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CityRail Efficiency Performance Measurement Framework - Final Report

26 May 2004

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Context and Disclaimer

L.E.K. Consulting has been appointed by IPART to develop a set of efficiency measures for Rail Corporation.

The information contained in this report has been compiled from information supplied by IPART and RailCorp, and other publicly available information

Every effort has been made to ensure the information presented and the conclusions reached are realistic and not misleading. However, L.E.K. Consulting makes no warranty as to the accuracy of the information contained in this presentation and will not accept responsibility or liability for any loss incurred by any person or entity relying on the information in this report

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Objectives

- **The Government response to the Parry Report, with regard to fare reviews for CityRail specifies that:**

  "Subject to meeting efficiency targets, pursuing fare increases aligned to the CPI through the Independent Pricing and Regulatory Tribunal. Any further fare increases through IPART would have to be directly aligned to clearly identified service improvements such as 'rail clearways' "

- **As an initial step towards better understanding efficiency, IPART appointed L.E.K. to identify appropriate KPIs to transparently monitor CityRail's progress in making efficiency gains**

- **The work has been carried out in close co-operation with RailCorp management with the intention that it could provide CityRail with some of the initial building blocks of a broader performance measurement system**

Detailed work steps

The work has involved:

1. **Outlining a set of "first best" KPIs, drawing on experience from other rail systems and first principles**
2. **Reviewing and assessing CityRail's present KPIs and consider their appropriateness as measures of efficiency**
3. **Considering alternative or supplementary KPIs, and especially how such alternatives might be measured on a consistent basis within CityRail**
4. **Communicating the draft list of KPIs to Senior RailCorp Management and incorporating comments**
5. **Making recommendations to the Tribunal on a draft list of input and output KPIs for CityRail**
6. **Handover of the detailed KPI framework and individual KPI elements to the RailCorp SP&A Group to enable effective implementation by RailCorp**

The outcome of this work is a set of KPIs which will allow IPART to understand RailCorp's progress at making efficiency gains in the operation of CityRail

The draft final report has received sign-off from the joint IPART, RailCorp SP&A Group Steering Committee, subject to comments by senior RailCorp management

Note: **In this document, the term 'CityRail' has been used when referring to the metropolitan and intercity services,track and systems. The term 'RailCorp' has been used when referring to the overall organisation and it's management**

In developing the proposed KPI framework, L.E.K. consulted widely within RailCorp management as well as ITSRR, Treasury and the MoT

RailCorp Management

SP&A
- Sharyn Gregory
- Sharyn Doyle
- Victor Jiang
- Ross Farmer

Train Services
- Barry Garnham
- Paul Poynton
- Balbir Bhall
- Jan Jackson

Infrastructure
- John Minchin
- Chris Fitzgerald
- Chris Payne
- Brett Inchley

Customer Services
- Terry Archer
- Margaret Brazel
- Des Peroumal
- Basil Hancock
- Vince Rosello
- Cris De Leon

Finance and IT
- Michael Downey
- Kevin Golledge
- Henry Tan
- Terry Hunter

Other
- Glen Warn
- Colin McLean

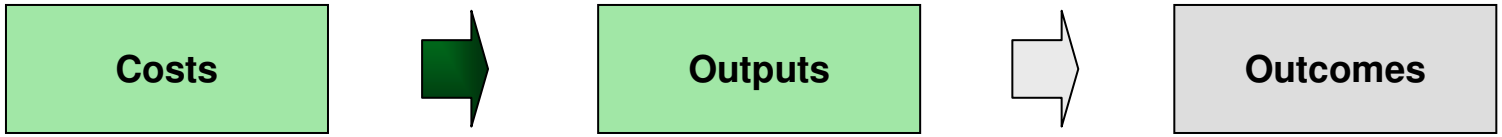
IPART
- Colin Reid
- Dennis Mahoney

Ministry of Transport
- Peter Scarlett
- Mark Cridland

Treasury
- Ziggy Lejins
- David Thorpe

ITSRR
- Simon Foster
- John Austen

Recommended KPIs are focussed on the efficiency in delivering outputs rather than outcomes (which are the community or policy objectives targeted by the organisation through its outputs and tend to be less directly controllable by RailCorp)

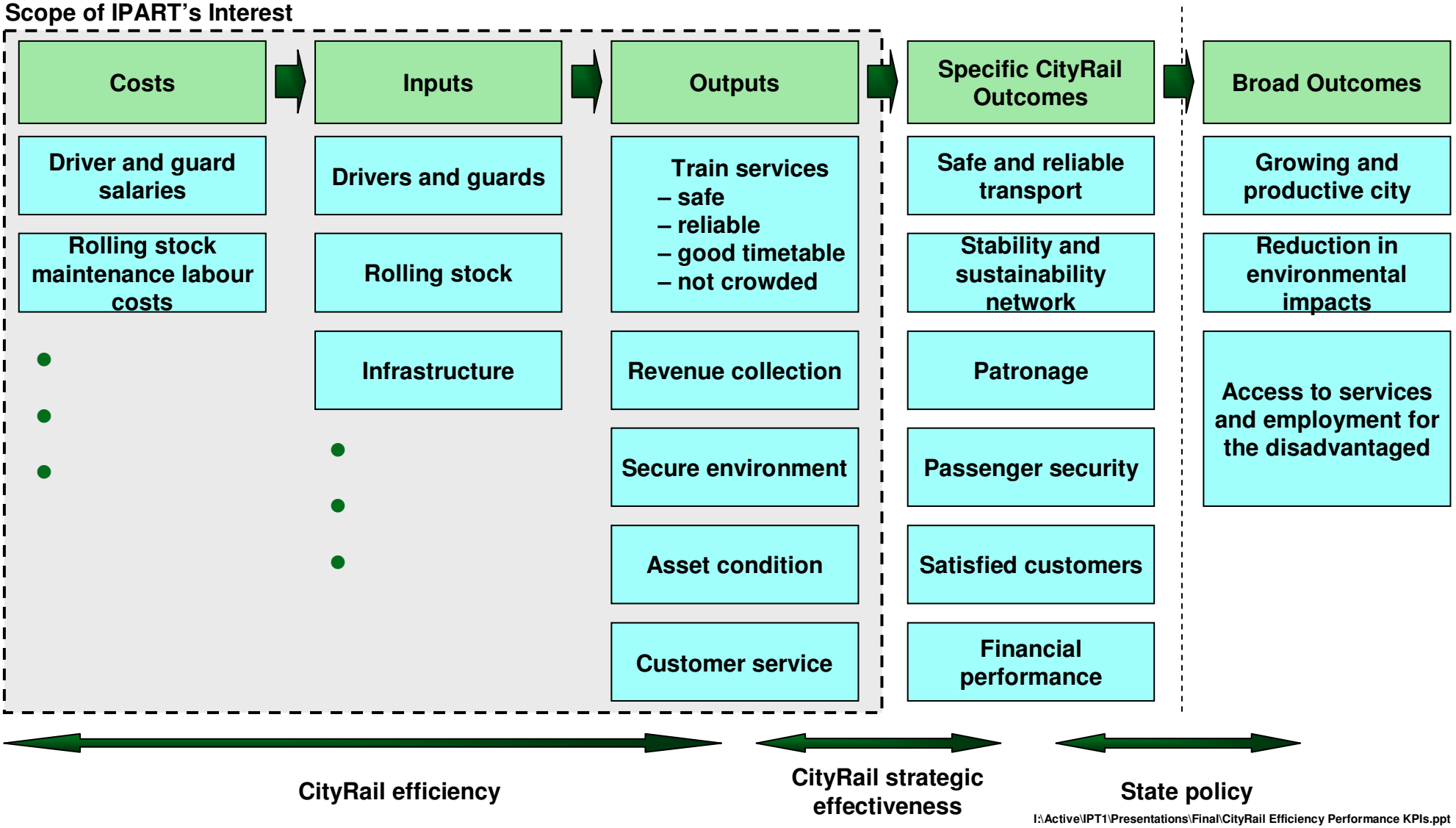


- Cost of labour and capital inputs (staff, fleet and maintenance, etc)

- Tangible deliverables of the organisation
- Measured in terms of:
  - quantity
  - quality
  - timeliness

- Society end user impacts
- State policy objectives toward which the organisation is contributing

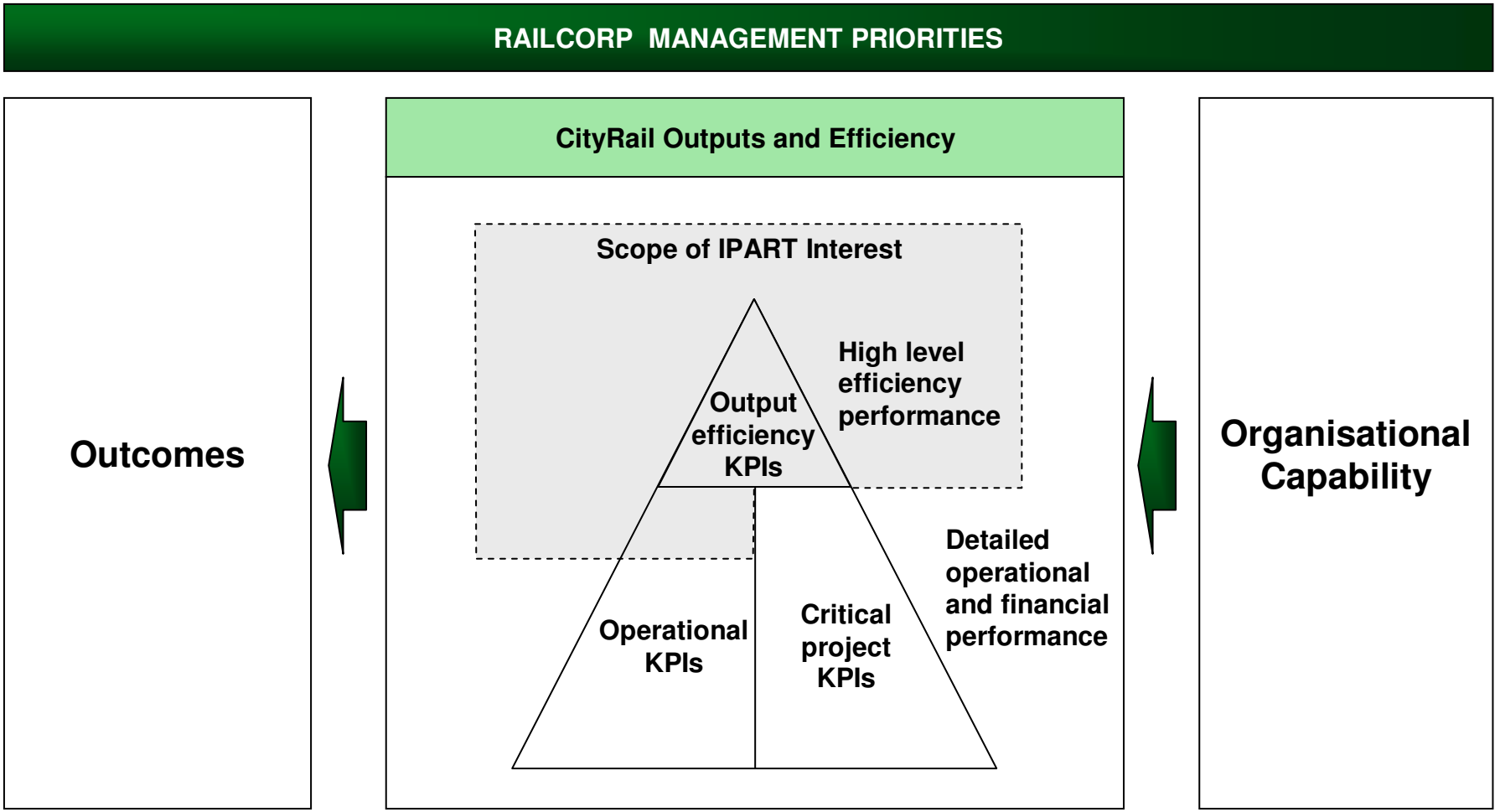
The scope of IPART interest is focussed on the efficiency of delivering outputs, rather than outcomes



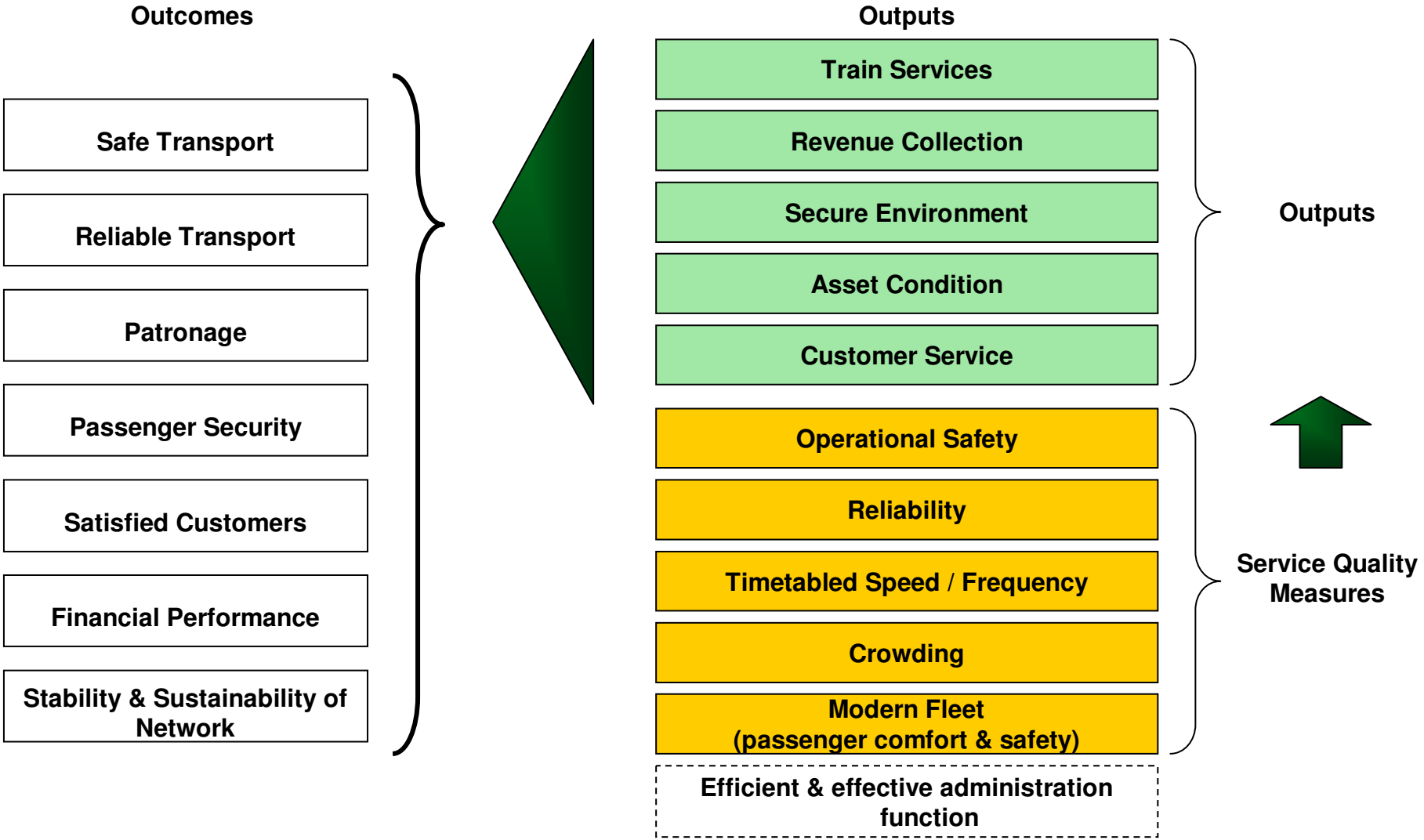
However, given its limited objective the proposed KPI framework only captures one part of RailCorp management priorities

- **Management's responsibilities include the formulation and implementation of effective strategies to deliver the company's outcomes**
- **In order to achieve this, RailCorp delivers outputs on the CityRail network through a variety of operational activities and critical projects**
- **Management also endeavours to build and maintain the company's organisational capability through training, culture, management of industrial relations etc**
- **However, the scope of IPART's interest is limited to monitoring the efficiency of the organisation in delivering CityRail outputs through high level and enduring KPIs**
- **This is represented schematically on the following page**

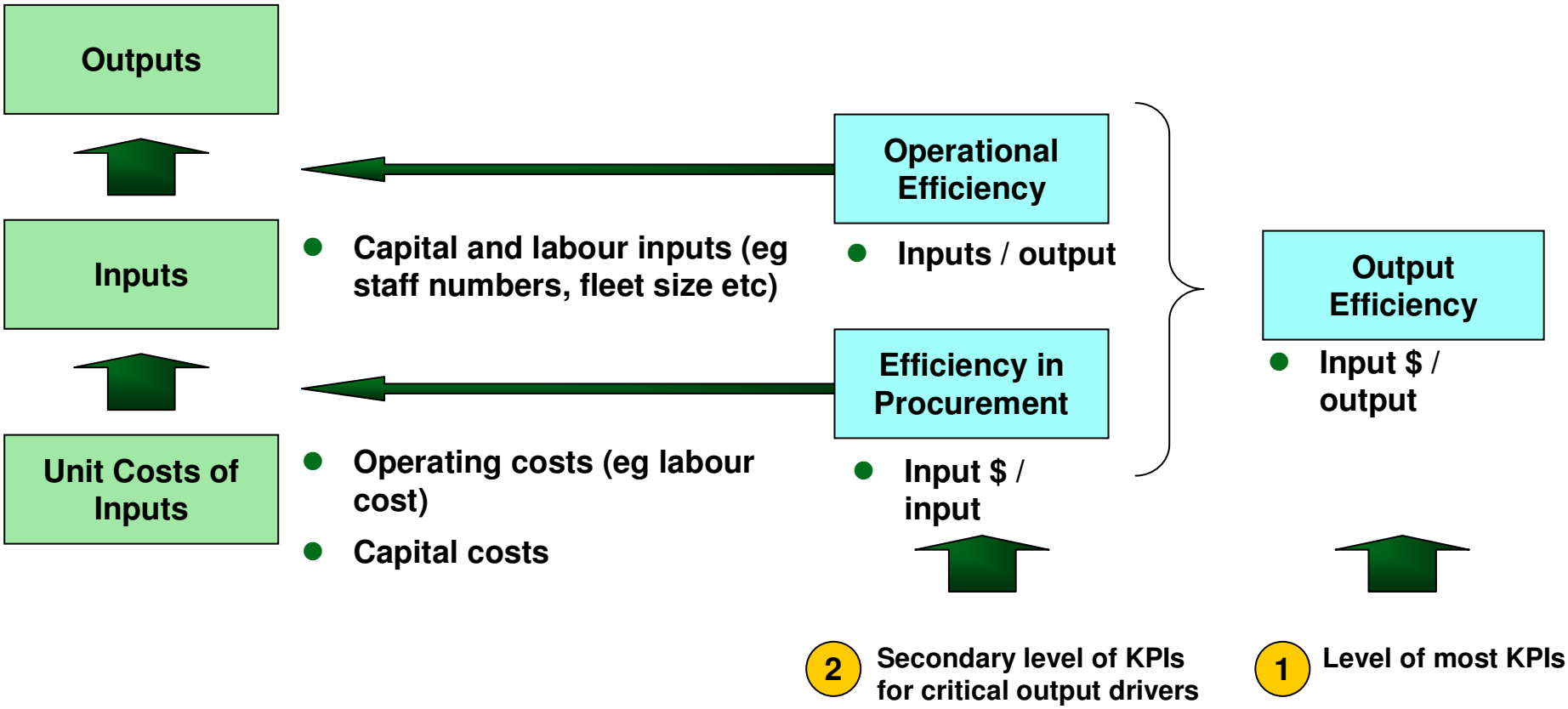
The scope of IPART's interest comprises only one part of the overall measurement priorities for Railcorp Management, however this work can be used as the starting point for more detailed KPI reporting



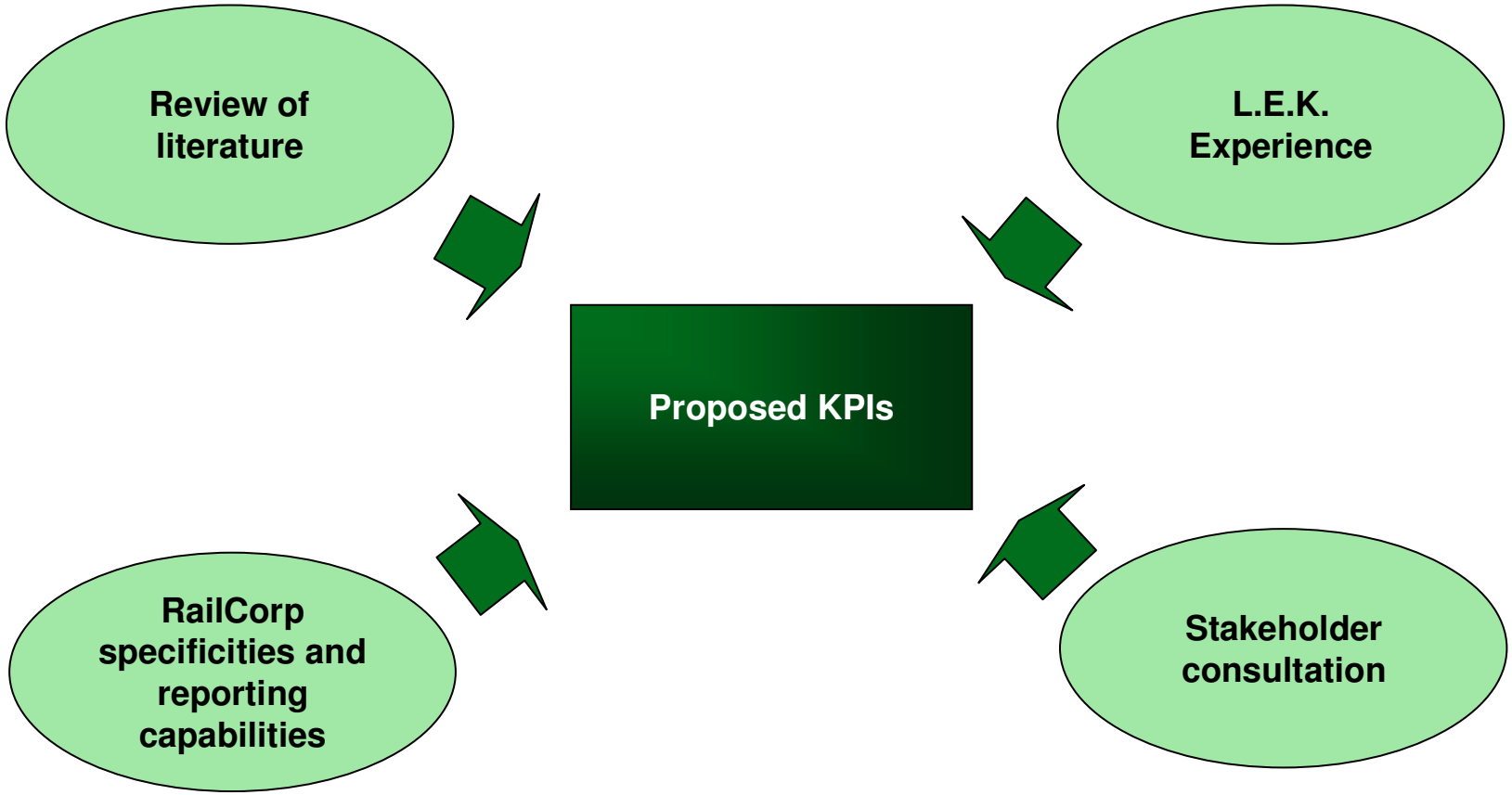
The recommended output measures focus on the quantity and quality of CityRail's output in around ten broad categories



For each output, a series of efficiency KPIs are recommended. These focus on output efficiency, and where relevant, operational efficiency and procurement efficiency



We have developed a set of KPIs based on a combination of observed best practices and the specific requirements and issues of this project



It is important to recognise that data may not be immediately available to report on many of the recommended KPIs as RailCorp's systems are undergoing significant changes

- Whilst conducting the analysis of existing RailCorp reported performance measures and financial information, it has become clear that the financial systems of the organisation are in a transitional phase following the recent integration of SRA and metropolitan RIC
- As a result, financial and operational reporting is likely to be reviewed in the coming months with the expectation that the KPIs will be progressively implemented
- For the KPI framework to be effective, the measures will need to be
  - accurate and objective to ensure measures are trusted
  - available in a timely manner
  - auditable to allow verification
  - robust to enable comparability over time, and
  - actionable to provide an accurate reflection of direct management performance

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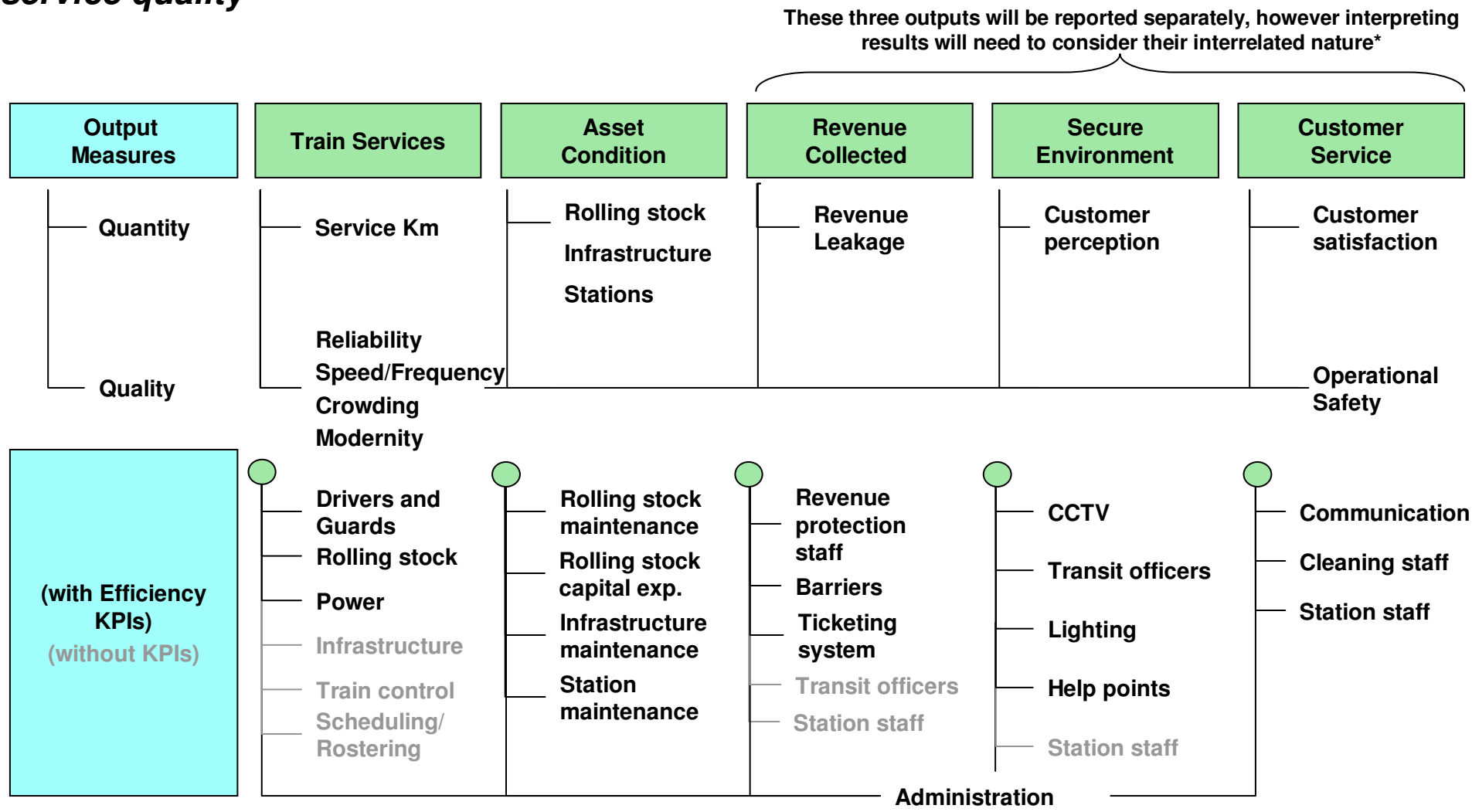
The proposed KPIs will track the efficiency of output delivery as well as the associated service quality

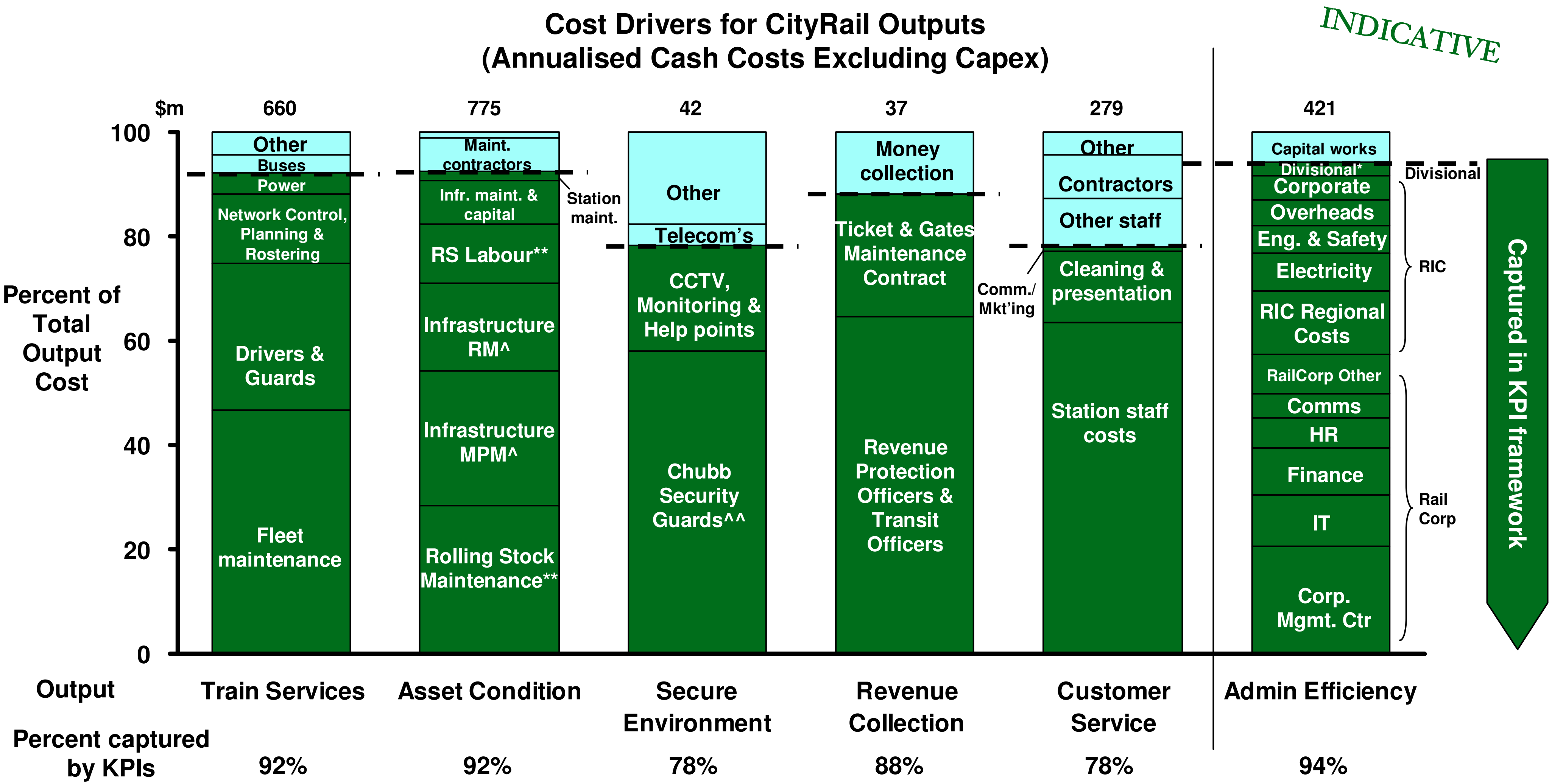


Note: This mostly pertains to multiple roles of transit officers and station staff. Each staff category has been allocated to the most directly related output

A high level analysis of CityRail costs was undertaken to identify the key costs associated with each output

- To understand the proportion and components of CityRail costs incurred in delivering each output, a top level categorisation of CityRail costs has been undertaken
- Given the current limitations in obtaining consolidated RailCorp financial information and historical SRA and RIC financials, some working estimates were required. The analysis should therefore be treated as indicative only
- The starting point for the analysis was the individual SRA and RIC financial results for the 2002/03 period. In the absence of consolidated RailCorp financial statements, we have not been able to adjust for inter-company transfers between SRA and RIC, (with the exception of access charges)
- Where necessary, the specific cost elements have been broken down further using information provided by individual RailCorp divisions. In some cases, the time period for the sub-cost categories is not consistent with the top level financials but the proportions have been assumed to be constant
- The following adjustments have been made to the financials
  - Countrylink costs have been removed for both SRA and RIC where possible (Train Crewing, Infrastructure Maintenance, Station Ops. Not possible for fleet maintenance at the date of the report)
  - RailCorp overhead has been included in administration cost, together with divisional overhead where available
  - non-operating (eg financing charges) and non-cash costs (eg depreciation) have been excluded with the exception of adjustments to employee entitlement provisions
- A detailed breakdown of the items and cost amounts included for each output is attached as an appendix to the report

The proposed KPIs will capture the vast majority of costs associated with each output



Note: * Divisional currently includes only Train Services, however KPI will include all divisional admin costs; ** Currently includes CountryLink maintenance costs. ^Excludes infrastructure capex which will be included in recommended KPIs
^^ Going forward Chubb guards have been replaced with Transit officers with dual revenue protection and security roles

The following page summarises the recommended set of KPI's

- For each of the outputs
  - a series of output quantity and quality measures are proposed. These serve two purposes
    - the quantity measure provides a denominator for the efficiency KPIs
    - the quality measures provide information to assess efficiency changes in the context of improving or deteriorating quality of service
  - a series of efficiency KPIs capture the main costs incurred in the delivery of the output

- Three overarching KPIs are also recommended to provide an appropriate view of total cash cost efficiency

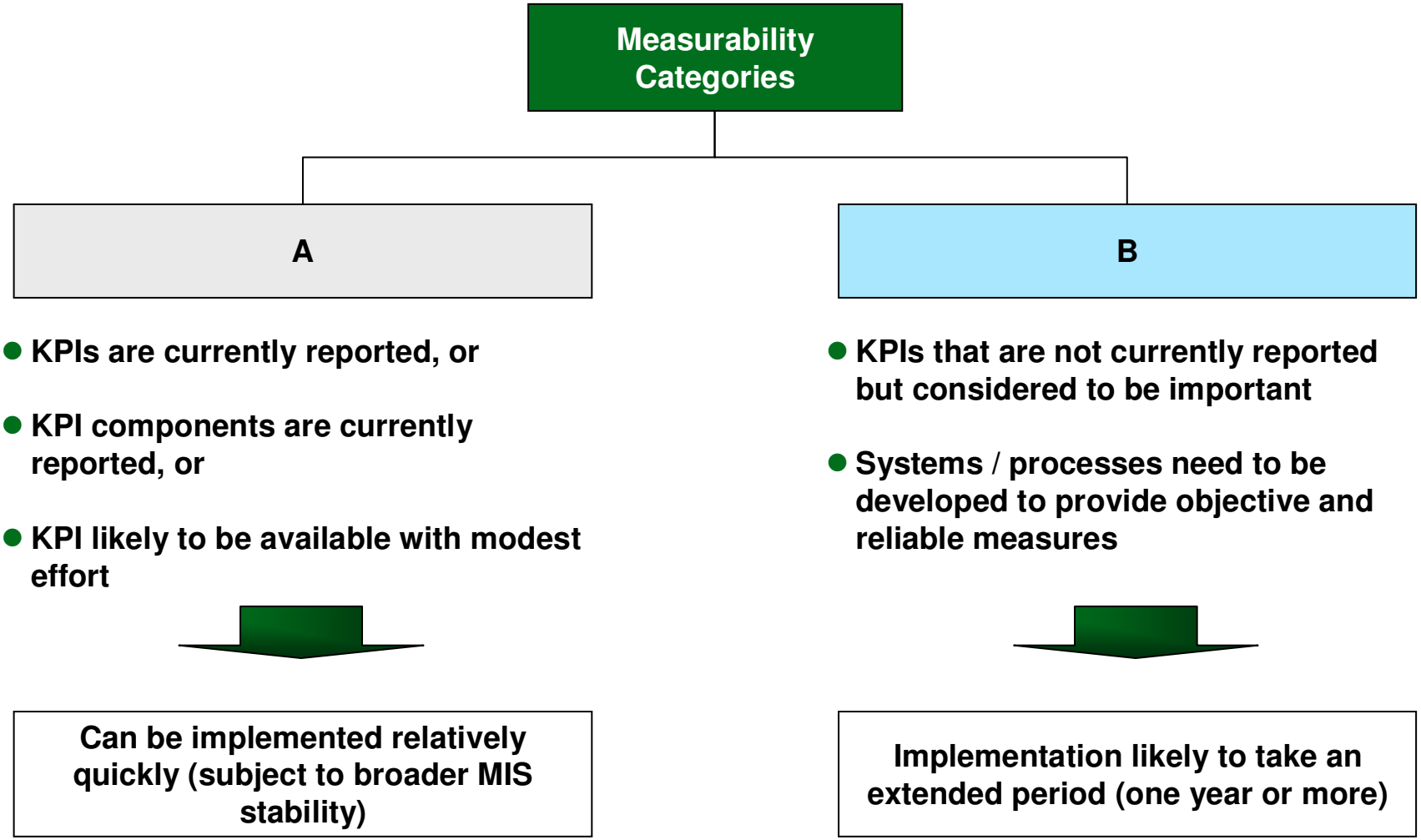
Recommended efficiency and service quality KPIs

Overarching Efficiency KPIs:
Cash costs / Track km; Cash costs / Service km; Cash costs / FTEs

Output	Train Services				Asset Condition	Revenue Collected	Secure Environm't	Customer Service	All outputs	
		Reliability	Speed/Freq.	Other					Operational Safety	Admin
	Quantity measures	*Quality Measures*			*Quantity Measures*				*Quality Measures*	*Quantity Measures*
Output / Service Quality Measure	• Service km • Carriage km	• % right to 3 minutes 59 seconds* • Number of cancelled services • Number of skipped stops	• Avg t/t train speed (peak v. off-peak)	• % of peak services above loading standard** • Percent of fleet less than 10 years old	• RS condition index • Infr. condition index • Station condition index	• % revenue leaked	• Customer perception index for secure environm't	• Customer satisfaction scores for information • Customer satisfaction scores for cleanliness	• # LTIFR • [Other measures under development by RailCorp & ITSRR]	
KPIs	• Driver & guard cost / service km • Paid hrs / service hrs • Driver & guard cost / worked hrs • RS maint. cost & capital charge / carriage km • Power cost / carriage km • Operations admin cost / service km • % peak RS utilisation • % track under possession	• Total primary delay minutes • Number of breaches of driver speeding			• RS maint. & overhaul & capital charge per RS unit • Infr. maint.cost & capex / track km • Cost of maint. backlog / track km • Station maint. cost & capital charge / station	• Total revenue protection costs	• Security spend / customer perception index	• Total comm's costs / cust sat index for information • Total cleaning costs / cust sat index for cleanliness • Station staff cost / station hours (first to last)		• Admin cost per employee

Note: RS = rolling stock; Infr. = infrastructure; t/t = timetable; Comm's = communications;
* 5:59 for Intercity trains; ** Without a following train option within the next 15 minutes

Following a review of available information at RailCorp for the measurement of KPIs, two categories of KPIs have emerged



More than half the recommended KPIs should be readily available

Overarching Efficiency KPIs: Cash costs / Track km; Cash costs / Service km; Cash costs / FTEs

Output	Train Services				Asset Condition	Revenue Collected	Secure Environm't	Customer Service	All outputs	
		Reliability	Speed/Freq.	Other					Operational Safety	Admin
	Quantity measures	*Quality Measures*			*Quantity Measures*				*Quality Measures*	*Quantity Measures*
Output / Service Quality Measure	• Service km • Carriage km	• % right to 3 minutes 59 seconds* • Number of cancelled services • Number of skipped stops	• Avg t/t train speed (peak v. off-peak)	• % of peak services above loading standard** • Percent of fleet less than 10 years old	• RS condition index • Infr. condition index • Station condition index	• % revenue leaked	• Customer perception index	• Customer satisfaction scores for information • Customer satisfaction scores for cleanliness	• # LTIFR • [Other measures under development by RailCorp & ITSRR]	
KPIs	• Driver & guard cost / service km • Paid hrs / service hrs • Driver & guard cost / worked hrs • RS maint. cost & capital charge / carriage km • Power cost / carriage km • Operations admin cost / service km • % peak RS utilisation • % track under possession	• Total primary delay minutes • Number of breaches of driver speeding			• RS maint. cost & capital charge per RS unit • Infr. maint.cost & capex / track km • Cost of maint. backlog / track km • Station maint. cost & capital charge / station	• Total revenue protection costs	• Security spend / customer perception index	• Total comm's costs / cust sat index for information • Total cleaning costs / cust sat index for cleanliness • Station staff cost / station hours (first to last)		• Admin cost per employee

Note: RS = rolling stock; Infr. = infrastructure; t/t = timetable; Comm's = communications;
* 5:59 for Intercity trains; ** Without a following train option within the next 15 minutes

A B

Rationale for recommended KPI's – Overarching RailCorp efficiency

	CityRail Efficiency	Rationale
Output Efficiency	• Total CityRail cash costs / track km	• Three overarching KPI's are proposed to monitor the efficiency of CityRail as a whole • Three denominators are used due to the lack of a direct relationship between any one denominator and all costs of the organisation • Overarching KPIs are not affected by changes in definitions or allocation of costs that could affect other more detailed KPIs
	• Total CityRail cash costs / service km	
	• Total CityRail cash costs / total FTEs	

Overarching efficiency KPIs

Total cash costs per track km (A)	
Definition:	Total cash costs per month / Total network track kms • Total cash costs per month include all CityRail expenses and recurrent infrastructure capex per month. Apportioning RailCorp overhead costs on the basis of CityRail / RailCorp FTEs (excluding O/H FTEs) • CityRail network track kms include all route and non-service track kms on the entire network
Currently Reported:	• Not currently reported
Issues:	• NA
Alternative Measures:	• NA
Data not available at the date of this report	

Cash costs per service km (A)	
Definition:	Total cash costs per month / Total service kms per month • Total cash costs per month include all CityRail expenses and recurrent infrastructure capex per month. Apportioning RailCorp overhead costs on the basis of CityRail / RailCorp FTEs (excluding O/H FTEs) • CityRail service kms = cumulative kms travelled by services on the CityRail network per month
Currently Reported:	• Not currently reported
Issues:	• NA
Alternative Measures:	• NA
Data not available at the date of this report	

Cash costs per FTE (A)	
Definition:	Total cash costs per month / Total number of FTEs • Total cash costs per month include all CityRail expenses and recurrent infrastructure capex per month. Apportioning RailCorp overhead costs on the basis of CityRail / RailCorp FTEs (excluding O/H FTEs) • CityRail number of FTEs (full-time employees) = CityRail full time equivalent employees at month end
Currently Reported:	• Not currently reported
Issues:	• FTEs does not include contractors
Alternative Measures:	• NA
Data not available at the date of this report	

Train Services quantity KPIs

Overarching Efficiency KPIs: Cash costs / Track km ; Cash costs / Service km ; Cash costs / FTEs

Output	Train Services				Asset Condition	Revenue Collected	Secure Environm't	Customer Service	All outputs	
		Reliability	Speed/Freq.	Other					Operational Safety	Admin
	Quantity measures	*Quality Measures*			*Quantity Measures*				*Quality Measures*	*Quantity Measures*
Output / Service Quality Measure	• Service km • Carriage km	• % right to 3 minutes 59 seconds* • Number of cancelled services • Number of skipped stops	• Avg t/t train speed (peak v. off-peak)	• % of peak services above loading standard** • Percent of fleet less than 10 years old	• RS condition index • Infr. condition index • Station condition index	• % revenue leaked	• Customer perception index for secure environm't	• Customer satisfaction scores for information • Customer satisfaction scores for cleanliness	• # LTIFR • [Other measures under development by RailCorp & ITSRR]	
KPIs	• Driver & guard cost / service km • Paid hrs / service hrs • Driver & guard cost / worked hrs • RS maint. cost & capital charge / carriage km • Power cost / carriage km • Operations admin cost / service km • % peak RS utilisation • % track under possession	• Total primary delay minutes • Number of breaches of driver speeding			• RS maint. & overhaul & capital charge per RS unit • Infr. maint.cost & capex / track km • Cost of maint. backlog / track km • Station maint. cost & capital charge / station	• Total revenue protection costs	• Security spend / customer perception index	• Total comm's costs / cust sat index for information • Total cleaning costs / cust sat index for cleanliness • Station staff cost / station hours (first to last)		• Admin cost per employee

Note: RS = rolling stock; Infr. = infrastructure; t/t = timetable; Comm's = communications;
* 5:59 for Intercity trains; ** Without a following train option within the next 15 minutes

Rationale for recommended KPI's - Train Services output

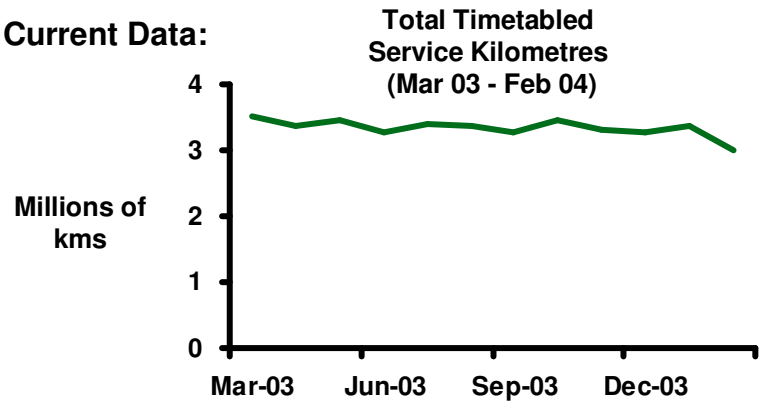
		KPI	Rationale
Outputs		• Service km	• Service kms provides a direct measure of train service provision in terms of number of services and the distance travelled • Carriage kms provides an alternative measure, with a more direct link to service capacity and rolling stock maintenance
		• Carriage km	
Output Efficiency	Driver & Guard Costs	• Driver & guard cost / service km	• Driver and guard costs are a major cost component of delivering the service • Measure of output efficiency of drivers and guards in delivering service provision. Service kms identified as the output variable that most closely determines driver and guard requirements
		• Paid hrs / service hrs	• Operational efficiency measure of driver and guard utilisation in delivering a service hour. Measure of rostering effectiveness as well as IR constraints
		• Driver & guard cost / worked hrs	• Measure of the unit procurement cost of drivers and guards. A detailed KPI has been selected due to the significant proportion of RailCorp costs that are attributed to drivers and guards
	Rolling Stock	• Rolling stock (R.S.) maint. cost & capital charge/ carriage km	• R.S. maintenance comprises a significant proportion of RailCorp costs • Measure of output efficiency of the cost of maintaining rolling stock in relation to the carriage kms delivered. R.S. maintenance is a function carriage kms, rather than service kms • Capital charge included to reflect opex / capex trade offs in maintenance decisions
	Power	• Power cost / carriage km	• Power cost comprises a significant proportion of RailCorp costs • Measure of output efficiency of the cost of electricity usage in relation to the carriage kms delivered. Carriage kms is a more appropriate driver of power cost than service kms
	Admin	• Operations admin cost / service km	• Train control, train planning, rostering and network operations comprise a significant proportion of costs involved in delivering train services • The relevant cost drivers (eg train movements, drivers and guards etc) are significantly correlated with service kms
Operational efficiency		• % peak RS utilisation	• Measure of the effectiveness of both total fleet management as well as R.S. maintenance (fleet availability)
		• % track under possessions	• The ability to provide services at expected standards is influenced by the availability of the track as a result of line closures (effectiveness of possessions program) • The possessions schedule has a direct influence on the cost of busing services (substitutes) • The efficiency of possessions is captured separately in infrastructure maintenance costs (asset condition output)

Note: A significant proportion of track maintenance is correlated to track degradation due to gross tonne kms. For the sake of simplicity, these costs have been aggregated in infrastructure maintenance, treated as a fixed cost aligned to asset condition

KPIs for Train Services - Output measures

Service Kilometres	A
Definition:	Total service kms per month • Total service kms = cumulative kms travelled by services on the CityRail network per month
Currently Reported:	• KPI not currently reported • Data received direct from Train Services
Issues:	• Measurement of actual service kms is not available at present, however it is expected in the future (scoping stage)
Alternative Measures:	• Use timetabled service kms data until actuals are available

Current Data:



Carriage Kilometres	A
Definition:	Total carriage kms per month • Total carriage kms = cumulative kms travelled by carriages on the CityRail network per month
Currently Reported:	• KPI not currently reported • Data received direct from Train Services
Issues:	• Measurement of actual carriage kms is not available at present, however it is expected in the future (scoping stage)
Alternative Measures:	• Use timetabled carriage kms data until actuals are available

Current Data:

	2003
Annual timetabled carriage / km	221 million

KPIs for Train Services - Efficiency KPIs (1/4)

Driver & guard cost per service km (A)

Definition:	Total driver & guard costs per month / Total service kms per month • Driver & guard costs includes salary, overtime, all on-costs (penalties, annual & sick leave) • Total service kms = cumulative kms travelled by services on the CityRail network per month
Currently Reported:	• KPI not currently reported • Data received direct from Train Services
Issues:	• Measurement of actual service kms is not available at present, however it is expected in the future (scoping stage) • Determine if driver and guard costs and service kms are measured for a consistent network (ie, suburban, intercity, etc)
Alternative Measures:	• Use timetabled service kms data until actuals are available

Current Data:

	2003
Annual driver & guard cost	$187m
Annual service km	38m
Driver & guard cost per service km	$4.90

Paid hours / service hours (B)

Definition:	Total driver & guard paid hours per month / Total train service hours per month • Driver & guard paid hours includes cumulative hours for which drivers were paid (including shift hours, overtime hours, minimum shift hours) • Total service hours = cumulative hours of train services on the CityRail network per month
Currently Reported:	• KPI not currently reported • Yet to receive numerator information • Ensure consistency of network scope for numerator and denominator
Issues:	• Difficult to obtain paid hours • Measurement of actual service hours is not available at present, however it is expected in the future (scoping stage)
Alternative Measures:	• Worked hours may potentially be available, however this is TBA • Use timetabled service hours data until actuals are available

KPIs for Train Services - Efficiency KPIs (2/4)

Driver & guard cost per worked hours (A)	
Definition:	Total driver & guard costs per month / Total driver & guard worked hours per month • Driver & guard costs includes salary, overtime, all on-costs (penalties, annual & sick leave) • Driver & guard worked hours includes cumulative hours worked per month (including shift hours & overtime hours)
Currently Reported:	• KPI not currently reported • Yet to receive denominator information
Issues:	• Determine if driver and guard costs and worked hours are measured for a consistent network (ie, entire network, metro, intercity, etc)
Alternative Measures:	• NA
Data not available at the date of this report	

Rolling stock maint cost & capital charge / carriage km (B)	
Definition:	Total RS maint. and capital costs per month / Total carriage kms per month • Total RS maintenance and capital costs include all routine and major maintenance, as well as charge for rolling stock capital per month • Total carriage kms = cumulative kms travelled by each RS carriage on the CityRail network per month
Currently Reported:	• KPI not currently reported
Issues:	• Determine an appropriate measure of capital charge to reflect the effect of fleet age on maintenance costs (eg, depreciation, WACC x original cost) • Measurement of actual carriage kms is not available at present, however it is expected in the future (scoping stage)
Alternative Measures:	• Use timetable carriage km until actual available

KPIs for Train Services - Efficiency KPIs (3/4)

Power cost per carriage km (A)	
Definition:	Total train operation power costs per month / Total carriage kms per month • Train operation power costs = power costs directly involved in providing train services per month • Total service kms = cumulative kms travelled by carriages on the CityRail network per month
Currently Reported:	• KPI not currently reported • Carriage kms per month received direct from Train Services • Power cost received for 2002 / 03 • Period mismatch between numerator and denominator
Issues:	• Measurement of actual carriage kms is not available at present, however it is expected in the future (scoping stage) • Power costs need to be directly related to providing carriage km • Ensure consistency of network scope for numerator and denominator
Alternative Measures:	• Use timetabled carriage kms data until actuals are available
Data not available at the date of this report	

Train Operations admin cost/ service km (A)	
Definition:	Total operations admin cost per month / Total network service kms per month • Total operations admin cost per month = cost of Network Operations, Train Control, Train Planning and Rostering functions for CityRail per month • Total service kms = cumulative kms travelled by carriages on the CityRail network per month
Currently Reported:	• KPI not currently reported • Data provided direct from Train Services
Issues:	• Measurement of actual service kms is not available at present, however it is expected in the future (scoping stage)
Alternative Measures:	• Use timetabled service kms data until actuals are available

	2003
Train Ops admin cost	$86m
Annual service km	38m
Train Ops admin cost/ service km	$2.27

Note: * Current data does not include spares, however this data is available from CityRail

KPIs for Train Services - Efficiency KPIs (4/4)

Percentage peak rolling stock utilisation (A)

Definition:	Rolling stock carriages utilised in peak / Total rolling stock carriages • Rolling stock carriages utilised in peak = total RS carriages utilised in peak per month • Total rolling stock carriages = total available and unavailable carriages in fleet per month
Currently Reported:	• KPI not currently reported • Yet to receive numerator information • Total electric RS fleet received direct from Train Services
Issues:	• Actual utilisation is not available at present, however it is expected in the future (scoping stage)
Alternative Measures:	• Rolling stock required to meet timetable (until actual available) • Percentage of rolling stock available for peak (until utilisation available)

Data not available at the date of this report

Percent track under possession (A)

Definition:	Total track possession km hours per month / Total network track km hours per month • Total track possession km hours = cumulative distance of track under possession x number of hours under possession • Total network track km hours = total network track kms x 24 hours x days in month
Currently Reported:	• KPI not currently reported
Issues:	• N/A
Alternative Measures:	• Number of bus substitutions per month

Current Data:

	May 03 - Apr 04
Percentage track under possession	0.96%

Train Services quality measures

Overarching Efficiency KPIs: Cash costs / Track km ; Cash costs / Service km ; Cash costs / FTEs

Output	Train Services				Asset Condition	Revenue Collected	Secure Environm't	Customer Service	All outputs	
		Reliability	Speed/Freq.	Other					Operational Safety	Admin
	Quantity measures	*Quality Measures*			*Quantity Measures*				*Quality Measures*	*Quantity Measures*
Output / Service Quality Measure	• Service km • Carriage km	• % right to 3 minutes 59 seconds* • Number of cancelled services • Number of skipped stops	• Avg t/t train speed (peak v. off-peak)	• % of peak services above loading standard** • Percent of fleet less than 10 years old	• RS condition index • Infr. condition index • Station condition index	• % revenue leaked	• Customer perception index for secure environm't	• Customer satisfaction scores for information • Customer satisfaction scores for cleanliness	• # LTIFR • [Other measures under development by RailCorp & ITSRR]	
KPIs	• Driver & guard cost / service km • Paid hrs / service hrs • Driver & guard cost / worked hrs • RS maint. cost & capital charge / carriage km • Power cost / carriage km • Operations admin cost / service km • % peak RS utilisation • % track under possession	• Total primary delay minutes • Number of breaches of driver speeding			• RS maint. & overhaul & capital charge per RS unit • Infr. maint.cost & capex / track km • Cost of maint. backlog / track km • Station maint. cost & capital charge / station	• Total revenue protection costs	• Security spend / customer perception index	• Total comm's costs / cust sat index for information • Total cleaning costs / cust sat index for cleanliness • Station staff cost / station hours (first to last)		• Admin cost per employee

Note: RS = rolling stock; Infr. = infrastructure; t/t = timetable; Comm's = communications;
* 5:59 for Intercity trains; ** Without a following train option within the next 15 minutes

Rationale for recommended KPI's - Train Services (Quality measures)

	Reliability	Rationale
Quality Measures	● % right to 3 mins 59 sec (suburban); 5 mins 59 sec (intercity)	● OTR of services is considered one of the most important service deliverables by passengers
	● Number of cancelled services	● The frequency of services in line with the communicated timetable is considered an important service deliverable by passengers ● Also captured in service kms measure
	● Number of skipped stops	● The availability of services at the communicated time and point is considered an important service deliverable by passengers ● Provides a balancing measure for OTR to ensure the latter output is not being achieved at the expense of another (skipping stops)
	● Total primary delay minutes	● Measures the quantum of delays as well as identifies the cause ● Measurement of minutes rather than number of primary delays captures the top-level magnitude of the effect on passengers while removing the effect of secondary delays over which RailCorp has less control
	● Number of breaches of driver speeding	● Provides a balancing measure for OTR to ensure the latter output is not being achieved at the expense of another (increased safety risk due to driver speeding) ● Important to the safety of the network for passengers and employees

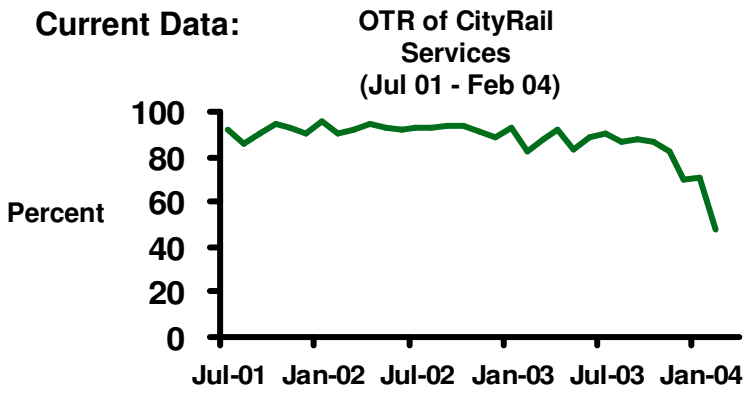
Rationale for recommended KPI's - Train Services (Quality measures)

	Train Service Quality - Speed, Frequency and Other	Rationale
Quality Measures	• Avg t/t train speed (peak v. off-peak)	• Measures the quality of the service provided from a timetable speed perspective • Speed of services is of significant importance to customers • Provides a balancing measure to OTR, which can be increased by slowing down services
	• % of peak services above loading standard (without an alternative service within 15 minutes)	• Measure of the comfort of the ride by passengers with regard to availability of sufficient space and available seating • Loading standard of 135% is both appropriate and consistent with current CityRail measures
	• Percent of fleet less than ten years old	• A proxy measure for the modernity of the fleet and therefore comfort of the trip for passengers • Measure is easy to calculate and provides sufficient information to determine whether the proportion of newer rolling stock is increasing or decreasing overtime

KPIs for Train Services - Output quality measures (1/5)

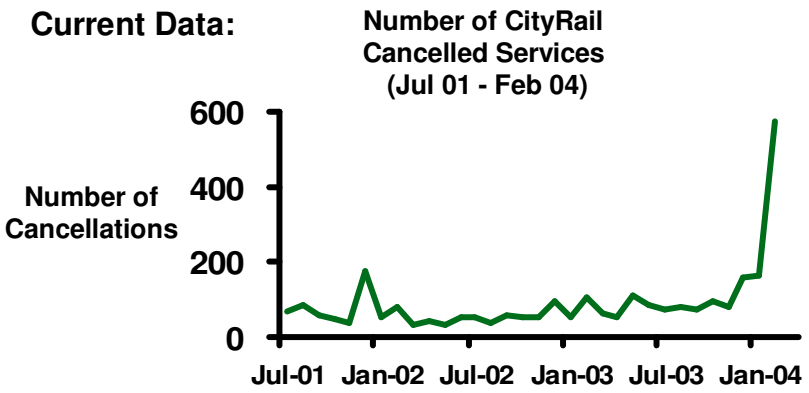
% of services right to 3:59 / 5:59 per month	A
Definition:	● Percentage of suburban services that arrive within 3 mins 59 secs & intercity services that arrive within 5 mins 59 secs of the timetabled arrival time
Currently Reported:	● RICG Performance Report (Train Services)
Issues:	● Reliability of data capture
Alternative Measures:	● NA

Current Data:



Number of cancelled services per month	A
Definition:	● Cumulative number of CityRail train services that are cancelled per month (bus substitution not considered to be a cancelled service)
Currently Reported:	● RICG Performance Report (Train Services)
Issues:	● NA
Alternative Measures:	● NA

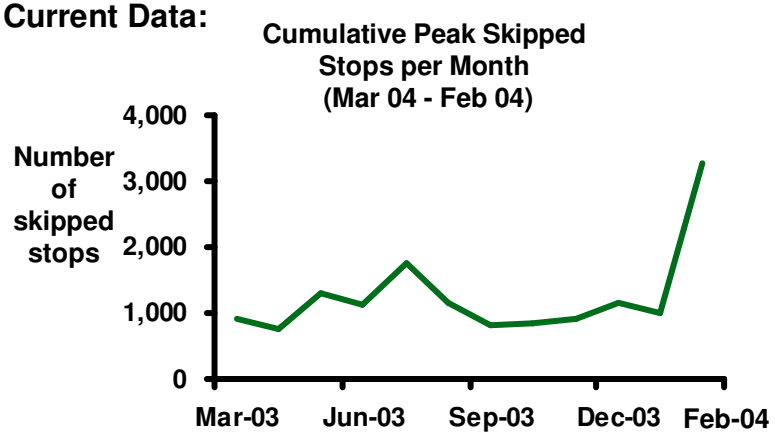
Current Data:



KPIs for Train Services - Output quality measures (2/5)

Number of skipped stops	A
Definition:	• The number of timetabled CityRail stops not serviced per month
Currently Reported:	• RICG Performance Report (Train Services)
Issues:	• Reliability of data capture
Alternative Measures:	• Percentage of total stops skipped

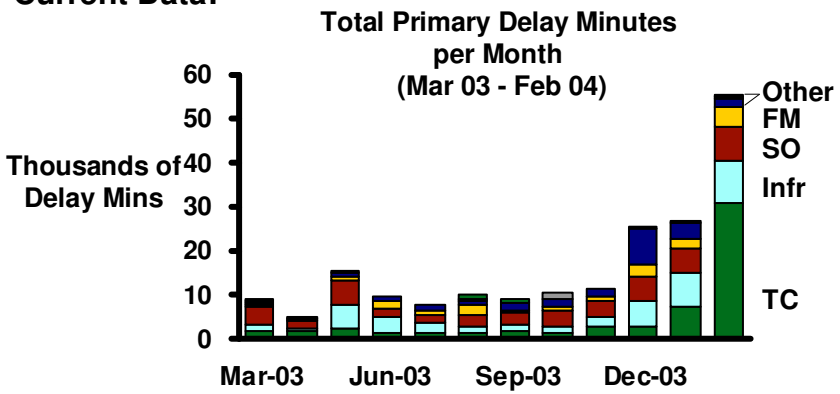
Current Data:



KPIs for Train Services - Output quality measures (3/5)

Total primary delay minutes per month (A)	
Definition:	• Total primary delay minutes = minutes of delay attributable to primary cause of delay per month (excluding events out of control of Railcorp eg, accidents & force majeur)
Currently Reported:	• Received direct from Train Services
Issues:	• Confirm treatment of force majeur events • Reliability of data capture
Alternative Measures:	• Number of incidents by cause • Number of delays by cause

Current Data:



Number of breaches of driver speeding (B)	
Definition:	• Total number of breaches of driver speeding per month
Currently Reported:	• KPI not currently reported
Issues:	• Requirement for a data logger on each train to enable measurement (majority of trains contain a data logger) • Data can be obtained albeit with analytical difficulty • Contentious issue within RailCorp due to IR implications

Note: TC= Train Crewing, Infr = infrastructure, SO = Station Operations, FM = Fleet maintenance, Other = Network control, Other operators, & CountryLink / ART / RailCorp

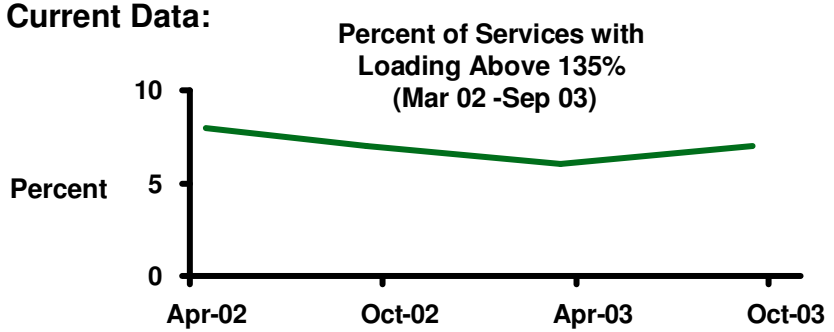
KPIs for Train Services - Output quality measures (4/5)

Average timetabled train speed (A)	
Definition:	$\frac{\text{Cumulative timetabled service travel distance}}{\text{cumulative timetabled service hours}}$ ● Cumulative timetabled service travel distance = cumulative total distance for all timetabled services (peak average vs. off-peak average) ● Cumulative timetabled service hours = cumulative total time for all timetabled services
Currently Reported:	● KPI not currently reported
Issues:	● Requires a modest amount of effort to generate ● Actual data may become readily available once automated OTR system is installed
Alternative Measures:	● NA
Data not available at the date of this report	

KPIs for Train Services - Output quality measures (5/5)

% of peak services above loading standards (A)	
Definition:	Peak services above loading standard per month / Total peak services per month • Peak services above loading standard per month = cumulative AM peak services above 135% loading and without an alternative service within 15 mins • Total peak services per month = cumulative number of peak services per month
Currently Reported:	• KPI not currently reported • Data available from Rail Development
Issues:	• NA
Alternative Measures:	• NA

Current Data:



Percent of fleet less than 10 years old (A)	
Definition:	Number of carriages less than 10 years old / Total rolling stock carriages • Number of carriages less than 10 years old = CityRail carriages purchased not more than 10 years earlier • Total rolling stock carriages = total available and unavailable CityRail carriages in fleet per month
Currently Reported:	• KPI not currently reported • Awaiting data from Train Services • Compendium of CityRail Travel Statistics contains age range
Issues:	• Currently data only available by rolling stock type. KPI could be calculated with modest effort
Alternative Measures:	• NA

Data not available at the date of this report

Asset Condition KPIs

Overarching Efficiency KPIs: Cash costs / Track km ; Cash costs / Service km ; Cash costs / FTEs

Output	Train Services				Asset Condition	Revenue Collected	Secure Environm't	Customer Service	All outputs	
		Reliability	Speed/Freq.	Other					Operational Safety	Admin
	Quantity measures	*Quality Measures*			*Quantity Measures*				*Quality Measures*	*Quantity Measures*
Output / Service Quality Measure	• Service km • Carriage km	• % right to 3 minutes 59 seconds* • Number of cancelled services • Number of skipped stops	• Avg t/t train speed (peak v. off-peak)	• % of peak services above loading standard** • Percent of fleet less than 10 years old	• RS condition index • Infr. condition index • Station condition index	• % revenue leaked	• Customer perception index for secure environm't	• Customer satisfaction scores for information • Customer satisfaction scores for cleanliness	• # LTIFR • [Other measures under development by RailCorp & ITSRR]	
KPIs	• Driver & guard cost / service km • Paid hrs / service hrs • Driver & guard cost / worked hrs • RS maint. cost & capital charge / carriage km • Power cost / carriage km • Operations admin cost / service km • % peak RS utilisation • % track under possession	• Total primary delay minutes • Number of breaches of driver speeding			• RS maint. & overhaul & capital charge per RS unit • Infr. maint.cost & capex / track km • Cost of maint. backlog / track km • Station maint. cost & capital charge / station	• Total revenue protection costs	• Security spend / customer perception index	• Total comm's costs / cust sat index for information • Total cleaning costs / cust sat index for cleanliness • Station staff cost / station hours (first to last)		• Admin cost per employee

Note: RS = rolling stock; Infr. = infrastructure; t/t = timetable; Comm's = communications;
* 5:59 for Intercity trains; ** Without a following train option within the next 15 minutes

Rationale for recommended KPI's - Asset Condition

	Asset Condition	Rationale
Output	• RS condition index • Infr. condition index • Station condition index	• Measure of asset stewardship to encourage a long-term approach (rather than a short term view at the expense of asset life) to maintaining asset condition • Seeks to identify systematic underspend on maintenance, that may affect future performance
Efficiency	• Rolling stock (RS) maintenance cost & capital charge per RS unit*	• Measure of the total R.S maintenance and capital costs across the entire fleet. Entire fleet used as the denominator as it is a key driver of total maintenance required and the capital charge of the fleet • Both capital and maintenance costs are included to capture the outcomes of the trade-off decision between capital expenditure on fleet and maintenance costs
	• Infrastructure maintenance cost and capex per track km*	• Measure of the total infrastructure maintenance and capex across the entire network (including non-service track). Entire network track used as the denominator as it is a key driver of total maintenance required (routine and MPM) • MPM, RM costs and capex are included to capture the outcomes of the trade-off decision between capital expenditure and maintenance • A scope of work measure has not been included as the RailCorp reporting requirement to Treasury already involves significant disclosure of progress on identified major maintenance programs
	• Cost of maintenance & renewal backlog / track km	• The infrastructure maintenance backlog provides a measure of the gap between maintenance required to reach steady-state asset condition and the actual cumulative maintenance carried out • Tracking the movement in the backlog is a good indicator of a worsening / improving asset condition and the effectiveness of RailCorp in using the allocated resources to remove the backlog
	• Station maintenance cost and capital charge / station	• Measure of the total station maintenance and capital charge in proportion to total number of stations. Total number of stations has been selected as the denominator as it is a key driver of total maintenance required • Both MPM, RM costs and a charge for capital are included to capture the outcomes of the trade-off decision between capital expenditure and maintenance

Note: * A more detailed KPI framework would isolate MPM maintenance and use a measure of scope as a denominator

KPIs for Asset Condition - Output quantity measures (1/2)

Rolling stock condition index (B)	
Definition:	• Rolling stock condition index is a monthly measure comprised of a number of metrics that represent the relative condition of the CityRail fleet
Currently Reported:	• KPI not currently reported
Issues:	• Measures are difficult to quantify • No previous data exists • Maintaining consistency across measurement periods • Ensuring measurement is cost efficient
Alternative Measures:	• Average age of rolling stock
See section 3.1 of this report for a discussion on ACIs	

Infrastructure stock condition index (B)	
Definition:	• Infrastructure condition index is a monthly measure comprised of a number of metrics that represent the relative condition of the CityRail infrastructure
Currently Reported:	• KPI not currently reported
Issues:	• Measures are difficult to quantify • No previous data exists • Maintaining consistency across measurement periods • Ensuring measurement is cost efficient
Alternative Measures:	• Percentage of track renewed per annum
See section 3.1 of this report for a discussion on ACIs	

KPIs for Asset Condition - Output quantity measures (2/2)

Station condition index (B)	
Definition:	• Station condition index is a monthly measure comprised of a number of metrics that represent the relative condition of CityRail stations
Currently Reported:	• KPI not currently reported
Issues:	• Measures are difficult to quantify • No previous data exists • Maintaining consistency across measurement periods
Alternative Measures:	• NA
See section 3.1 of this report for a discussion on ACIs	

KPIs for Asset Condition - Efficiency KPIs (1/2)

RS maintenance cost & capital charge / RS unit (B)	
Definition:	RS maint. cost & capital charge per month / Total rolling stock carriages per month • RS maint. cost & capital charge per month = all costs and charges associated with maintenance of rolling stock, (RM and MPM) & capital charge of new and existing rolling stock • Total rolling stock carriages = available and unavailable carriages in fleet per month
Currently Reported:	• KPI not currently reported
Issues:	• Determine an appropriate measure of capital charge to reflect the effect of fleet age on maintenance costs (eg, depreciation, WACC x original cost)
Alternative Measures:	• NA

Infr. maint. cost and capex / track km (A)	
Definition:	Total infrastructure maintenance cost and capex per month / Total network track kms per month • Total infrastructure maintenance and capex cost = cost involved in maintenance (RM and MPM) and capex of CityRail network per month • Total network track kms include all route and non-service track kms on the CityRail network
Currently Reported:	• KPI not currently reported
Issues:	• Ensure consistency in definition of network track in numerator and denominator
Alternative Measures:	• NA
Data not available at the date of this report	

KPIs for Asset Condition - Efficiency KPIs (2/2)

Cost of maintenance backlog / track km (B)	
Definition:	Total cost of maint. backlog per month / Total network track kms per month • Total cost of maint. backlog = cost involved in completion of outstanding (backlog) maintenance (RM and MPM) work per month • Total network track kms include all route and non-service track kms on the CityRail network
Currently Reported:	• KPI not currently reported
Issues:	• Determine an appropriate cost to be attributed to reducing maintenance backlog per month • Ensure consistency in definition of network track in numerator and denominator
Alternative Measures:	• NA

Station maintenance costs & capital charge / station (A)	
Definition:	Total stations maintenance costs & capital charge per month / Total number of stations • Total station maintenance costs include all costs associated with maintaining steady state of CityRail stations and capital charge of station assets incurred per month • Total number of stations = total number of stations in the CityRail network
Currently Reported:	• KPI not currently reported • Yet to receive numerator information
Issues:	• Determine an appropriate measure of capital charge (eg depreciation, WACC and original cost of asset for life)
Alternative Measures:	• NA
Data not available at the date of this report	

Revenue Collection, Secure Environment and Customer Service KPIs

Overarching Efficiency KPIs: Cash costs / Track km; Cash costs / Service km; Cash costs / FTEs

Output	Train Services				Asset Condition	Revenue Collected	Secure Environm't	Customer Service	All outputs	
		Reliability	Speed/Freq.	Other					Operational Safety	Admin
	Quantity measures	*Quality Measures*			*Quantity Measures*				*Quality Measures*	*Quantity Measures*
Output / Service Quality Measure	• Service km • Carriage km	• % right to 3 minutes 59 seconds* • Number of cancelled services • Number of skipped stops	• Avg t/t train speed (peak v. off-peak)	• % of peak services above loading standard** • Percent of fleet less than 10 years old	• RS condition index • Infr. condition index • Station condition index	• % revenue leaked	• Customer perception index for secure environm't	• Customer satisfaction scores for information • Customer satisfaction scores for cleanliness	• # LTIFR • [Other measures under development by RailCorp & ITSRR]	
KPIs	• Driver & guard cost / service km • Paid hrs / service hrs • Driver & guard cost / worked hrs • RS maint. cost & capital charge / carriage km • Power cost / carriage km • Operations admin cost / service km • % peak RS utilisation • % track under possession	• Total primary delay minutes • Number of breaches of driver speeding			• RS maint. & overhaul & capital charge per RS unit • Infr. maint.cost & capex / track km • Cost of maint. backlog / track km • Station maint. cost & capital charge / station	• Total revenue protection costs	• Security spend / customer perception index	• Total comm's costs / cust sat index for information • Total cleaning costs / cust sat index for cleanliness • Station staff cost / station hours (first to last)		• Admin cost per employee

Note: RS = rolling stock; Infr. = infrastructure; t/t = timetable; Comm's = communications;
* 5:59 for Intercity trains; ** Without a following train option within the next 15 minutes

Rationale for recommended KPI's - Revenue Collection, Secure Environment and Customer Service

	Revenue Collection	Rationale
Output	• % revenue leaked	• Measure of the estimated lost revenue to the organisation through fare evasion • Revenue leakage could be significant in the absence of effective revenue protection & collection mechanisms
Efficiency	• Total revenue protection costs	• The cost of collecting and protecting revenue should be compared against revenue leakage overtime to determine whether resources are being used effectively to result in net gain

	Secure Environment	Rationale
Output	• Customer perception index (secure environment)	• Providing a secure environment for passengers is a key responsibility for RailCorp • Use of a customer survey attempts to capture RailCorp outputs rather than outcomes (eg measure customer view of the security of the environment rather than security incidents)
Efficiency	• Security spend / customer perception index	• The cost of providing a secure environment should be compared against customer perceptions of security overtime to determine whether resources are being used effectively to generate a net benefit

	Customer Service	Rationale
Output	• Customer satisfaction scores for information	• Providing appropriate levels of information to customers is considered important to passengers
	• Customer satisfaction scores for cleanliness	• Maintaining cleanliness of stations and services at appropriate levels is considered important to passengers
Efficiency	• Total comm's costs / cust sat index	• The cost of providing information to customers should be compared against customer perceptions of information provision overtime to determine whether resources are being used effectively to generate a net benefit
	• Total cleaning costs / customer stat. index	• The cost of providing a clean environment should be compared against customer perceptions of cleanliness over time to determine whether resources are being used effectively to generate net benefit
	• Station staff cost / station hours (first to last)	• Station staff comprise a significant proportion of RailCorp costs. Identification of a direct output against which to measure output efficiency was not possible given the multi-functional nature of their roles. Instead a variable (station hours) has been selected that best represents an underlying driver of total station staff costs

KPIs for Revenue Collected - quality measure and efficiency KPI (1/1)

Percent of revenue leaked (A)

Definition:	Estimated amount of revenue leaked / Total farebox + est. amount of revenue leaked • Estimated amount of revenue leaked = total amount of lost revenue due to fare evasion (quarterly) • Total farebox = gross monthly farebox revenue
Currently Reported:	• Transit Officers and Fare Evasion Report
Issues:	• Estimated amount of revenue leaked is a quarterly measure that needs to be applied across the three monthly figures for total farebox
Alternative Measures:	• NA

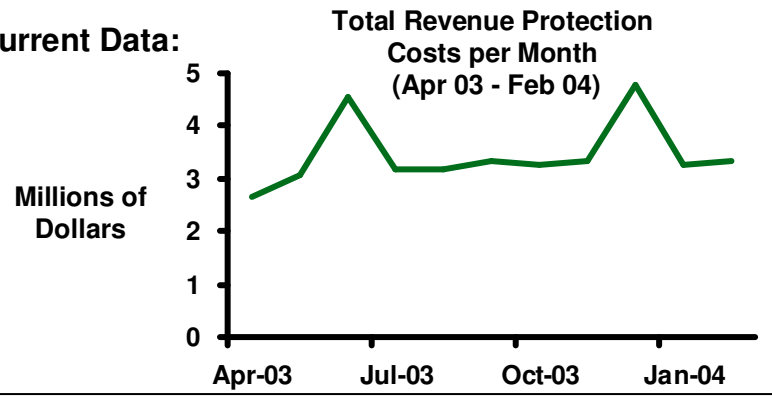
Current Data:

	July 2003	Oct 2003
Percent of revenue leaked	3.2%	3.0%

Total revenue protection costs (A)

Definition:	Total revenue protection costs per month • Revenue protection costs = total revenue protection officer costs per month + ticket machine and gate costs per month
Currently Reported:	• KPI not currently reported • Data received direct from Customer Services
Issues:	• Indirect and unidentifiable costs involved in protecting revenue have not been included due to difficulty in allocating costs (eg station staff)
Alternative Measures:	• NA

Current Data:



KPIs for Secure Environment - quantity measure and efficiency KPI (1/1)

Customer perception index for secure environment (B)	
Definition:	Customer perception index for secure environment • Customer perception index is a monthly measure pertaining to customer perceptions of security that is derived from the customer survey
Currently Reported:	• KPI not currently reported
Issues:	• ITSRR is in the process of reviewing and developing a customer satisfaction survey • Survey questions need to be targeted to remove (as far as possible) elements that are not controllable by RailCorp
Alternative Measures:	• Customer complaints regarding security

Security spend / Cust. perception index for secure environment (B)	
Definition:	$\frac{\text{Total security costs per month}}{\text{Customer perception index for secure environment}}$ • Security costs include guard costs, CCTV & monitoring costs, help points and lighting • Customer perception index is a monthly measure pertaining to customer perceptions of security that is derived from the customer survey
Currently Reported:	• KPI not currently reported • Numerator data received from Customer Services
Issues:	• Station staff costs are not explicitly captured in security costs as it is difficult to track the proportion of station staff time spent on security related issues • Customer perception index is difficult to quantify • ITSRR is in the process of reviewing and developing a customer satisfaction survey • Survey questions need to be targeted to remove (as far as possible) elements that are not controllable by RailCorp
Alternative Measures:	• Customer complaints regarding security

KPIs for Customer Service - Quantity measures

Customer satisfaction index for information (B)	
Definition:	Customer satisfaction index for information • Customer satisfaction index is a monthly measure pertaining to information provision that is derived from the customer survey
Currently Reported:	• KPI not currently reported
Issues:	• ITSRR is in the process of reviewing and developing a customer satisfaction survey • Survey questions need to be targeted to remove (as far as possible) elements that are not controllable by RailCorp
Alternative Measures:	• Customer complaints regarding information services

Customer satisfaction index for cleanliness (B)	
Definition:	Customer satisfaction index for cleanliness • Customer satisfaction index is a monthly measure pertaining to cleanliness that is derived from the customer survey
Currently Reported:	• KPI not currently reported
Issues:	• ITSRR is in the process of reviewing and developing a customer satisfaction survey • Survey questions need to be targeted to remove (as far as possible) elements that are not controllable by RailCorp
Alternative Measures:	• Customer complaints regarding presentation services

KPIs for Customer Service - Efficiency KPIs (1/2)

Total communications cost / Customer satisfaction index for information (B)	
Definition:	Total communications cost per month / Customer satisfaction index for information • Communication costs = cost of printed material such as timetables, posters, brochures and cost of station information boards • Customer satisfaction index for information is a monthly measure pertaining to information provision that is derived from the customer survey
Currently Reported:	• KPI not currently reported • Numerator data received
Issues:	• Station staff costs are not explicitly capture in communications costs as it is difficult to track the proportion of station staff time spent on information provision • ITSRR is in the process of reviewing and developing a customer satisfaction survey • Survey questions need to be targeted to remove (as far as possible) elements that are not controllable by RailCorp
Alternative Measures:	• NA

Total cleaning cost / Customer satisfaction index for cleanliness (B)	
Definition:	Total cleaning cost per month / Customer satisfaction index for cleanliness • Cleaning cost = cost of fleet presentation teams, provision of garbage bins, washing of trains, removal of graffiti, etc • Customer satisfaction index for cleanliness is a monthly measure pertaining to cleanliness that is derived from the customer survey
Currently Reported:	• KPI not currently reported • Numerator data received
Issues:	• Station staff costs are not explicitly capture in cleaning costs as it is difficult to track the proportion of station staff time spent on cleaning activities • ITSRR is in the process of reviewing and developing a customer satisfaction survey • Survey questions need to be targeted to remove (as far as possible) elements that are not controllable by RailCorp
Alternative Measures:	• NA

KPIs for Customer Service - Efficiency KPIs (2/2)

Station staff costs / station hours (A)	
Definition:	$\frac{\text{Total stations staff costs per month}}{\text{Total station hours}}$ • Station staff costs includes salary, overtime, all on-costs (penalties, annual & sick leave) • Total station hours = cumulative station hours from first train to last train for entire CityRail network
Currently Reported:	• KPI not currently reported • Yet to receive denominator information
Issues:	• NA
Alternative Measures:	• NA
Data not available at the date of this report	

Safety and Administration KPIs

Overarching Efficiency KPIs: Cash costs / Track km; Cash costs / Service km; Cash costs / FTEs

Output	Train Services				Asset Condition	Revenue Collected	Secure Environm't	Customer Service	All outputs	
		Reliability	Speed/Freq.	Other					Operational Safety	Admin
	Quantity measures	*Quality Measures*			*Quantity Measures*				*Quality Measures*	*Quantity Measures*
Output / Service Quality Measure	• Service km • Carriage km	• % right to 3 minutes 59 seconds* • Number of cancelled services • Number of skipped stops	• Avg t/t train speed (peak v. off-peak)	• % of peak services above loading standard** • Percent of fleet less than 10 years old	• RS condition index • Infr. condition index • Station condition index	• % revenue leaked	• Customer perception index for secure environm't	• Customer satisfaction scores for information • Customer satisfaction scores for cleanliness	• # LTIFR • [Other measures under development by RailCorp & ITSRR]	
KPIs	• Driver & guard cost / service km • Paid hrs / service hrs • Driver & guard cost / worked hrs • RS maint. cost & capital charge / carriage km • Power cost / carriage km • Operations admin cost / service km • % peak RS utilisation • % track under possession	• Total primary delay minutes • Number of breaches of driver speeding			• RS maint. & overhaul & capital charge per RS unit • Infr. maint.cost & capex / track km • Cost of maint. backlog / track km • Station maint. cost & capital charge / station	• Total revenue protection costs	• Security spend / customer perception index	• Total comm's costs / cust sat index for information • Total cleaning costs / cust sat index for cleanliness • Station staff cost / station hours (first to last)		• Admin cost per employee

Note: RS = rolling stock; Infr. = infrastructure; t/t = timetable; Comm's = communications;
* 5:59 for Intercity trains; ** Without a following train option within the next 15 minutes

Rationale for recommended KPI's - Safety and Administration

	Safety	Rationale
Output	• LTIFR	• Important to measure the delivery of service levels in a safe manner and at the quality standard expected • While it is recognised that safety is a critical aspect of RailCorp's operations, limited focus has been placed on developing safety specific KPI's to avoid duplication of the scope of work being carried out by RailCorp and ITSRR

	Administration	Rationale
Efficiency	• Administration cost per CityRail employee	• While administration activities cannot be traced to a specific CityRail output, it is necessary to track the relative size of the costs incurred by administrative functions given that collectively they comprise a significant proportion of CityRail costs • Total employees are typically a reasonable representation of the scope of the organisation that it is not output related

KPIs for Operational Safety - quality measure

LTIFR (A)	
Definition:	LTIFR per month • LTIFR (Lost Time Injury Frequency Rate) per month (12-month rolling average) includes all staff across entire RailCorp organisation
Currently Reported:	• RailCorp CEO Board Report
Issues:	• Ensure data encapsulates both SRA & RIC LTIFR consistently
Alternative Measures:	• NA

Current Data:

	Jan 2004	Feb 2004
RailCorp	35.4	34.6

KPIs for Administration - Efficiency KPI

Administration cost per employee (A)	
Definition:	$\frac{\text{Total admin cost per month}}{\text{Total number of FTEs}}$ • Total admin cost per month includes all non-operational CityRail costs (including divisional overheads). Apportioning RailCorp overhead costs on the basis of CityRail / RailCorp FTEs (excluding O/H FTEs) • Total number of FTEs (full-time employees) = CityRail full time equivalent employees at month end
Currently Reported:	• KPI not currently reported • Yet to receive numerator information • Denominator reported in HR monthly report
Issues:	• Constitution of admin costs need to be finalised once RailCorp has completed integration of SRA & RIC financials • Ensure numerator and denominator are consistent across measurement periods
Alternative Measures:	• NA
Data not available at the date of this report	

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Thoughts for implementation

- **The output of this work is a set of KPI that will enable IPART to monitor CityRail's efficiency and can form the basis of a comprehensive internal reporting system for RailCorp Management**

- **Based on our experience, full implementation and stabilisation of these KPIs typically is a progressive process spanning up to 2 years. Therefore, the identification of suitable KPIs represents only approximately 20% of the required work**

- **In the case of RailCorp, it as become quite clear that the reporting systems are in transition following the integration of RIC and SRA. Some of the proposed KPIs may therefore require a even longer time to be reportable in a robust and auditable way**

- **We recommend that KPI implementation be progressive with the ones that are easier to measure and report being developed first. This is preferable to an approach whereby nothing would be reported before all KPIs are available**

SP&A, IPART and L.E.K.'s guidelines for implementation by RailCorp

- Conduct internal consultation with the operational groups,and
- for each KPI (commencing with the ones that are more readily available)
  - Identify possible sources of data
  - assess and possibly refine current measurement methodologies
  - formulate data processing methodology and responsibilities
  - specify control processes
  - Set-up audit and variation processes
  - Commence reporting
- In this way, RailCorp will be in a position to provide a progressively more accurate and exhaustive picture its output efficiency, with
  - some "A" KPI hopefully available within 6 month
  - the remainder "A" KPIs available within a year
  - "B" KPIs also progressively available in the second year

There are a number of areas of this project that are of potential relevance to ITSRR

	Safety	Reliability	Customer Satisfaction

KPI's of Relevance to ITSRR	• Operational Safety
	  - # LTIFR
	• Asset Condition
	  - Rolling Stock condition index
	  - Infrastructure condition index
	  - Station condition index
		• Total primary delay minutes
		• Percentage right to 3 mins 59 secs (suburban); 5 mins 59 secs (intercity)
		• Number of cancelled services
		• Number of skipped stops
		• Number of breaches of driver speeding (safety)
			• Secure Environment
			  - customer perception index for secure env.
			  - security spend / customer perception index for secure env.
			• Customer information
			  - customer satisfaction index for info.
			  - total communication costs / customer satisfaction index for info.
			• Cleanliness (train and station)
			  - customer satisfaction index for cleanliness
			  - total cleaning costs / customer satisfaction index for cleanliness

Relevance	• May form part of the safety measures to be monitored by ITSRR	• May form part of the reliability (underlying safety) measures to be monitored by ITSRR	• ITSRR is currently developing the new customer survey for release in mid 2004

Asset condition indices play a useful role in providing a top-level assessment of asset standard to management and stakeholders of rail systems around the world

- The condition of an organisations assets can be 'invisible' to top level management without a broad measure that captures the ability of the asset group to meet its purpose at a given point in time
- While asset condition will in some cases translate into operational performance, there are a number of reasons why an asset condition measure is important
  - the impact of any changes in asset condition may not manifest itself in operational performance outcomes for some period of time
  - not all measures of asset condition, eg track geometry will translate through to levels of operational performance
  - asset condition has a direct influence on safety of the network
- A number of rail organisations around the world have implemented ACIs as a condition tracking tool. For example in the UK, Network Rail has adopted an organisation wide asset condition index for the purpose of determining access charges and setting remuneration levels of management through the Management Incentive Plan (MIP)

EXAMPLE - NETWORK RAIL ACI MEASURES AND WEIGHTING (for determining access charges)

Asset type	Measure	Index Weight
Track	• Number of broken rails • Track alignment and gauge • Track geometry	20% 20% 20%
Signalling	• Number of signalling failures	20%
Electrification	• Traction power component failures	10%
Operational property	• Station condition (platforms, canopies etc)	10%

There are a number of core infrastructure elements that should be captured in an infrastructure condition index, some of which may be reactive in nature

Infrastructure Component	Key elements	Possible Measures
Track	• Rail lines • Sleepers • Ballasts	• Track geometry • Track alignment • Track gauge • Number of broken rails (reactive) • Number of split head rails (reactive)
Points/ crossings / level crossings	• Controlled point ends • Level crossings	• Amenable to inspection based assessment
Signals	• Block signals • Interlockings	• Visual inspection gives limited insights, failures are an indicator of condition • Number of signalling failures (reactive)
Electrification	• Overhead lines • Traction power components	• Visual inspections of overhead lines • Traction power component failures (reactive)
Structures	• Bridges • Tunnels • Drainage structures • Retaining walls	• Condition assessment for bridges is complex and expensive • Use of detailed inspection reports and monitoring

Global experience in developing and maintaining effective asset condition indices in rail suggests the following practical principles for implementation

Asset components and weighting

- In assessing asset condition it is important to identify and focus on those elements of the asset that are most important to business needs, while ensuring all aspects of asset stewardship are captured
- In weighting the various components of a condition index, there are several bases, often used in combination to determine the relative weighting
  - the importance of the infrastructure component in delivering the desired level of output
  - the cost of the various maintenance activities required to maintain the system in a steady state

Evaluation Criteria

- Develop clear and consistent evaluation criteria and benchmarks. Criteria often used in assessing rail assets include
  - safety
  - performance
  - quality

Inspection Method

- The appropriate inspection method should be
  - easy to use and audit
  - have simple data collection and data entry
  - allow easy calculations
  - be cost-effective
  - be widely used so practical experience can be shared

Measurement frequency

- Set reasonable frequencies to update condition rating
- Where the actual condition is below the required condition it may be necessary to determine the impacts of the gap on operational and strategic outputs and outcomes

The development and implementation of a useful ACI is not without challenges, however these can be overcome

- While the measurement of asset condition can often be subjective, overlaying the index with input measures can provide additional information to verify the index and provide context for movements between periods
  - KPIs that measure maintenance and renewal expenditure and activity scope
  - actual progress against Asset Management Programs
- The subjective element involved in compiling ACIs could lead to 'gaming' of index results. This can be minimised through several means
  - careful design of the evaluation criteria, inspection approach and weighting rules
  - periodic audits and the presence of and adherence to internal control procedures
  - use of electronic equipment to measure and assess asset condition
- Condition indices provide management and stakeholders with a top level view of the capability of assets at a point in time. They should not be used as a decision making tool for resource allocation or in cases where more detailed information is required
- ACI's can become overly complex if the index design and assessment method are over-engineered to provide for the heterogenous nature of the assets and maintenance activities
  - an ACI should not seek to be a complex manipulation of all the information contained in the asset ledger and AMP into a single number
  - start by measuring the most critical components to the business and gradually build in complexity overtime once a basic index has been mastered and systems capability improves

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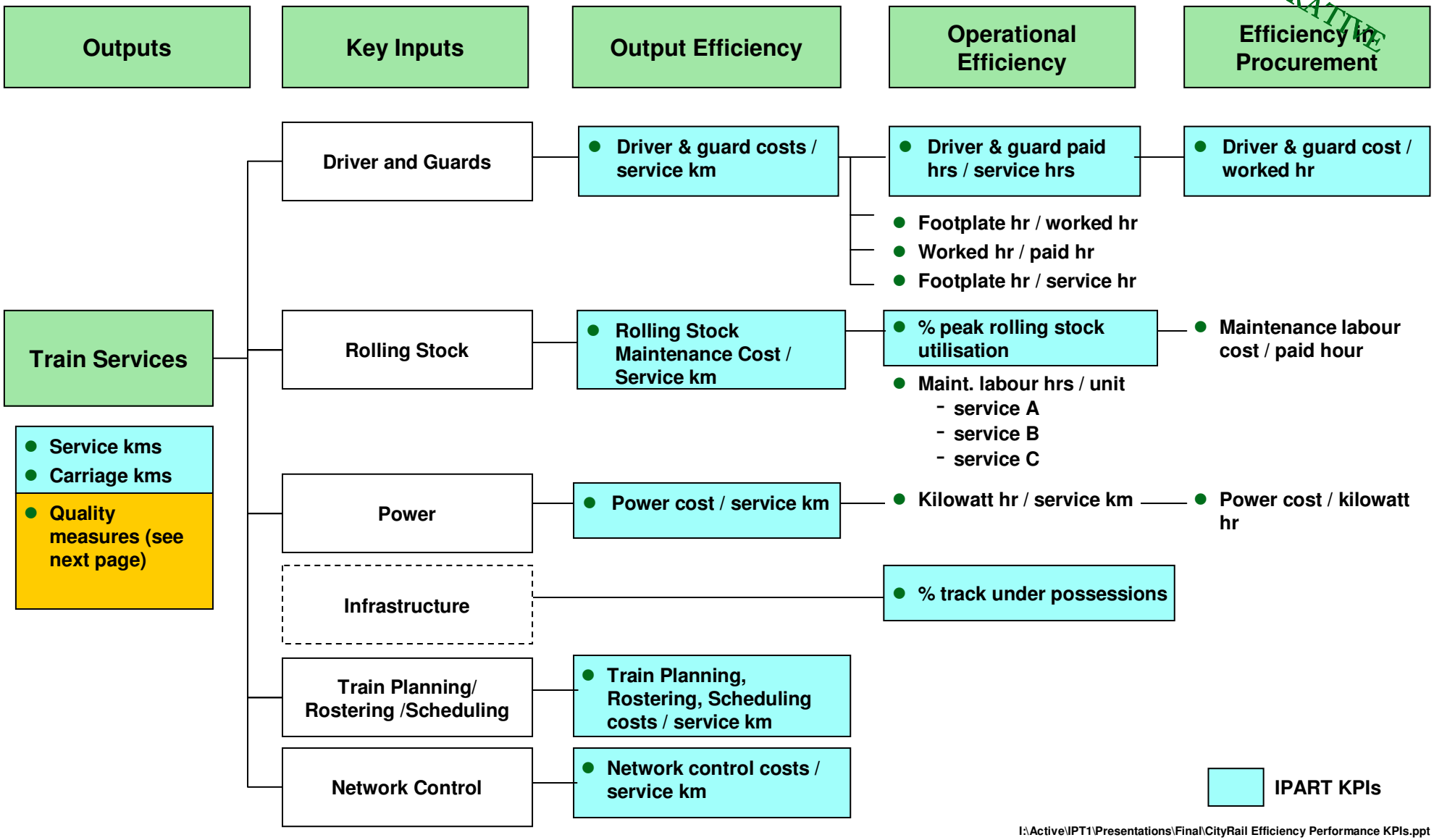
Example of input / output KPI development frameworks

- The following pages contain top level KPI maps that link inputs and input costs to each of the outputs
- The maps illustrate part of the framework used by LEK in developing the 'first-best' list of KPIs
- It is important to note that these maps are not comprehensive and have been included for illustrative purposes only
- In developing organisation wide KPIs, RailCorp may wish to extend these maps to capture key inputs and outputs at all stages of the organisation

Detailed KPI framework - Train Services

ILLUSTRATIVE



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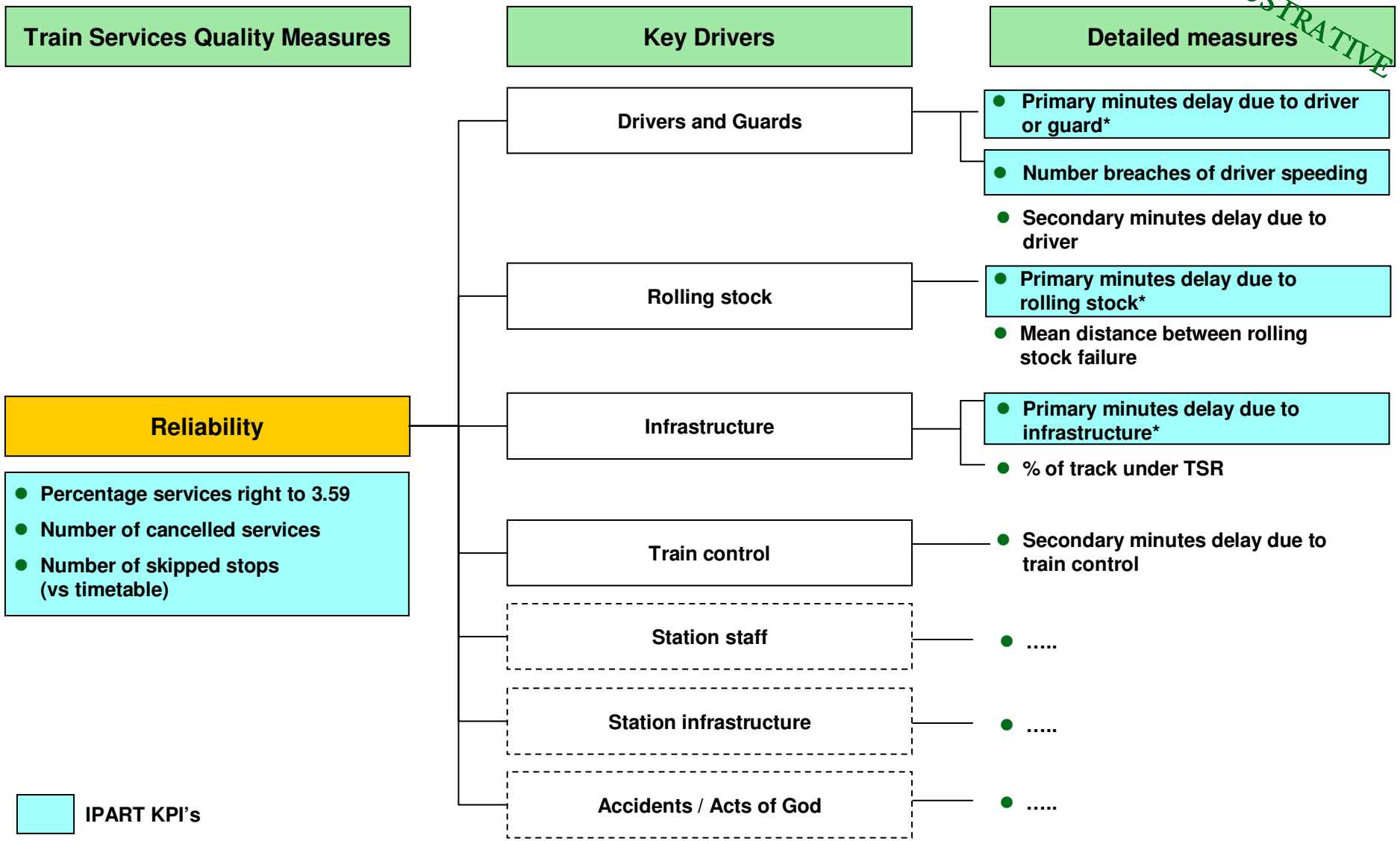
Detailed KPI framework - Train Services (Reliability)

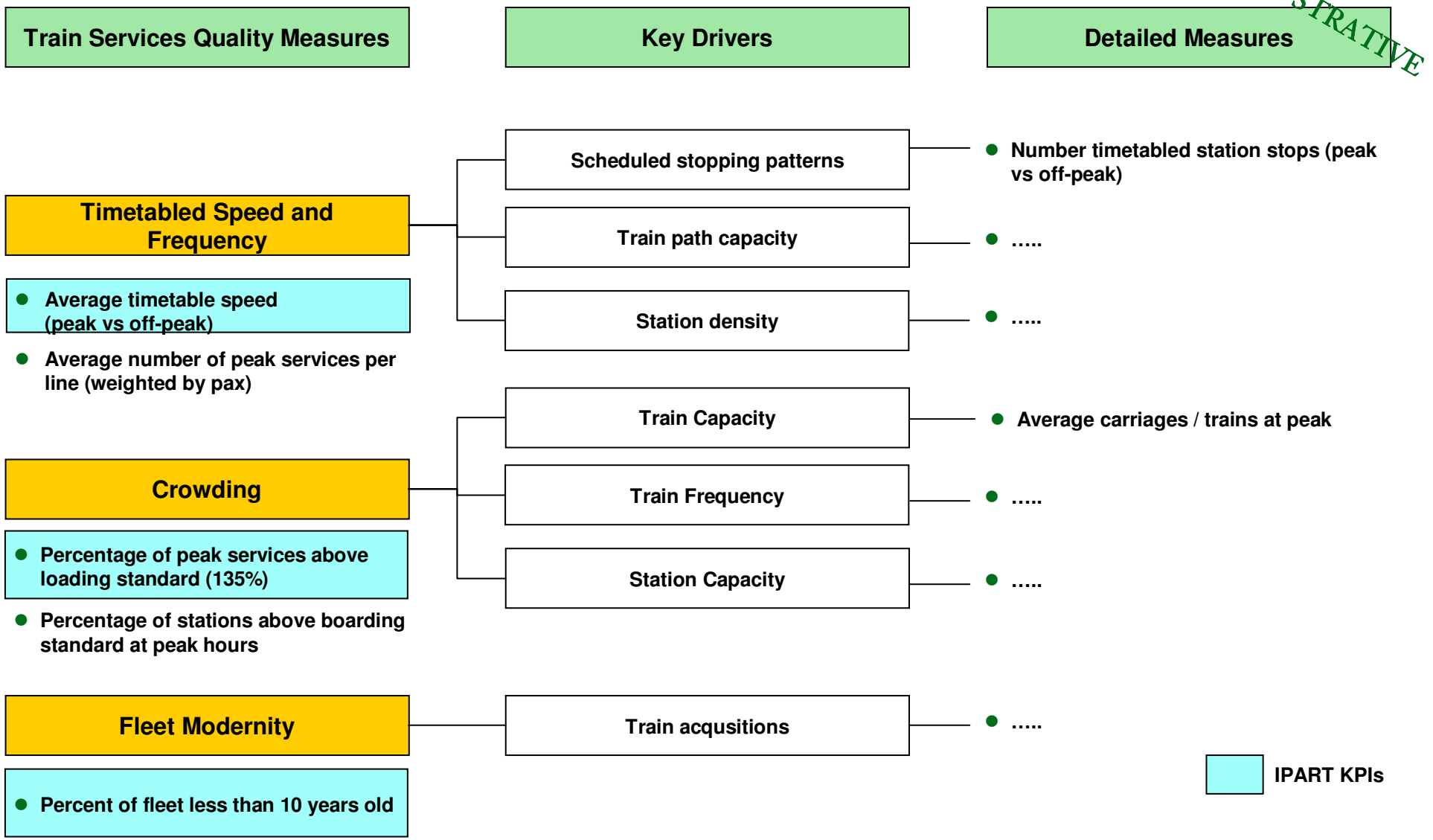
ILLUSTRATIVE



Note: *Combined into one KPI: primary minutes delay by cause

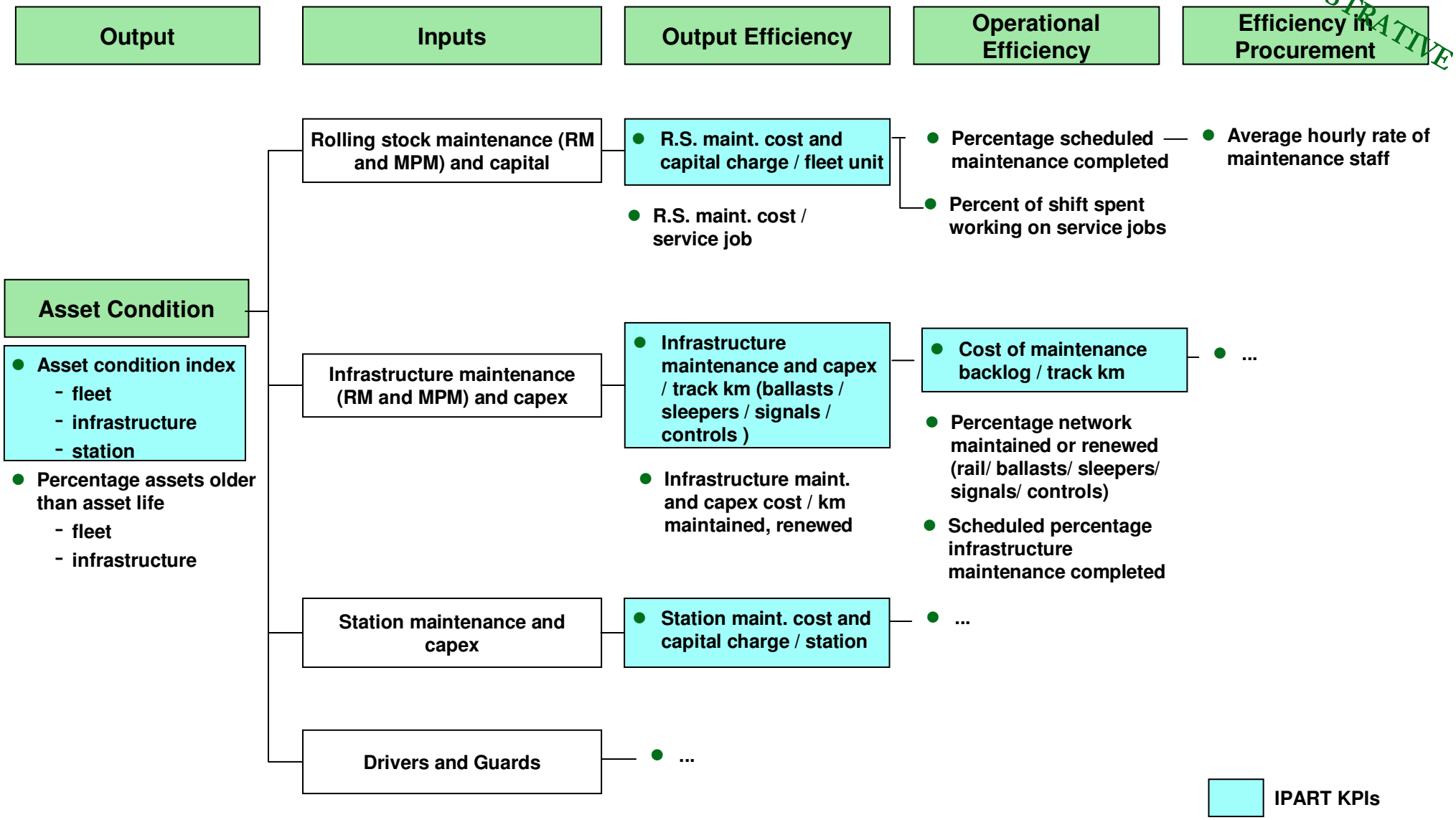
Detailed KPI framework - Train Services (Frequency, Speed, Crowding, Fleet Modernity)

ILLUSTRATIVE



Detailed KPI framework - Asset Condition

ILLUSTRATIVE



Detailed KPI framework - Revenue collection, Secure Environment

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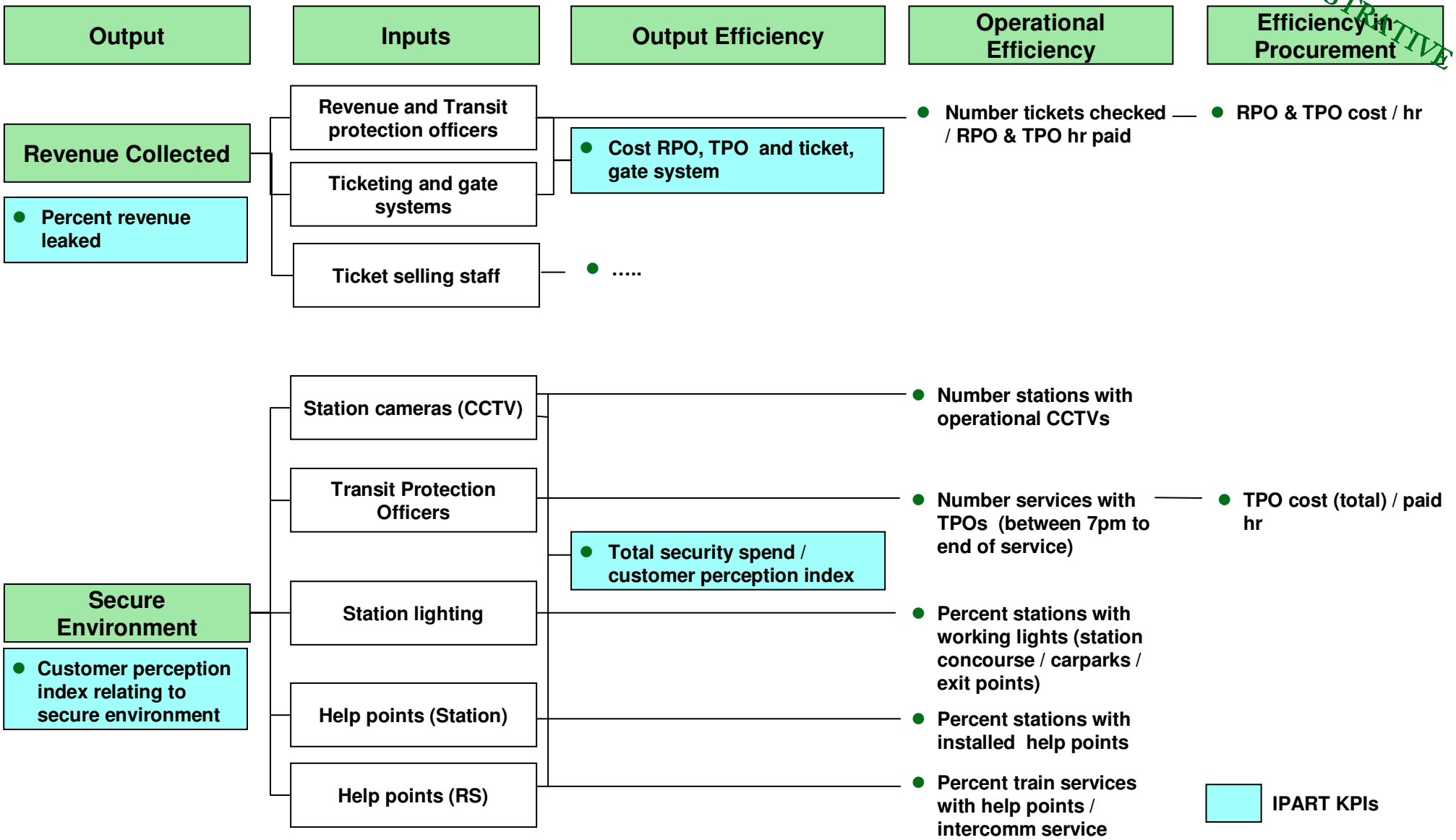

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Detailed KPI framework - Customer Information, Cleanliness

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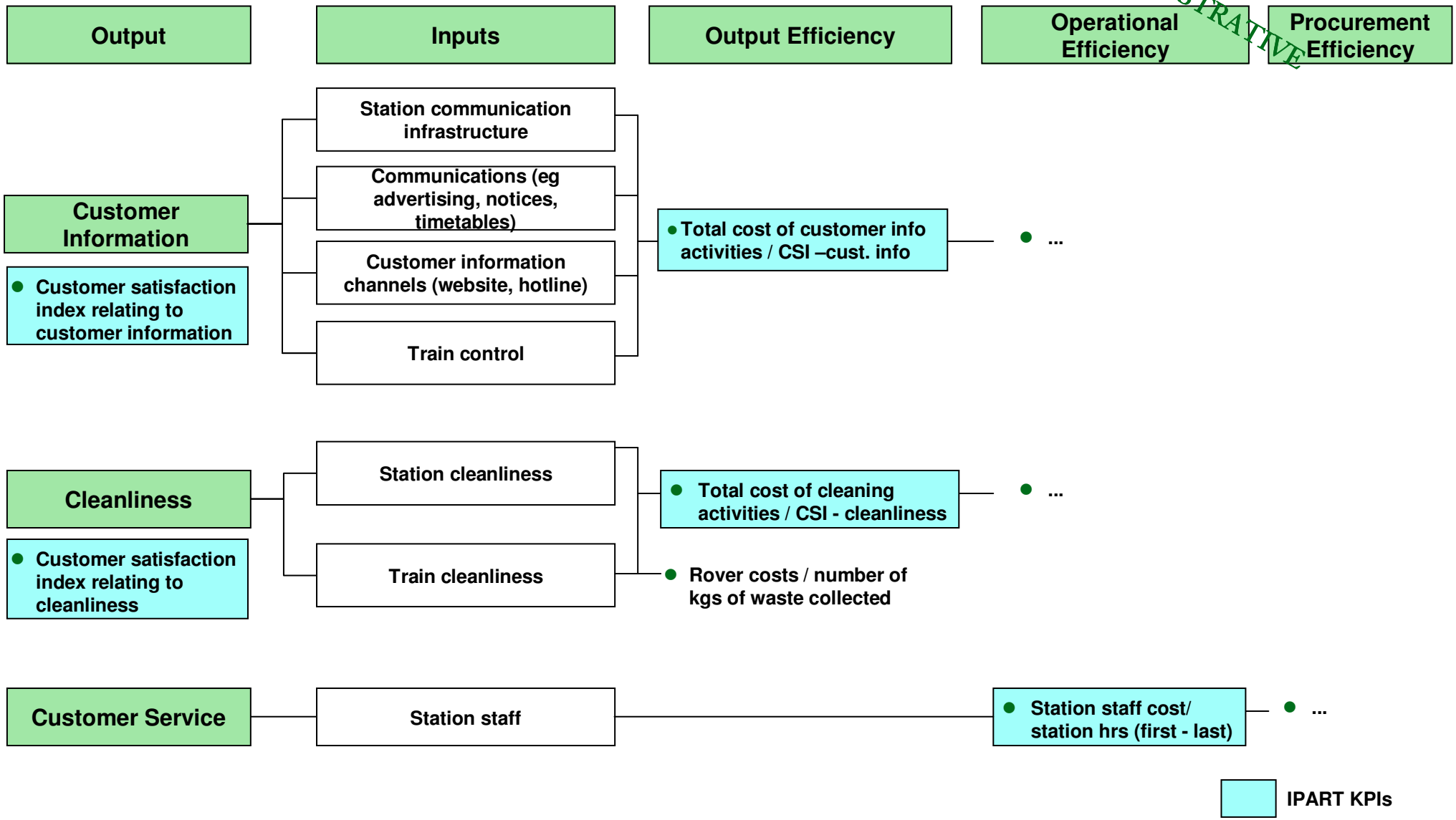

Detailed KPI framework - Operational Safety, Administration

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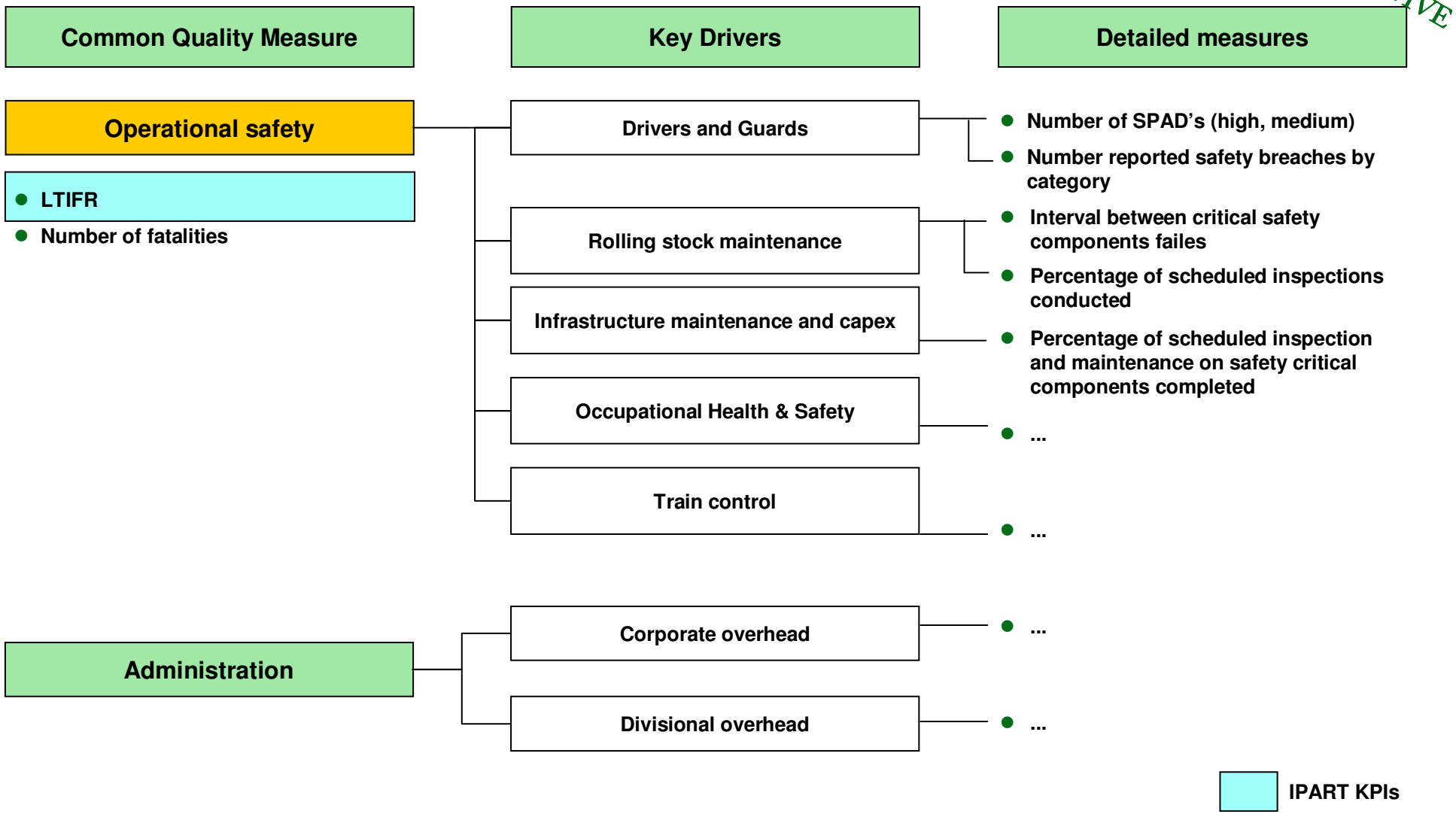

APPENDIX B

Cost driver breakdown and allocation to outputs (data supporting chart page 17)

Train Services	
Fleet Maintenance	**309**
Fleet Maintenance	220
Fleet Labour	89
Drivers & Guards	**186**
Drivers	106
Guards	80
Network Control, Planning & Rostering	**86**
Network Operations	36
Train Planning & Control	23
Network Control and Communications (RIC)	19
Rostering	8
Power	**28**
Buses	**22**
Other	**29**
Engineering	4
Fuel	11
Provision of Training	7
Other Crewing	4
Clothing & Uniform	1
Taxi Fares and Hire	1
Other-Equipment & Maintenance	1
TOTAL	660

Asset Condition	
Rolling Stock Maintenance (RailCorp)	**220**
Rolling Stock Maint. Labour (RailCorp)	**89**
Infrastructure MPM	**200**
Infrastructure RM	**131**
Infrastructure Maintenance & Capital	**64**
Station Maintenance	**13**
Maintenance Contractors	**50**
Other	**9**
Security	6
Equipment	3
TOTAL	775

Secure Environment	
Chubb security guards	**24**
CCTV, Monitoring & Help points	**8**
Telecoms	**2**
Other	**7**
Fees & Commisions	1
Equipment & Maintenance	1
Clothing & Uniform	1
Maintenance	0
Other	4
TOTAL	42

Revenue Collection	
RPOs & TPOs	**24**
Ticket Machines & Gates	**9**
Money Collected from Machines	**4**
TOTAL	37

Customer Service	
Station Staff	**177**
Cleaning & Presentation	**38**
Cleaning & Presentation Contractors	36
Station Cleaning Contractors	1
Waste Removal Contractors	1
Communications & Marketing	**2**
Other Staff	**25**
Other Contractors	**24**
Other	**12**
Electricity	2
Other	10
TOTAL	279

Admin Efficiency	
RailCorp	**242**
Corporate Mgmt Centre	87
IT	41
Finance	38
HR	24
Communications	20
Railcorp Other	33
RIC	**144**
Regional Costs	50
Electricity	31
Engineering & Safety	22
Overheads	21
Corporate	20
Divisional*	**11**
Capital Works & Projects	**24**
TOTAL	421

Captured in KPI framework

Note: *** Divisional currently includes only Train Services, however KPI will include all divisional admin costs**