

MARKET SEGMENTS (generic descriptions)	
a1. Unit load traffic (~bulk consignments)	a2. Carload traffic (~ small consignments)
b1. Container/Intermodal traffic (large, repetitive consignments)	b2. Container/Intermodal traffic (small, once-off consignments)
c1. Contractual traffic	c2. Non-contractual/Spot traffic
d1. Price elastic segments	d2. Price inelastic segments
e1. Seasonal traffic	e2. Non-seasonal traffic
f1. All commodities in business portfolio	f2. Selected commodities in business portfolio

~~15. Is demand ever displaced in favour of higher priced traffic?~~

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☐ ~~Yes~~
☐ ~~No~~

~~16. Is there a 'bumping' procedure for excess demand? That is, how would excess demand be handled?~~

☐ ~~FCFS (first-come-first-served)~~
☐ ~~Full-price~~
☐ ~~Auction~~
☐ ~~Other:___________________________~~

8. Which of the following policies associated with yield management could be implemented in a freight railroad?

	YIELD MANAGEMENT POLICY	YES	NO
a	Employ price discounting (to manage demand)	☐	☐
b	Overbooking of capacity	☐	☐
c	Able to withhold capacity (deny access) in order to obtain higher yield	☐	☐
d	**Forecasting of demand**	☐	☐
e	Use of penalties to manage/change customer behaviour	☐	☐
f	Auctioning of capacity (bid-price approach)	☐	☐
g	First-come-first-served (FCFS) allocation of capacity rule	☐	☐
h	Computerized revenue management system	☐	☐

9. What are the 5 key service specifications from your latest customer survey?

10. What are your 5 key management responsibilities with regard to overall business performance?

a. Maximise profit
b. Maximise capacity utilisation
c. Maximise average revenue per customer
d. Increase market share
e. Provide cost efficient and effective rail transport for customers/clients
f. Other: ____

11. What are the 5 most important challenges for implementing RM/YM in the freight rail industry?
   a. Market segmentation for profit (from railroad's perspective)
   b. Willingness of customers to be segmented according to railroad's classification (implies price segmentation)
   c. Tracking & tracing of rolling-stock (locomotives and cars)
   d. Robust information systems
   e. Forecasting of Customer Demand (implies availability of historical data)
   f. Other: ____

12. What would be the 5 critical success factors of YM/RM in the freight rail industry?

13. What would be the advantages of YM/RM in the freight rail industry?
   a. Improved bottom-line performance
   b. Better allocation of spare (or scarce) capacity
   c. Improved customer- segmentation and service
   d. Increased market share
   e. Tactical management tool to challenge competition
   f. Other: ____

14. What would be the disadvantages (or risks) of YM/RM in the freight rail industry?
   a. ~~Employee~~ Customer dissatisfaction with differential pricing
   b. Changes in customer behaviour (~becoming opportunistic)
   c. Massive investment in information technology
   d. New incentive and reward policies for sales personnel
   e. Complex sales revenue targets due to demand and capacity trade-offs
   f. Other: ____

15. Would an SOE or parastatal be allowed to practice yield management? Please substantiate your response**

APPENDIX D: Panel of Experts

- Dr Marc Meketon, Consultant: Multimodal Applied Systems, Princeton, New Jersey, USA
- Dr Kevin Campbell, author/reference cited in this research document
- Dr Maarten Oosten, Consultant: PROS Revenue Management, Houston, Texas, USA
- Shaun Scott, Consultant: Accenture, South Africa.