CHALLENGES IN THE NEW TRANSPORT ENVIRONMENT - OPPORTUNITIES FOR COSTING DEVELOPMENT

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ABSTRACT

The aim of this paper is to offer an operator's perspective in response to the rapidly changing market and corporate environment of transport in Australia. The paper presents a case study of the formative years of the National Rail Corporation Limited and some observations on costing tools in this environment.

National Rail was formed to place the interstate rail freight business formerly operated the Australian rail authorities on to a commercial footing. Since National Rail's creation, there have been major changes to the government policy environment as a result of the national competition legislation and the proposed formation of a national track management authority. It is certain that the environment in which National Rail conducts business will be changed further before the company completes its formal Establishment Period. The paper outlines responses from National Rail in establishing its production capability to meet this challenge and some implications on the approach needed for management information and costing tools to support the business.

Traffic costing in the Australian rail sector has traditionally been handled through a costing convention which acknowledges the high level of joint and common costs inherent in a vertically integrated railway. For an operator such as National Rail, the fixed component of these costs is now less significant. Conclusions are drawn on the applicability of established techniques for traffic costing and on the need to modify these techniques to suit the purpose of a vertically separated rail operator. National Rail is implementing a significant array of information systems in an integrated, open systems environment. This technology offers opportunities to establish real time systems measuring traffic costs and profitability. These opportunities are also explored in the paper.

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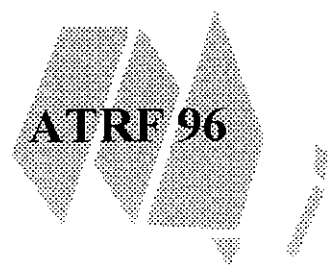

CHALLENGES IN THE NEW TRANSPORT ENVIRONMENT - OPPORTUNITIES FOR COSTING DEVELOPMENT

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1. Introduction

The market, policy and corporate environment in which operators in transport, communications and utilities in Australia conduct business has changed rapidly over the last five years. In particular, the National Competition Policy Reform Act (1995), opening up of markets and of infrastructure to new operators, and the reducing role of the public sector have been fundamental changes.

These changes have followed economic reforms of the late 1980s which were radical in themselves.

The aim of this paper is to offer a new operator's perspective on response to this rapidly changing environment in its establishment of both production capability and decision support tools. The paper presents a case study of the formative years of Australia's National Rail Corporation Limited. It focuses particularly on the acquisition of the necessary assets and information support, including traffic costing methodology, needed for the new company to achieve the reform objectives sought.

The paper is presented in three parts. The first provides background; the second some insights into the challenges both in setting up a new company and in responding to an environment of rapid external change; and the third deals specifically with opportunities and approaches to development of new traffic costing and contribution analysis tools.

2. Background

National Rail was established as a result of a landmark agreement between the Commonwealth and the mainland Australian states - the "Shareholders Agreement" (Australian Government Solicitor (1991)). The company was registered in September 1991 under the Australian Corporations Law as a company limited by shares. Its management commenced in early 1992; however, it took until February 1993 before the necessary legislation (the National Rail Corporation Agreement Bill (1991) and similar State acts) had formally passed the relevant State and Commonwealth Houses of Parliament and the company could commence operations.

2.1 Changes in the External Environment

Under the Shareholders' Agreement, National Rail was given a three year Transition Period during which it was to secure from the rail authorities concerned the functions and relevant assets necessary to conduct the interstate rail freight business. This was to be followed by a further two years to complete an Establishment Period during which all interim support from shareholder governments would progressively be withdrawn. This support currently consists of compensation payments for inefficient functions transferred to the company under clause 5(4)(b) of the Shareholders' Agreement.

The expectations at the time of the original Agreement were the National Rail would become a railway in the conventional sense, in that it would own and operate trains, terminals and track. Never-the-less the Shareholders' Agreement anticipated some aspects of the competition legislation, in that National Rail was to provide access on a commercial basis to its track network for private and public sector operators.

This earlier expectation of creating a new railway was changed fundamentally with the determination of national competition policy (Hilmer et al.(1993) and the subsequent Reform Act). In essence the impact on the transport sector and many other utilities is that considerable question is placed on ownership of infrastructure (in this case the track) by an operator. Coupled with the trends in Europe (particularly Sweden and Great Britain) to organisationally separate the track from the operating companies, significant impetus was given to National Rail becoming the first of the open access operators on the national network, rather than becoming a railway and track owner. This was given further strength with the (former) Commonwealth Government commitment to the creation of "Track Australia" (Kirk (1996)), which would manage the interstate network which would otherwise have been transferred to National Rail.

New rail-based operators have begun to emerge in the interstate freight market. National Rail in turn has recognised that it must become more than an interstate freight operator if it is to place itself on a viable commercial footing. This will require it to compete for intrastate freight where the commercial opportunity arises.

2.2 Cultural Change

One of the more important challenges faced by the company is in overcoming the historic noncommercial culture endemic in government rail operators, and continuing the momentum of the change as the external environment moves.

National Rail's people comprise a mix of selected former rail authority personnel (particularly the driver community and some management) and others from the private sector and government. National Rail out-sources a significant part of its non-core business to the private sector and to rail authorities on a contestable basis. This includes, in

particular, maintenance activities, some aspects of materials handling, and all information technology functions.

From the beginning, National Rail was going to be an organisation where rapid change was the norm as it was necessary to build the company from a zero base. Out-sourcing provides the flexibility to do this. What was not clearly anticipated was a rapidly changing political and competitive environment.

The establishment of the company has largely been achieved. The company is operating and significant productivity improvements have been made (National Rail (1995a)). There are two areas now where further focus is being placed by the company. These are:

- the final shift to remove the last vestiges of the rail authority culture, and
- capacity to cope with the extent of change while at the same time maintaining the productivity in the day-to-day business.

3. Establishing Production Capability

National Rail recognised as part of its initial strategy that it must first obtain an unequivocal revenue stream and rapidly underpin that with the necessary production capability - the ability to service customers and provide transport services (National Rail (1992)). Accordingly, its strategy involved the following major steps:

- establish basic information systems and transaction processing capability
- transfer the marketing, billing and revenue receipt functions from the rail authorities to National Rail
- take over the operation of the freight terminals
- obtain track access
- take over the deployment and maintenance of the wagon fleet, and obtain access to other necessary line-haul assets
- crew the trains
- transfer the remaining necessary assets
- upgrade and enhance the information systems and equipment, particularly the locomotive fleet.

The following sections amplify the challenges and issues associated with implementation of this strategy.

3.1 Transfer of Functions and Assets

Through its Corporate Plan (National Rail(1992, 1995b)) and associated processes, the company has determined the functions its seeks and the assets of the government rail authorities necessary to run the interstate freight business. Notification of Intent to Nominate commenced in the early stages of the company's formation; however the transfer process has been extended. Over time, it has been necessary to negotiate a range of agreements with the existing owners in order to secure access to the equipment to operate the business and ultimately to put in place appropriate arrangements for its transfer or its use. The initial agreements, reflecting conditions of the Shareholders' Agreement, have progressively been replaced with commercial contracts.

The three year Transition Period, put in place to ensure time for a suitably managed process for the transfer, has in itself given rise to a number of significant issues. In particular:

- The transition, coupled with the several previous years where National Rail was planned (but had not commenced operations), extended the period of serious under-investment in the interstate business by most of its former owners. The poor asset quality, which existed prior to National Rail, continued to deteriorate during the Transition Period.

- The original intentions of the Shareholders' Agreement became less focused as other policy initiatives, particularly the competition policy, assumed the ascendancy and as the inevitable change in personnel took place in both the rail authorities and in the government sector.

This was exacerbated by fundamentally different objectives between National Rail in attempting to establish itself as a commercial operation, the residual rail authority interests and the policy development focus of the government agencies. The extent of commercial focus in the rail authorities varies significantly and some are reluctant suppliers.

3.2 The Locomotive and Wagon Fleet

To operate the interstate freight business, National Rail currently requires approximately 220 locomotives of 2240kw or equivalent power. Higher powered locomotives will reduce the number or enable business to be expanded. The fleet used in interstate freight traffic at the time of commencement of operations consisted of over 300 locomotives, including lower powered classes with an average age in excess of 25 years. The economic life of a locomotive in the type of service required by National Rail is in the order of 10 to 15 years. The largest group of locomotives (over 90 2240kw units, plus many even older lower-powered classes), is now of this age.

As a priority, National Rail is acquiring 120 new 3000kw locomotives (National Rail (1995)). Without the new locomotives the cost structure necessary to match road competition, particularly on the east coast corridors, is unlikely to be achieved. The costs, both ownership and operating, are effectively locked in by the contractual arrangements into which National Rail has entered. Therefore a large part of the company's cost structure is significantly improved by the new locomotives, and the costs are known despite the absence of a cost history.

As with the locomotives, many of the wagon fleet available to National Rail from the rail authorities are not efficiently suited to the interstate freight business. Accordingly, wagon replacement also comprises a significant component of National Rail's investment plan (National Rail (1995)). The company is progressively replacing its intermodal fleet with five pack skeletal and well wagons. New steel traffic wagons form part of the company's acquisition program. This program, and the out-sourced maintenance arrangements, provide the company with clear expectations of its wagon costs.

3.3 Terminals

The terminals acquired from the rail authorities have suffered similar deficiencies. In particular, the handling equipment was in poor condition. National Rail has leased new equipment and put in place maintenance contracts to upgrade the standard of maintenance of the handling fleet, and hence its availability. Terminals are now well established under National Rail management, and the company has a significant cost history as a basis for modelling and future estimates.

The company has commenced a major project to re-engineer the work practices and operating arrangements in the terminals (National Rail (1996)). The concept has four fundamental components:

- Automated terminal gate entry and exit;
- An information system enabling direct customer input of consignment data, container tracking nation-wide, automated train load planning and computer-aided deployment of handling equipment within the terminals;
- Production train loading and unloading; and
- Trailer pool (container-on-chassis) operation where suited to the customer.

The automation of the terminal facilities offers substantial data capture improvements which will significantly enhance the quality and integrity of data, with consequent advantages as a data-base for costing.

The major outstanding issue in the terminals area is the development of a new terminal for Sydney. The current terminal at Chullora (in the inner west of Sydney) is intrinsically unsuitable for convenient long train operation. National Rail planned on building a new terminal at Enfield (a near-by suburb); however has been prevented from doing so by onerous local government requirements for road access to the new terminal site. Accordingly, the company is reviewing its approach. This situation is indicative of the position in which any commercial operator may find itself where it becomes subject to planning provisions from which the government rail authorities are intrinsically shielded.

3.4 Track Access

National Rail's line-haul service quality is currently impacted by both above-rail and below-rail effects. The above-rail effects include the locomotive failure previously discussed, delays in National Rail terminals and network delays which compound the primarily cause. There are, however, a number of below-rail service quality impacts which relate to track; in particular, delays resulting from track condition-related speed restrictions and train control delays.

The transfer of functions and assets and acquisition of new equipment addresses the major areas of deficiency in the "above-rail" asset base. In effect, National Rail's equipment and changes in work practice provide it with the capability to operate the interstate rail freight transport business productively and at a high standard of quality, subject to adequate track access. The ownership and contractual position with the track-associated infrastructure, however, remains inconclusive.

The track-related quality and cost issues result in part from the short term maintenance decisions adopted by some rail authorities in the expectation that a national track maintenance authority will be created. They also reflect the financial position and priorities of the rail authorities in sourcing the necessary funding.

The pricing of track access for freight operators is just as significant an issue at present. A series of internal studies within National Rail and other work undertaken at a national level (for example for the National Freight Initiative and the Track Australia proposals) indicates that the ability of rail freight operators to fund capital recovery and upgrade costs over and above renewal and maintenance of the infrastructure which they use is constrained by the market within which they operate.

Despite this market extending to both road and rail, much of the focus of the policy groups dealing with the infrastructure pricing issues tends to be on individual modes. Hence road pricing is a separate consideration to access pricing in rail. In general, rail access pricing decisions are treated as financial cost-recovery considerations; road infrastructure decisions are treated as economic decisions (Camenzuli and Ferriera (1996)).

Interstate freight operators, regardless of mode, compete for the same traffic; that is, they

are in the same market. Access pricing decisions which have a different basis therefore have the potential to distort economic efficiency in the interstate freight market. This was recognised in the National Transport Planning Taskforce Report (1994) which made a number of recommendations reflecting this issue.

The current scenario seems to suggest that a number of rail infrastructure owners may seek to price on a monopolistic basis in order to achieve a return on notional replacement capital of the assets involved. This will in effect absorb any increasing efficiency on the part of the operators (users) reflected in the operators' profit stream, through access charges which track the profitability of the users. If the prices are excessive, the competitiveness of rail freight in the interstate markets will be eliminated and rail will cease to compete in these markets.

3.5 Information Technology

The most significant technological change evident now in most industries is driven by information technology. In the rail sector the mechanical and civil engineering technologies are being incrementally improved. The information engineering is subject to dramatic and fundamental change.

The competitive advantage of an integrated information technology strategy was recognised well before the formation of National Rail. As part of the Commonwealth Government's incentives to create National Rail, Australian National (the Commonwealth rail authority) was given funds to undertake a "study to determine the National Freight Corporation's long and short term information technology requirements" (Australian National (1991)). This work commenced in February 1991.

National Rail initiated its information technology program on the basis of the Australian National study; however supplanted this with its own information technology strategic plan completed in May 1993. The company is now well advanced in the implementation of this strategy. The applications now being deployed include:

- A series of mission-critical systems centred around customer and freight management (the management of customer interface, consignments, terminals and related processes) and operations (rostering, deployment, monitoring and maintenance of production resources). These systems will utilise global positioning technology to locate locomotives, automatic equipment identification to associate wagons with the locomotives, and systems integration to associate the consignments with the trains. Movement of handling equipment and customers' vehicles in terminals is also encompassed in this suite of applications.

- The standard business systems such as finance and human resources.

- A data warehouse to bring the information together to facilitate management reporting and strategic analysis.

The most important features of the information systems being established by National Rail, from a management information point of view, are as follows:

- sharing of applications and technology across the company as a corporate function
- collection of data once at the point of entry, with integrity of the data being regarded as a corporate responsibility
- automated data collection wherever possible; for example through global positioning, automatic equipment identification and computer driven production capability
- an integrated architecture, and
- the data warehouse.

The information systems are becoming a significant resource for the company's decision support and analytical systems. Each transaction undertaken by the company, whether of a financial nature or of an operational nature (for example the movement of a wagon) will be identified as part of the company's information architecture. The statistics drawn from these transactions are retained in the data warehouse either for future analysis or for current reporting purposes. The warehouse can contain a wide variety of data which have potential application for product costing and contribution analysis at level of refinement which hitherto has not been possible. The issue faced in common with many organisations is how to use this resource to best advantage.

4. Management Information and Costing Tools

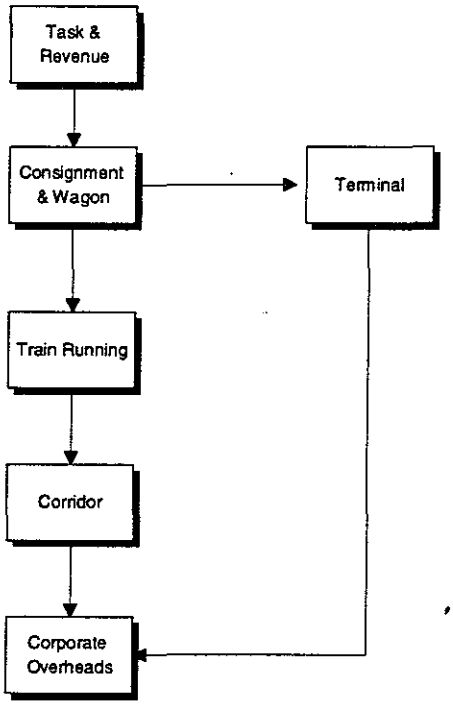
For a new organisation, National Rail's management information requirements are extensive. The company has sought to establish suitable systems both to process transactions (physical and financial) and to capture the associated management information in what is a complex, geographically spread, yet modestly scaled business. Obtaining historical data has been made particularly difficult by the lack of corporate history, and lack of access to the interstate freight data of the rail authorities.

The lack of corporate history in particular impacts the company's ability to cost its operations, and to undertake the necessary traffic contribution analysis to determine the profitability of parts of its business. This is perhaps the most fundamental information requirement of the commercialisation of the business.

4.1 Existing Tools

All of the rail authorities in Australia have at some time used the Railcost model (Symonds Travers Morgan (1995)) and the National Freight Group Costing Convention (NFG2) (National Freight Group (1990)). These have provided the rail authorities with a contribution analysis capability which takes into account the avoidable and fixed cost structure inherent in traditional railway operations. Railcost has been one of the most important tools in the commercialisation of Australian railways. Figure 1 shows the typical NFG2 structure.

Figure 1: National Freight Group Costing Convention structure



The National Rail Shareholders' Agreement (clause 5(4)(b)) requires that the company's cost structure be protected for a limited period through the compensatory mechanism which effectively quarantines inefficient costs back to the rail authorities. National Rail, therefore, has been able to model its expected future performance with some understanding of its future cost structure despite not knowing the costs which are hidden in the rail authorities.

Railcost normally requires calibration against detailed operating statistics and against a cost history; once this is done it has provided a suitable tool for strategic and marketing purposes. National Rail implemented an uncalibrated version of Railcost for traffic costing to underpin its early Corporate Plans. Spreadsheet-based service plan modelling has been used as well for costing and contribution analysis purposes such as planning and periodic

business review. The latter is now typical of the primary tools in use, to some degree reflecting the access pricing structures now emerging, and the simpler operating patterns now being worked in the interstate business.

The open access environment changes the fixed and avoidable (variable) components of the cost structure. The major fixed component of costs, the "corridor fixed" in the NFG terminology, effectively become variable as an access price. While the basis of pricing may vary, most track owners are likely to regard the price as variable to a combination of gross tonne kilometres and numbers of trains.

4.2 New Opportunities for Traffic Contribution Analysis

There are three primary applications of traffic costing and contribution analysis. These are:

- as a basis for strategic decisions regarding the business,
- as a basis for pricing and business management decisions, and
- as a basis for yield management to optimise the return on individual trains.

Existing tools (which are essentially models rather than directly based on current data) work well for strategic planning, work in the absence of other information for pricing, and are of minimal value for yield management on a real time basis. However, the principles are firmly established in such tools. In essence, they are based on what is now generally referred to Activity Based Costing (ABC). Application of ABC to profit analysis has, however, only recently become widely recognised (Cooper & Kaplan (1991)).

National Rail's information technology investment is opening up opportunities enhance these tools. With good quality data which can track the movement of wagons and associate those movements directly with movements of trains and of locomotives, timely and frequent assessments of traffic profitability are possible.

The data warehouse concept in information systems, in particular, provides for data to be viewed and presented from a range of different perspectives, as information, immediately following its capture. This technology offers the opportunity for cost analysis to be undertaken in the same way.

The operations of a network-based rail business can be viewed in a number of different ways. In particular, train movements ("Train Plans" in National Rail's terminology) are not necessarily the same as the services which the company offers to its customers. For example, a Melbourne-Perth train may provide an Adelaide-Perth service. Likewise, the relationship between customers and services is not necessarily one-to-one. The question "what is the profit contribution from this service or customer?" is not the same question as "what is the profit contribution from this train?" - one is driven by the revenue; the other is

driven by the production costs. Generally the more useful strategic question is one based on revenue; the costs being calculated on what resources it takes to earn it.

Structuring the cost analysis such that it is based on the lowest element ("atomic" level) for which meaningful data can be captured and retained allows the full range of contribution analyses to be offered to the decision-maker. Such a structure also has the capability to turn the analysis on its head to answer the alternate question as to what did this train movement earn.

On the issue of real time contribution analysis, it is arguable whether real time cost information adds much value to the management information of a business like National Rail. Despite the power of a tool which can assemble costs at an "atomic" level, its application for operational purposes (that is on a daily basis) is questionable. The key short term decisions can often be made on a resource basis (to change the length of a train, to cancel a train or to deploy additional wagons on a particular service for example). Short term pricing decisions tend to be made in a similar way.

The optimum value of such a contribution tool is likely to be gained not in real time, but in periodic (perhaps weekly) review by marketing people. Yield management is a special case. If pricing policy can accommodate variable pricing in order to encourage consigners to use particular services (in the way that airlines sell seats), there are special applications. These are likely to require inversion of the traffic costing information in order to assign standard costs for individual trains and to assign a revenue share to trains. This special purpose application violates a number of basic principles of traffic costing. It is production driven rather than revenue driven. However, if isolated for the particular purpose it would serve a valuable role as a short-term decision tool, but not as an analytical device. Even there, the application is limited and similar results could be achieved by optimising slot occupancy (capacity use) on the train without knowing the costs.

Contribution analysis techniques have further potential uses which include:

- transfer of cost between departments for "profit accountability", and
- analysis of cost structures and activities.

The use of transfer pricing is often regarded as a valuable commercial tool for providing a bottom line focus for managers. However, internal transfer pricing arrangements in network operations may lead to suboptimal decision-making (because network effects are compromised) and internal manipulation. This applies even where causality has been established in the standard cost drivers. For this reason, National Rail has not sought to implement transfer pricing arrangements. Rather, costing tools are applied for information purposes.

4.3 Aspects of Costing Methodology

A rail business operates on two basic building blocks. These are:

- The wagon - which has a direct relationship to consignment movement; and
- The train - which may or may not have such relationship.

The fundamental difficulty in developing contribution analysis in a rail network business is as described in 4.2 above; in that there is no direct relationship in many instances between the movement of the consignment (related to the customer) from an origin to a destination (related to the service, and the basis on which revenue is earned) and the movement of trains over links through the system. A direct relationship only occurs where the operation is a true dedicated consist block train operation.

Within National Rail's data warehouse, sufficient data are being assembled to provide the basis for a costing and contribution analysis system which would provide for a range of different costing needs of the kind outlined above. At the present stage of the development of the information systems (where true integration is not yet available), there are reconciliation problems. Nevertheless, the warehouse itself is providing some tools which can establish a level of confidence around the data which are available. The principles of such a system are as follows:

- Attribution of revenue is established at a detailed level by consignment which can be associated with an origin-destination pair and the customer, service and wagon which carries it; and
- Costs attributed on an appropriate causal basis using standard Activity Based Costing and National Freight Group Costing Convention principles.

The data warehouse draws on the operational systems in order to quantify the necessary cost drivers, or operational resources used. The application of unit costs, once these drivers are known, is relatively straight forward process.

The cost drivers typically take the form of gross tonne kilometres, net tonne kilometres, train hours, locomotive kilometres etc depending on the cost concerned. All this information is available for each train movement over the network from the company's transaction processing systems. It is thus theoretically possible to determine for any individual train movement the resources associated with that movement and hence the costs on some attribution basis. This simply represents a detailed application of the standard Costing Convention arrangements.

The complications associated with indirect costs (the so-called semi-variable and corridor fixed costs) are no different than at the more aggregate level of the standard modelling

approaches. The treatment of indirect costs and network effects is, however, more complex. These costs, for example, include empty wagon movements, locomotive positioning and other operational requirements.

At a simple level, these costs can be treated as standard uplifts to the direct costs - by applying a standard, regularly monitored, cost increment to accommodate the empty wagon movements for example.

Alternatively, the information systems may be used to track empty wagon movements prior to the loaded wagon movement in question.

Thus:

- Revenue would be assigned on the basis that it is incurred; that is by consignment linked to the wagon movement that carries it.

- Consignments associated with wagon movements would allow the loaded wagon related costs to be attributed directly (for example on the basis of wagon kilometres). With knowledge of the movements of the wagon empty prior to carrying load, it is also possible to associate the empty wagon movement costs with the revenue earning load carrying movement.

- Wagon movements may be associated with each train movement. For each wagon movement, a share of the train costs would be attributed on the basis of the wagon gross mass as a proportion of the total trailing load. Train costs, incremented as necessary to accommodate positioning, crew unproductive time and sanding and fuelling costs would then be attributed.

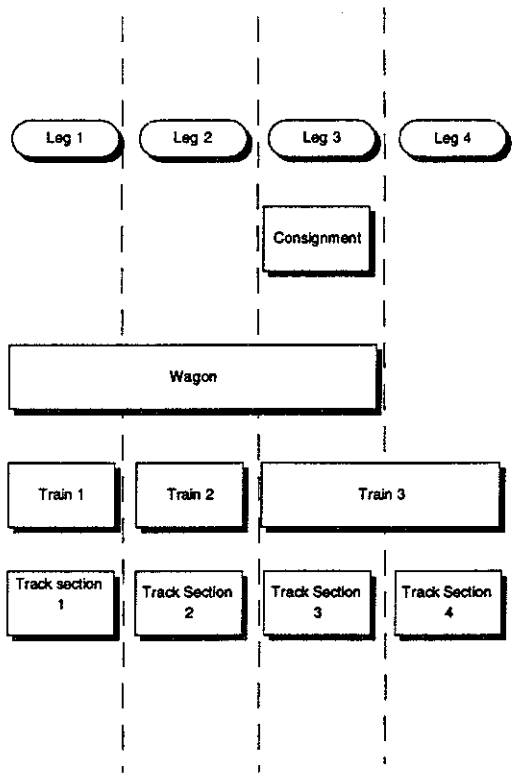
- Corridor costs would be associated with each train movement ('Train Task' in National Rail terminology) and in turn associated with the wagon.

- Terminal costs would be attributed on through-put based drivers

- Corporate overheads would be allocated on percent markup basis in accordance with NFG2 for uplift purposes.

The relationships between the various components are illustrated in Figure 2, over. In this figure, a wagon may require several movements before it carries a consignment. It may run on several trains for the full length of the train journey, or over part of that train's journey. However each train task would occur over a discrete track section and the cost could be attributed on that basis. The sections also provides a convenient breakup of the loaded and empty wagon movements necessary to complete the movement of the consignment. The specific problem of backhaul is dealt with by maintaining a recent history of wagon movements. This enables the cost involved in positioning a wagon (that is, all train running activity since its last load) to be assigned.

Figure 2: Components in a Data-driven Costing system



In this process, the integrity of the cost layers would be maintained and directly associated with the production resources necessary to earn the revenue. The level of detail is maintained in the system at the same level. The report (preferably NFG2 functional format) can be presented at every level from individual consignments through to total business.

5. Conclusion

The major transformation necessary to improve the competitiveness of Australia in international markets requires that a range of domestic activities be made significantly more efficient. In the land transport sector, one focus has been on the substantial financial cost to the Australian community of rail, commencing with interstate freight. In some senses, interstate rail freight is an easy target. It is not highly political (compared with for example urban rail, airports, waterfront reform or road construction) and potential for reduced public sector budgetary exposure has been clearly substantial.

The National Rail Shareholders' Agreement was a major achievement in its own right in bringing the states and the Commonwealth to agreement. National Rail is now firmly part of the Australian land transport scene. It remains, and has geared itself as, the largest of the

freight operators. At this stage it remains the only operator providing national services. The changes necessary internally for National Rail have been fundamental, despite the organisation being established from scratch. The company remains a business in government ownership, with some remaining externally-imposed trappings of government ownership despite its requirement for stand-alone commercial success.

The major unresolved issue remains track access. At the time of writing, future ownership of the track infrastructure remains unknown; hence the pricing regime, level of maintenance and future investment in the track remain unclear. This represents a major risk exposure to any new operator and to National Rail.

The next several years (effectively completing National Rail's Establishment Period) will be a time of extreme turbulence in the interstate rail freight sector. The track access issue and the competitive environment will take a period of time to stabilise. Even if a new track authority is created, the new organisation will require time (probably several years) to establish itself, its management and its policy direction.

Ability to fully understand the performance of the business is an essential requirement during this time. An understanding of the performance in physical terms (service quality, on-time freight availability, productivity) provides fundamental but incomplete information. Suitable costing and contribution analysis capability is essential. Information systems which are now becoming available in National Rail, and the management information which is now available through the company's data warehouse, provide the necessary resource for significant advances in costing tools. The next generation of costing and contribution analysis tools will facilitate accurate and responsive information on a close to real time basis. The major decision which will need to be made is whether real time information can effectively be used to manage the business.

In the interim there can be no slowdown in the management of the rail system by any of the participants. Rail's primary competitor remains the road sector, and the competitiveness of road is increasing continually. The physical capability through assets necessary to operate the rail business and the information needed to manage it are fundamental. The emerging information systems capability provides the means by which tools such as traffic contribution analysis can be developed in line with the business needs. Responsiveness and timeliness in these tools are basic requirements which can now be met.

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