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**The Thredbo story: A journey of
competition and ownership in land
passenger transport**

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ABSTRACT: This is a companion paper to Bray, Hensher, and Wong (2017), reviewing developments in public transport institutional reform, contract design and implementation over the past 30 years since the inception of the International Conference Series on Competition and Ownership in Land Passenger Transport (known as the Thredbo Series). Whilst Thredbo has grown to encompass all topics in transport planning, policy, contracting, financing, data, as well as funding; competition and ownership remains the core focus and the 14 conferences to date constitute a unique resource to chart the conversation and state of the art as it has evolved in both developed and developing economies. Discussion is structured around three eras (the early years, turn of the century and recent developments) and six elements of contracting—market arbitration, procurement mechanism, asset ownership, contract design, risk allocation and contract management. What emerges is a shift in interest from deregulated to contracted markets (and back to deregulated to some extent), a renewed focus on institutional performance in line with changing government and community expectations, and an increasing desire to place contracted services within the broader context of land use, well-being and wider economic benefits. Importantly, this paper also covers some landmark ideas which have grown to become key cornerstones of the Thredbo series including the STO (strategic/tactical/operational) framework, regulatory cycles in the bus and rail sectors, as well as trusting partnerships between transport regulators and operators. We conclude with the enduring legacy of the Thredbo series and look with optimism to the future for what the next 30 years of Thredbo may bring to the land passenger transport sector.

KEY WORDS: *Thredbo series; public transport; deregulation; contracting; tendering; negotiation; STO framework; trusting partnerships*

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1. Introduction

As the International Conference Series on Competition and Ownership in Land Passenger Transport (henceforth, the Thredbo series) enters its 30th year, it is important to stocktake and reflect on its contributions to policy and practice to date. The 14 biennial conferences since 1989 have produced a total of 620 introductory, plenary, workshop and content published¹ papers which document (amongst other themes) the evolution of public transport institutional reform, contract design and implementation. The companion paper, Bray et al. (2017)², is the first *systematic* review of theme development and research influence of the entire Thredbo series to date. The review offers a high-level summary of trends in authorship, modes, location, market for service provision, principal technical topics and analytical method over the Thredbo conference period. A major finding with regard to the contracting of public transport is that less work has been undertaken on the procurement of contractors than on the design of contracts, and even less on the management of contracts. What also emerged was a degree of advocacy and strong level of assertion from some very prominent authors regarding the efficacy of various institutional reforms and contract designs. Whilst many findings were evidence-based, there was a tendency for some contributors to draw premature conclusions and generalisations which could be regarded as normative rather than positive.

It is necessary, therefore, to review these contributions with a fresh perspective, using a top-down approach which seeks to critically synthesise and chart the evolution of key ideas in the field through a common metric, and situate these findings within the broader historical context as Thredbo develops. This contrasts with the bottom-up approach taken by individual workshop papers which summarise deliberations from workshop participants, potentially hindered somewhat by the geographic and disciplinary diversity of workshop contributors and also the tendency for groupthink inherent in such formats. With a view to “see the forest for the trees”, the focus in this paper is on the core conference themes of competition and ownership—in particular, institutional reform and contract development. The specific focus is on the development of public transport *service* contracts, with a historically greater emphasis on bus than rail and developed over developing economies. This reflects the nature of contributions made by authors throughout successive Thredbo conferences.

In embarking on the Thredbo journey, it is necessary to understand the context around which the 1989 inaugural conference was established. Whilst the physical birthplace of the conference series was in Australia (Thredbo, New South Wales), its spiritual home was in the United Kingdom, where bus and coach industry reforms spurred by the *Transport Act 1985* sparked the interest of the academic community (economists, in particular) and Thredbo founders Michael Beesley³ and David Hensher. These reforms consisted of economic deregulation of the bus and coach industry outside London (supported by a compensating minimum-subsidy tender where commercial services failed to deliver), competitive tendering of buses at the route-level in London, the reform of subsidy policy and privatisation of businesses such as the National Bus Company. These developments generated keen international interest, with other countries embarking on similar programs and a reform agenda which

¹ Excluding papers presented that were not published but available on the Thredbo website <http://www.thredbo-conference-series.org>.

² Full workshop titles for each conference are contained therein as well as the publication outlet(s) for each conference where individual papers may be found.

³ See <http://www.thredbo-conference-series.org/michael-beesley>.

has more or less continued to this day. The political appetite for these reforms can be linked to the macroeconomic context and dominant political ideologies of the time. Laissez-faire policies of the 1980s (dubbed Thatcherism and Reaganomics) welcomed private ownership and free competition which in microeconomic terms played out through the liberalisation of various utility markets in water, electricity, telecommunications and transportation.

The transportation context of the era is also important to consider. Early Thredbo conferences were held in a time before present concerns like peak oil and peak car. Private motoring was strong and growing, and encouraged by urban policies like continuing suburbanisation—most prominent in the United States and Canada but also in Europe (for instance, new towns like Stevenage and Milton Keynes in the United Kingdom). Public transport mode share was in decline and their service quality deteriorating, at least across the developed world and in (now) former communist countries. Concern about the complete demise of public transport (barring in the largest cities) was ever-present, as reflected by comments from the initial conferences (Cox & Mannisenmäki, 1992; Hills & Talley, 1991). Given these land use and policy settings (and the strong hold of trade unions in many countries), it was little wonder that public transport unit costs were escalating at an extraordinary rate and becoming an increasing drain on public funds. These include both explicit funds (revenue supplement) to subsidise public transport, as well as hidden costs linked to poor performance. Various forms of market arbitration were hence developed and tested in an attempt to contain these subsidy increases.

A factor analysis of thematic development in Bray et al. (2017) revealed three distinct periods for the Thredbo series, marking major turning points in the competition and ownership literature around which the subsequent discussion will be structured. The (i) early years covered the first four conferences in Thredbo, Australia (1989); Tampere, Finland (1991); Mississauga, Canada (1993); and Rotorua, New Zealand (1995). These were focused on developing the theoretical and methodological basis for market arbitration and was dominated by papers on governance (including topics on institutional and regulatory structures). Next, the (ii) turn of the century was marked by the election of a new Labour government in the United Kingdom and a roughly equal mix of papers addressing governance, contracts and service. These comprised the next five conferences (Thredbo 5-9) in Leeds, United Kingdom (1997); Cape Town, South Africa (1999); Molde, Norway (2001); Rio de Janeiro, Brazil (2003); and Lisbon, Portugal (2005). Finally, (iii) recent developments have seen a surge of papers related to contracts, and correspond with the period post-Global Financial Crisis and the new round of budgetary pressures it brought. These papers were presented in Thredbo 10-14 in Hamilton Island, Australia (2007); Delft, The Netherlands (2009); Durban, South Africa (2011); Oxford, United Kingdom (2013); and Santiago, Chile (2015). Thredbo 15 in Stockholm, Sweden (2017) is likely to herald a new era for the conference series with its focus on transportation futures in the digital age—some preliminary thoughts regarding implications on competition and ownership are shared in [Section 8](#).

Unlike previous reviews of Thredbo (Preston, 2005; Preston & Nash, 1997; Walters, 2000) which offer a limited (albeit valuable), chronological *summary* of each conference (see also Hensher (2014)), this paper critically *synthesises* these findings and structures them under six contracting elements (not necessarily mutually exclusive), with each corresponding to a category feature in the Bray et al. (2017) meta-analysis. These six elements include: market arbitration (based on feature 5 *Market for service provision*), procurement mechanism (feature 6.b (iii) *Contracting*), asset ownership (feature 6.b (i) *Asset ownership*), contract design and risk allocation (both feature 6.b (ii) *Contract design*), as well as contract management (feature 6.b (iv) *Contract management*). Readers are referred to the companion piece for

more high-level discussion on how the mix of topics have evolved over the past 30 years. The subsequent discussion is based on an in-depth review of workshop reports with special reference to selected seminal papers in the institutional reform and contracting space, the latter informed in part by their impact on the public transport literature as quantified through the Bray et al. (2017) citation analysis.

2. Market arbitration

The market arbitration debate revolves around how best to foster a competitive environment in the provision of public transport. Alternative models include economic deregulation, contracting (with various procurement mechanisms like tendering and negotiation discussed in [Section 3](#)) and government provision. These all constitute variations in relationship between the client (regulator⁴) and contractor (operator).

2.1 *The early years*

A major focus in the early years of the Thredbo conference series was the development of a theoretical and methodological rationale for introducing market arbitration in public transport service supply. The neoclassical economic basis for competition stemmed from the search for quasi-rent aided by Adam Smith's invisible hand (the market) to obtain optimum output at the lowest possible production cost. Public monopolies were considered a fundamentally flawed regime too responsive to political pressures but unresponsive to changing public demand. Government provision and public ownership suffered from political interference, usually as a condition of their public revenue support, which generated a destructive cycle—a 'leakage' effect—where increasing subsidisation brought about greater costs. Private operations benefited from lower capital costs as well as better labour productivity, in terms of lower wages and on-costs. This need to "break the nexus between service and subsidy" (Thredbo 1) motivated the support for competition, but debate remained in terms of the best way to achieve this. The considered alternatives included full market arbitration in the form of economic deregulation or competition *in* the market, and partial market arbitration through competitive tendering or competition *for* the market (a form of joint venture with public intervention). There were strong competing views on the merits of each from some of the Thredbo giants in the initial conference—led by Michael Beesley (with Stephen Glaister) on one hand favouring economic deregulation, and John Preston and Ken Gwilliam (and later Chris Nash) on the other for comprehensive tendering or franchising. The language stemming from this first conference generally favoured economic deregulation (although Wendell Cox was significant in promoting competitive tendering), and took the view that it would become an inevitable development across the world, including in New South Wales, Australia (a prediction which 30 years on has not yet transpired). The Thredbo 2 framework for land passenger transport reform in terms of corporatisation, followed by tendering, privatisation and finally, deregulation certainly reinforced this view.

The ultimate objective of "public gain or private profit" was presented as a recurring motif throughout the early Thredbo years, reflecting the classic economic trade-off between equity and efficiency. In an efficiency-maximising economically deregulated environment, separating commercially viable services

⁴ Some authors distinguish between tendering *authorities* in contracted environments and independent *regulators* in deregulated markets. For simplicity (and to recognise some limitations in this binary construct), the term regulator is used for the most part in both cases.

and subsidised services would improve equity as affluent users could then be charged the full cost of service provision. Bus reforms in the United Kingdom outside London took this approach with a bottom-line tender for social services as a last resort facility for the less than 20 percent of services the market was not willing to provide. There was an issue here, however, of cost and revenue allocation for a commercial operator jointly providing both types of service, with internal cross-subsidies offering the potential for regulatory capture and unfair competition especially as the operator gained market power⁵. Given this, user-side subsidies were pushed as a saviour which (theoretically) could allow the entire network to operate commercially, replacing any operator or provider-side subsidies delivered as part of (and circumventing the need for) a tender. One caveat was that this may grant the consumer greater choice and result in increased private car use with associated externalities. Closely associated with this was the issue of modal rivalry, as reforms in the bus and coach industry only represented sectoral market arbitration. Indeed, the principles of competition and market pricing ought to be applied equally to cars as the main rival to public transport (The idea of a “level playing field”). Only road pricing pushed as part of a greater package of land transport reforms could bring the full transport market into equilibrium—a key focus for early Thredbo conferences.

The United Kingdom bus experience showed that service frequencies and fares both increased following economic deregulation. Fare competition was shown to be an exception rather than the rule as passengers had the tendency to board the first available service and operators therefore had no incentive to compete on price. Instead, operators practised ‘headrunning’ or schedule matching (with links to Hotelling’s law on minimum differentiation) accompanied by lengthy dwells at bus stops to pick up competing operators’ customers, all of which led to enormous service instability. Manchester’s Oxford Rd, hailed as the busiest bus corridor in Europe, is an oft-cited example of how this practice proliferated. Such evidence of wasteful competition and other externalities received only scant treatment in Thredbo 1, as the primary focus remained on efficiency gains and cost savings. Thredbo 2 began the process of documenting these market failures and observed that the provision of fares and customer information, particularly around competitors’ services, should be centrally-coordinated. First mover advantages benefiting incumbents and the trend towards the concentration of operators through mergers were also discussed. Interurban coach services were deemed to exhibit fewer external costs and hence more suited for deregulated quantity controls. In light of these issues, there were some suggestions that pressure to re-regulate may grow in the future—a precursor to the idea of regulatory cycles later introduced in Thredbo 10 by Ken Gwilliam.

Thredbo 2 and 3 dedicated an entire workshop to externalities in deregulated markets and the role of competition policy (anti-trust to Americans) in combating predatory behaviour, competitive access, monopolistic competition, network economies and mergers/collusion. Predatory behaviour was defined as operators deliberately sacrificing a part of their profit after the entry of a competitor with the aim to eliminate them or deter future entry—but deemed far more difficult to prove. The need for a social cost-benefit evaluation of anti-trust rules hence became a stated research priority. Many argued for a regulatory instrument such as (in the British context) an Office of Bus or Office of Rail to construct ex ante “rules of the game” specific to each mode (in contrast to a general regulatory office that typically often lacked specialised knowledge of specific modal contexts). There was a level of irony in that the

⁵ Which happened most forcefully in later years in New Zealand with shared costs ultimately being assigned to the mainly off-peak tendered services (where the number of tenderers whittled down to an average of 1.2) and avoidable costs being retained only for peak services.

success of deregulation was predicated on tighter regulations in competition policy. Others held the “deregulatory schizophrenic” view that economically deregulated free markets were incompatible with pro-competitive regulation.

Whilst Thredbo 1 had a clear bias on the British experience, this was less evident in subsequent conferences as other countries joined the reform bandwagon and the range of participants diversified. New Zealand introduced a form of ‘managed deregulation’ in 1991 (as compared with ‘pure deregulation’ in the United Kingdom outside London) which came to become a hot topic in Thredbo 3. The early years also saw many countries/regions adopt competitive tendering as their preferred method of market arbitration—including Scandinavia, Sweden, Denmark, Finland, Norway and South Africa. The United Kingdom was to re-join this process with the franchising of the British Rail network as provided under the *Railways Act 1993*. The initial fervour for economic deregulation began to be replaced by a more balanced discussion. Whilst competitive tendering could not deliver the ‘cost efficient’ price as theoretically possible under full market arbitration, its advantages outweighed the uncertainties and externalities associated with economic deregulation. Further, evidence of natural monopoly rose to justify competition *for* the market (see Hensher (2018)). There was increasing recognition that the bus and coach market was not perfectly contestable, due to contracts on vertical disintegration, the distortionary effects of subsidies, location contracts, sunk costs associated with advertising, the notice required before service deregistration, as well as “economies of experience” related to the advantages of incumbency. Competitive tendering, on the other hand, was claimed to be almost always perfectly contestable due to the long reaction periods and virtually zero sunk costs inherent. Increasing evidence from the reform experience in different countries found both competitive tendering and economic deregulation able to deliver real cost improvements of 20-30 percent (Hensher, Battellino, & Beesley, 1991: 88). Given this, the debate turned to service quality and related externalities in the selection of competing market arbitration regimes.

Thredbo 4 began a new emphasis on broader measures of social welfare, with the recognition of Thredbo’s tendency to prioritise cost-minimisation over user requirements. A distinction was made between productive efficiency in terms of minimising the cost of service provision (“doing the thing right”) and allocative efficiency which provided for the optimum combination of services and fares (“doing the right thing”) (Gargett & Wallis, 1995). Conference participants noted a greater impetus to maximise technical (productive) efficiency in Australia, the United Kingdom and New Zealand, whilst Europeans and North Americans were more concerned with effective service delivery⁶. Economic deregulation priced on average cost (which is greater than the marginal social cost of travel) would unlikely benefit allocative efficiency—though it may, however, enhance dynamic efficiency. The allocative efficiency or user requirements focus then became a workshop in its own right for several conferences (Thredbo 4 and 6), and later integrated as part of the STO (strategic/tactical/operational) framework (Thredbo 5). Ultimately, this framework provided for the prospect to “do the right thing right”—the ultimate public policy objective.

⁶ The strict definition of productive or cost efficiency is the provision of *a given level of service* at the lowest cost—this is often confused with cost minimisation.

2.2 *Turn of the century*

After many years of deliberation, a bold declaration was made at Thredbo 5 that, based on patronage/market share-maximising criteria, “the London model of route competitive tendering has been a success while the deregulation model outside London has been a failure” (Cox & van de Velde, 1998: 337). Thredbo’s turn of the century was marked by growing concerns for economic deregulation including the modal diversification of operators (e.g., Stagecoach, Virgin) and its implications for competition, as well as the increasing concentration of the British bus market (today with just four major players First, Stagecoach, Arriva and Go-Ahead). This was coupled against the policy backdrop of a new Labour government in the United Kingdom which increased regulation in the bus and rail sectors, as well as the broad uptake of competitive tendering around the world—including in developing economies. During this period, Thredbo itself was taken to the Global South—Cape Town, South Africa for Thredbo 6 and Rio de Janeiro, Brazil for Thredbo 8—which brought with it a natural shift in the nature of contributions. There was a new focus on quality in public transport, motivated by attempts to formalise developing world paratransit and debate over the merits of losing such flexible services. The turn of the century also saw increasing interest for transport reforms in developing and transitional (former communist) economies, where the touted benefits of market arbitration were thought to be smaller due to their inherent lower wage, with savings likely to stem from greater discipline on cost recovery as opposed to wage reductions.

Thredbo 5 introduced what has evolved to become *the* centrepiece of the Thredbo conference series. The **STO (strategic/tactical/operational) framework** coined by Van de Velde (1997) allowed a range of issues to be framed within this setting as a way of understanding the various roles of stakeholders—in particular, operators and regulators. The three tiers were later synonymised with (S) transport policy, (T) system planning and (O) service delivery. The transport policy or broad strategic goals for assessing market reform were in the domain of regulators and could also include the three Es of *efficiency*, *equity* and *environmental sustainability* and/or the three As of *accessibility*, *affordability* and *availability* (Hensher & Potter, 1998). Operational goals related to service delivery were best handled by transport providers. It was at the interface between strategic planning and transport operations—the tactical link—which was most often the cause of tension and adversity between the regulator and operator. Overreach may have led to operators perceiving regulators as “interfering in their business” whilst regulators lamented operators for “a lack of vision”. Instead, the relationship ought to be complementary (in partnership), with the role of contracts in building this tactical interface better developed (at least theoretically) in Thredbo 10 and beyond.

The role of trusting/quality partnerships⁷ emerged in Thredbo 7 as a mechanism for providing clarity to operators and regulators in how strategic goals can be translated into operational practice. Trusting partnerships formed the basis for negotiated contracts and are further discussed in [Section 3.2](#). Quality partnerships exist as ‘light touch’ regulation in an economically deregulated environment, and became common in the United Kingdom during the turn of the century period. This form of cooperation may involve bus operators delivering better service whilst the regulator (or other government agency) in return invests in infrastructure like bus priority, traffic management, information provision, or even just

⁷ In the concluding session of Thredbo 8, David Hensher suggested adding the word “trusting” to partnership to begin another focus of the series on *Trusting Partnerships*. Neil Smith, an international bus operator, hailed this as a major progression in the way we promote the common good of all in the delivery of public transport services.

by taking a softer line on anti-competitive practices. One concern was that this may evolve to become franchised monopolies with associated regulatory capture issues. Another recurring theme during this period was the need to tailor transport reforms to the relevant administrative/entrepreneurial capabilities and initial market conditions. For instance, thin markets and undeveloped administrative capabilities may be more suited for free entry whilst more complex systems may be better for managed competition. This “horses for courses” approach warned against any ideological or dogmatic disposition (blind commitment) towards a particular method of market arbitration, procurement mechanism or contract specification.

2.3 *Recent developments*

Thredbo 10 began the journey of “modernising” the conference series to ensure relevance and longevity—thus launching the recent developments era of Thredbo. Across theory and practice, cost efficiency had now become only one part of several considerations for market arbitration, which also included land use, well-being and wider economic benefits (with dedicated workshops on social exclusion/inclusion in Thredbo 10 and 11). The most influential contribution was made by Gwilliam (2008) on **regulatory cycles**—providing evidence for a cyclical tendency in bus regulation in both developed and developing economies. For developed countries, for instance, this marked a shift from private competitive supply, to unregulated private monopolies, the regulation of private monopolies, nationalisation, and then back to private competitive supply. As an example, on-road competition which once appeared inevitable had now become the exception rather than the rule, particular as New Zealand moved towards a fully contracted model in an effort to secure greater certainty in the subsidy requirements of public transport. British rail franchising had also been met with higher costs, with half of the franchises failing and replaced by renegotiated franchises or management contracts. This formed, amongst other factors, an impetus to renationalise the railways or at least allow the state-owned (operator of last resort) Directly Operated Railways to bid in contracts, particularly after its popularly-lauded performance on the East Coast Main Line following the default of National Express (currently Labour party policy).

Perhaps as a nod to Thredbo 10’s regulatory cycles, Thredbo 11-14 featured a keen interest in next generation economic deregulation. Having lost popularity during the turn of the century, economic deregulation was back on the political agenda in Europe in the long-distance coach markets, national and international railway and even local and regional bus networks. There was also the recognition that deregulation still played a major role in developing country paratransit, such as minibus taxis in South Africa (which also suffered from a lack of trusting partnerships between taxi associations and the regulator and was an example of wasteful competition in addition to having huge safety and security concerns). Thredbo 11 considered whether there was a future in combining competitive tendering with autonomous market initiatives, in way which avoids repeating some of the simplistic and dogmatic interpretations that have dominated the United Kingdom model. In Thredbo 12, this was framed around how best to regulate deregulated public transport markets, unlike the traditional concern to date around deregulating regulated markets. Thredbo 12 also presented an innovative *hierarchy of regulatory needs* (van de Velde & Preston, 2013). At the basic level are the rules of law around licensing standards and safety training. The intermediate level related to service quantity, network integration and affordability, whilst at the pinnacle was a concern around improving overall welfare or net economic benefit. New ‘light touch’ regulations were deemed necessary around entry timing, entry selection, cream skimming tests, the level of exclusivity and optimal arrangements for access to ‘network effects facilities’ like

ticketing and customer information. New technologies offered the opportunity to maintain and monitor headway regulatory between operators, so as to maintain parallel service in an on-road competitive environment without the issue of ‘headrunning’ which had plagued the earlier British experience. Another question related to whether design of the social or commercial network ought to take precedence. Thredbo 14 raised the issue of path dependency with tendered services crowding out commercial services and recognised that an alternative approach may have brought different results.

The two latest Thredbo conferences also considered, for the first time, the blurring of the divide between individual and collective transport with the emergence of ridesourcing, microtransit, cycle hire and carsharing offered by transportation network companies. This “constituted one of the next challenges in public transport regulation, as the free-market dynamics of those developments currently stands at odds with the regulatory approach taken in the public transport sector” (van de Velde & Augustin, 2014: 242). In Thredbo 14, this turned to the competition and ownership implications of the development and adoption of driverless vehicles and shared mobility services. These issues of future transport contract design are considered further in [Section 8](#).

3. Procurement mechanism

The procurement mechanism specifies the process used to select and contract a supplier of public transport service. Competitive tendering and negotiated contracts constitute two of the most popular mechanisms to achieve this task. Other variations of procurement include contracting-out (more common in the United States), concessioning, franchising⁸ and direct award.

3.1 *The early years*

In the early years of Thredbo, competitive tendering remained “in its infancy” yet was considered the sole procurement mechanism for contracted public transport. Early Thredbo conferences sought to specify best practice in the tender design and process. Thredbo 1 pushed for an open-book approach over an *in vacuo* approach for setting up “rules of the game”, by developing a contract awarding process in consultation with industry. There were some suggestions that the competitive tender process should be separated into a tendering of specifications (the ‘architecture model’), followed by a tender for planning provision. Any regulations required for safety ought not evolve to become vehicles for *economic* regulation. Given the initial reform process away from the government monopoly status quo, there were concerns of a conflict of interest for a tendering authority with an ‘in-house’ production capability. The tendering authority must therefore have separate policy/regulatory roles with corporatisation of the operating responsibility often a worthwhile approach. The idea of a non-government operated tendering authority was even touted but not realised (later re-emerging in Thredbo 10).

The tendering process must also include a good bidder-qualification mechanism. Early evidence suggested that at least four bids were required to reduce cost (later recognised as the need to create a market of operators before one can put it out to competition). Glaister and Beesley (1991) obtained full

⁸ In general, *franchising* differs from *tendering* in that operators have a freer hand in determining the quantity and quality of services to provide. Some authors have used these terms interchangeably.

tender data for the early rounds in London for route contracts—for the winner and all losers. Such data is rarely released; however, what they showed in a statistical analysis presented at Thredbo 1 of non-strategic bids⁹ is that there was a statistically strong relationship between the number of bidders and the bid prices offered, with the prices being lower as the number of bidders increased.

A two envelop system (Brook's law) with one on quality details and a second on price details was preferred. In assessing bids, the regulator must ensure that the lowest cost bid is a realistic offer (this issue later to re-emerge as the winner's curse), and it was recommended that all bids are published in full for transparency. Contract expiry dates (between contract routes/areas) should also be rotated to reduce administrative burden and increase competition. Early Thredbo conferences recognised that regulators may have the temptation to negotiate a contract extension with the incumbent operator, but argued strongly for a full re-tender on contract expiry to avoid regulatory capture (unlike later thinking). Finally, the tendering process should be over months rather than weeks or years to balance the time required for bid preparation whilst not introducing unacceptable levels of uncertainty or risks to bidders. Towards Thredbo 4, there was increasing recognition that the bidding process involved heavy upheaval and administrative costs (akin to the more recent focus on transition/transaction costs). The contracting mechanism also constituted a principal-agent relationship as the government usually determined the quality and quantity of services to be delivered—a flawed process due to absence of a third party (i.e., the customer was never represented in the tender process or indeed often the absence of independent assessors).

3.2 *Turn of the century*

The turn of the century began the debate between tendered and negotiated contracts. Competitive tendering had quickly grown to become the 'benchmark' regulatory mechanism, presented as the sole effective mechanism for market arbitration which guaranteed cost savings whilst maintaining sufficient control for the regulator. While the merits of competitive tendering when a government monopoly was privatised for the first time is unquestionable, typically delivering windfall gains of 30 percent or more, there was increasing concern that these touted benefits were quickly reaching a saturation point, with costs even increasing in subsequent tender rounds. Thredbo 5 also introduced the concept of winner's curse, which was always an issue in auctions but especially so in a tendered market where the successful bidder must bear losses over long periods. Winner's curse was presented as a significant risk during re-tender rounds especially when an optimistic or inexperienced bidder (who cannot deliver) replaces a successful incumbent.

It is within this context that interest in negotiated contracts¹⁰ with a successful incumbent emerged. Compared with a competitive tender, transaction costs are lower, with less risk of an unsatisfactory outcome in the event of a contract change, and an opportunity to foster a closer partnership between the operator and regulator. This forms the basis for the concept of **trusting partnerships** introduced in Thredbo 8 which has grown into a cornerstone of the Thredbo conference series. Trusting partnerships

⁹ A strategic bid is one in which an operator offers a discounted price for a combination of route contracts.

¹⁰ Note that the term "negotiated *performance-based* contracts" is usually preferred by advocates (e.g., David Hensher, John Stanley) which confounds the procurement mechanism with other contract specifications (i.e., performance management). Conversely, one would rarely hear of "*performance-based* competitive tendering" (despite tenders usually being performance-based), thus illustrating the intensity of debate and degree of advocacy held for alternative procurement mechanisms (and the competitive nature of Thredbo participants!).

represent a tactical-level strategy (in the STO framework) and forms the foundation for improving relationship management between the purchaser and provider to maximise strategic goal achievement. Trusting partnerships are built on common core objectives—consistency of behaviour and direction, confidence in each party, respect of each other’s competencies and a demonstrated commitment to good faith (Stanley & Longva, 2010). A major question is whether trusting partnerships are independent of the procurement mechanism. One view was that negotiated contracts implied a foundation of trust, which was less evident in competitive tenders due to the re-tendering process (with operators hence less likely to engage in the open-book sharing of ideas and information). In summary, tendering is better when performance is lagging, whilst a partnership based on negotiation is preferred when performance is sound. The ultimate threat of a full competitive tender remains in the event of operator non-performance. Importantly, the link with actionable benchmarking promoted by David Hensher became central to the arguments supporting negotiation, or more specifically negotiated performance-based contracts. It was, however, suggested that such benchmarking should always be in place, even under competitive tendering, since it provides an assurance of the continuation of acceptable service performance (see footnote 9).

Thredbo 8 questioned the extent to which competitive tendering had served its role well but that there may be a growing role for negotiated contracts in circumstances where the incumbents were efficient suppliers and the financial gains from re-tendering small. A greater focus ought then be placed on innovation in service supply, growing patronage (with dedicated workshops) and providing some longer term incentives for operators to invest in quality assets (see Hensher (2015)). This was especially the case in situations where there was an inefficient market for second-hand assets, thus adding substantial risk to retrieving the residual value of buses and coaches in the event of not having one’s contract renewed (see [Section 4](#)).

3.3 Recent developments

Recent Thredbo conferences further developed the debate between tendering and negotiation informed by the latest data. Thredbo 11 noted that tendering had delivered positive outcomes in all markets except British and Melbourne railways and French buses, which all exhibited cost increases without a commensurate improvement in performance. In both rail instances, bidders won through high revenue growth forecasts (similar to private toll road traffic forecasts in Australia), rather than focusing on improving the efficiency of operations. The need to balance high and low entry barriers so as to maximise competition without allowing unskilled small businesses to win tenders was also noted. The public regulator must also have a high degree of competence and possess the necessary skilled staff to adequately run and manage tenders, negotiate with operators and avoid regulatory capture.

The latest Thredbo conferences identified a number of new reasons for favouring negotiation over tendering. Coupled with the previously identified high risk and low reward for submitting an effective incumbent to tender with a low probability of further cost/quality gains, negotiation can also be an option if regulators are concerned that a tendering exercise may fail due to a lack of competition. Furthermore, since a competitive tender may threaten employment continuity, an operator’s workforce generally favours negotiated contracts which can then ensure greater service stability. The Melbourne, Australia bus contracts constitute the first international case of trusting partnerships being consciously pursued over a sustained period of time—and with great success. Thredbo 10, however, identified an increased

risk of regulatory capture under a negotiated regime. It was suggested that the lack of transparency in negotiation could be circumvented with a preceding “request for a proposal” which serves as a form of market test. The idea to negotiate not only with the incumbent but also other operators was also proposed. It was also suggested that the lack of transparency in tendering (especially when the details on the losing bids were not available) was a major concern.

The Adelaide, Australia experience was summarised in a much quoted paper by Wallis, Bray, and Webster (2010: 96), which stated:

“The conclusions drawn from the [...] assessment against relevant SA [South Australia] Government objectives are that the NC [negotiated contracts] strategy is clearly preferred against the group of ‘quality’ criteria, and also on balance preferred against the group of ‘supplier market and cost’ criteria.

“These conclusions are essentially supported by the assessment against international differentiating factors [...], which concludes that the current Adelaide situation has a number of features which indicate that an NC strategy is likely to be more appropriate in this case. These two assessments together lead to the conclusion that, given the Adelaide situation at the time of the assessment, there was a strong case for adopting an NC-based strategy (with CT [competitive tendering] as the fallback) rather than CT as the primary strategy.”

Thredbo 14 offered the bold observation that competitive tendering had become “mature”. Emerging research examined more specific aspects of the tender process, such as the trade-off between bid price and disruption, and other more detailed contract design choices. There was also increasing interest in disruption costs associated with contract transitions in competitive tendering, with Hensher, Ho, and Mulley (2016) suggesting that more than half of regulators failed to consider this in their bid appraisal process. This poses the question of whether an incumbent operator should be offered some advantage in the adjudication process (like a right of first refusal?) to account for these transition costs. It is important to note that whilst debate continues on the merits of alternative procurement mechanisms (and often the most hotly contested issue in the political discourse after the form of market arbitration), neither competitive tendering nor negotiated contracts defines the management of the contract, its terms and conditions, and the ultimate relationship between the client and contractor. The need to transcend dogma is once again reiterated so as to better consider the contract specifications as discussed in [Sections 4-7](#).

4. Asset ownership

Asset ownership refers to the provision and ownership of fixed and mobile physical assets. In bus operations, questions revolve around whether the operator or regulator owns vehicles and depots. For railways, this includes the vertical separation or integration of tracks, stations, rolling stock and operations. Decisions around asset ownership have important implications for promoting competition, enhancing system integrity and incentivising operators.

4.1 *The early years*

The earliest Thredbo conferences examined ownership at the macro scale in the context of institutional reform. Thredbo 1 made some mention of alternatives to public and private ownership such as commercialisation and corporatisation. Other schemes like share ownership programs and workers' cooperatives were also discussed. Partial or total ownership by employees or their unions (similar to owner-drivers in the taxi industry) were thought to provide the greatest incentive for improving overall performance. A major conclusion, however, was that competition was the important consideration—not ownership *per se*. Early Thredbo conferences also considered it worthwhile for the regulator to own vehicles and depots and manage any major capital investment required in order to pool the bidders' risks, reduce the obstacles for entry and maximise competition in the marketplace. Were the operator to own assets, then the tender could specify buy-back clauses for a contract not renewed within the lifetime of relevant vehicles and facilities. Thredbo 4 further considered the relationship between contract duration and incentives for investments in assets.

Asset ownership in rail was a more complex issue due to the high component of infrastructure (track, stations and rolling stock) and difficulties in allocating capacity, allocating costs and determining the overall level of costs. Whilst the previous assumption was that service on rail corridors could only be provided by the owner of the railway, interest began in Thredbo 2 in the United Kingdom for multiple operators to compete over publicly-owned rail routes. Vertical separation with train operating companies leasing rolling stock from a third-party provider and paying access charges to purchase 'slots' from an infrastructure manager was presented as an innovative approach to introduce competition in the rail industry. A continuing issue throughout this era was the design of an efficient regime of access charges. In Thredbo 4, it was said that whilst vertical separation could help achieve fair competition, the main operator (with the largest market share) was most likely to benefit from quantity discounts as was occurring in Germany. The alternative to vertical separation was vertically integrated but spatially segregated franchises (e.g., between local and intercity services) which was also the American model.

4.2 *Turn of the century*

In Thredbo 7, there was continued discussion on the growing problem of market dominance, and the need to design invitations to tender in such a way as to promote competition—i.e., by minimising the sunk costs an operator would have to bear, through provision of the necessary assets via either public control or leasing from a separate private company. Bus depots, bus interchanges, rail infrastructure and rolling stock were all areas where sunk costs could be important barriers for entrants if not addressed in this way. Most notably, recent years revealed some pitfalls of competitive tendering procedures hindering and challenging the so-called 'best choice'. These concerns include the duration of contracts versus the ownership of assets at the terms of the contract, in particular with high capital intensity assets (e.g., railways). Some private financing arrangements raised the difficult problem of intergenerational equity with resources deployed early, and the private sector reimbursed later. For relatively short-lived assets such as vehicles, the repayments may extend even beyond the economic life of the asset. When public funding supports initial outlays only, the issue of intergenerational equity may then exhibit itself in a reverse form.

The role of asset ownership continued through a number of conferences with evidence drawn from various jurisdictions that if government retains ownership of buses and depots, which are offered to operators on a lease basis (such as in Adelaide and Perth), the government can then have greater control of the planning of the network (as well as reduce the risk of service disruption if an operator fails to deliver) and use contracted operators under management contracts (tendered or negotiated) to ensure delivery of the agreed levels of service. By taking away the obligation for asset ownership, it has also been assumed that this will result in more bidders and hence a better price achieved in the contracting of a service supplier. The debate on whether assets are owned by the principle or the agent continues to this day (driven often by government views on ensuring continuity of service which many believe to be a rather weak proposition); however, some argue forcefully that ownership matters, with rights of ownership of an asset defined as the rights to use the asset, the right to appropriate returns from the asset, and the right to change the form and/or substance of an asset. This argument is aligned with theories around incentives which is central to efficient contracts and property rights.

One associated position relates to obligations on asset transfer under failed contracts. Specifically, assets are regarded in some settings as essential equipment (e.g., existing rolling stock); and hence there are obligations to pass these assets onto either a new operator who subsequently wins a tender or franchise or an operator brought in as part of a transition to ensure service continuity until a new operator is awarded the contract.

4.3 *Recent developments*

Recently, Thredbo has considered new forms of asset ownership in the contracted public transport sector. Thredbo 13 noted that a regulator owning assets and leasing them to operators can promote standardisation and greater attention to life cycle costs. There was the recognition, however, that the private sector could fulfil such role more effectively and also better promote innovation. This formed the basis for a new middle ground where the regulator owned some depots/vehicles, with the operator owning others hence promoting innovation at the margin. In the rail sector, Thredbo 10 research showed that when one operator ran on a number of infrastructure providers, an access charge reduction from one infrastructure manager towards optimal marginal cost would immediately be cancelled out by another in the form of a price rise to capture the benefit. The conclusion here is that two monopolies are worse than one. In another nod to the idea of regulatory cycles, Thredbo 11 called for vertical integration in cases of little sharing of infrastructure, in order to save transaction costs (another focus of tendering).

5. Contract design

Contract design for the supply of transport services includes the structure and content of contracts—for instance the specification of key performance indicators and contract delineation (size, duration, extension, etc.). The merits of contract completeness is also considered here but the allocation of risks are presented in [Section 6](#).

5.1 *The early years*

During the early Thredbo years, a number of best practices (many contradictory) in contract design were suggested, though this was generally based around expert opinion rather than any empirical evidence.

The first design consideration was around contract size or the extent of bundled services within a single unit. The argument was that bus tender sizes should be small, as smaller businesses had lower cost structures, and that there were virtually no economies of scale for operators with multiple operating facilities (depots). The rule of thumb from Thredbo 1 was that contracts should involve no more than 25 vehicles, though rarely this can include as many as 75 vehicles (Glaister & Cox, 1991: 150). There was a huge disparity here, however, with Thredbo 2, which called for an optimal scale of 300-500 buses (Lee & Faller, 1992: 218). Another study on the impact of firm size on unit operating costs found neither significant economies nor diseconomies of scale. Finally, area-based contracts were preferred over route-based offerings.

In terms of contract length, this was recognised as a compromise between stability (and administrative convenience) and maximising competition. There was more consistency in this aspect with various workshops calling for a maximum five-year bus contract followed by two by one year renewals. Contract prices ought to be indexed, but at a lower rate than inflation (e.g., at 75 percent of Consumer Price Index), because public transport exhibited lower cost increases than the rest of the economy in general. Finally, it was recommended that labour arrangements not be specified as this would distort economic outcomes. A key observation from the early years was that competitive tendering assumed that an optimum had already been identified prior to contract commencement, but may need to be flexible to meet the customer's actual needs and to reflect the changing economic context—feeding into the start of debate on contract completeness.

5.2 *Turn of the century*

The turn of the century brought about a new era in contract design specification. Thredbo 5 suggested avoiding excessive specifications of monitoring criteria (with links here to trusting partnerships). At the same time, as part of the shift in focus from cost-minimisation to user requirements, and the consideration of broader issues as part of wider economic benefits, the conference called for new metrics on environmental quality and social obligations (though difficult to define and measure) as part of a new era of “green competitive tenders”. For railway contracts, there was interest in value capture opportunities with the link to land use thought to be able to reduce the growing subsidies for rail operations. The incentives in these cases for compliance may include longer contract periods, a greater share of revenue or quality partnership support.

Whilst the previous focus had been on the policy perspective, Thredbo 7 and subsequent conferences considered contract technical matters in far more detail. Following on from the STO framework, there was a focus on the appropriate allocation of service design responsibilities (the tactical level) between the operator and regulator. Thredbo 8 covered predatory bidding, the need to secure and maintain competitive environment (including attracting bidders). Thredbo 9 turned to the details of contracts and partnership design and how such contracts are implemented in real settings, with a particular focus on constructs such as minimum service levels, incentive payment schemes, risk sharing, asset ownership, transaction costs, the optimal size of contract areas, monitoring processes, sanctions and rewards, and who should design service levels (the operator and/or regulator).

In terms of contract delineation, the optimal length suggested ranged from 5 to 14 years. Some commentators favoured area-based contracts which were deemed to better able to increase patronage

and allow the operator to be more entrepreneurial, and were more suitable for longer contract durations. Others preferred route-based contracts which would inject greater competition and were considered less likely to converge into a private monopoly. These were more appropriate for shorter contract durations.

Thredbo 10 introduced a panel session on the “ideal contract” which ran for three successive conferences, with the overall view that there were many ways to define a contract, and the pedestal of an ideal contract never achievable. The important message which emerged was the need to understand the conditions which brought merit to certain elements of contracts. Five critical characteristics were proposed. The (i) first issue was in operationalising the goals—it has always been difficult to make long-term commitments to support government if they fail to articulate their goals, or if there is a disconnect between their stated goals and budget. The (ii) second issue concerned trust and respect—it has never been possible for a contract to work without trust, but this is difficult to place within a model because trust is inevitably personality-based. On either side, untrustworthy people cannot participate in an effective contract. The (iii) third issue identified was that a good contract allowed the operator to sit at the table. The ideas of operators ought to be heard and respected; optimal outcomes can be impeded when they are pushed to the margins and their understanding of the market, staff and operational realities ignored. The (iv) fourth issue raised was contract duration. An ideal contract is long-term, as this gives the operator the opportunity to build a distinctive culture—a key characteristic of a good transport operator. Some period of time is also required for business investment in training staff and building facilities. The (v) final issue about ideal contracts related to renewal. From Thredbo 1, there has been support (to varying degrees) in competitive tendering. However, the value in the more recent concept of trusting partnerships comes to the fore as contracts expire. There needs to be a mechanism that does not sacrifice an effective working partnership on the altar of ideological purity. Where a contractual relationship is effective, there are great risks that a tender process may result in a marginally cheaper but dysfunctional contract.

5.3 *Recent developments*

Like competitive tendering, contracting became “mature” in the recent developments era of Thredbo, with research entering into some very sophisticated areas of work. Thredbo 10 argued the need to transition better from a transactional procurement relationship to a more cooperative operational stage. It presented new issues in terms of the relational character of contracts, the role of incentives, service stability in contract transitions and end of contract arrangements. Strategic issues were discussed around transaction costs, property rights, incomplete contracts, asymmetric information, tangible and intangible asset ownership and control, as well as implications on the reform of service levels. Thredbo looked to the future of public transport contracts—beyond contracting—and explored how the issues of land use, well-being and wider economic benefits could be embedded within the design of contract specifications.

The thinking in this era continued to be guided by the STO framework—particularly the tactical interface which represents the mutual relationship between a regulator and operator, as defined by contracts. The five most important factors in contract design were considered to be its objectives, the tender assessment, allocation of risks ([Section 6](#)), financial viability and dispute management. The tactical level remained “in flux”, with the tactical level in some jurisdictions more centrally planned due to a (perceived) lack of innovation by operators, whilst in other places, operators enjoyed greater tactical freedom. The changing European Union regulatory framework further illustrated this state of tactical level flux, in terms of how best to allocate tactical responsibilities between the operator and regulator.

Stanley and Longva (2010) offered an informative framework indicating where the tactical role should sit depending on four different scenarios (Table 1). The bottom right corner is most high risk (operator has good scope to grow patronage *and* regulator prepared to spend to develop service) due to the difficulties in forecasting patronage associated with major service development. Contained herein are references to risk allocation further explored in [Section 6.3](#) and Table 2.

Table 1: Organising the tactical environment, adapted from Stanley and Longva (2010: 82)

Context	Operator has little scope to grow patronage	Operator has good scope to grow patronage
Regulator not prepared to spend to develop service	<i>Tactical role with regulator, gross cost contract with incentive (patronage and operational performance)</i>	<i>Tactical role with operator, super-incentive contract</i>
Regulator prepared to spend to develop service	<i>Tactical role with regulator, gross cost contract with incentive (patronage, operational and qualitative performance)</i>	<i>Tactical role with operator, revenue/patronage incentive-based contract (high risk environment)</i>

Closely coupled with fostering an effective tactical interface is the issue of trust, which forms the basis for relational contracting. Thredbo 10 recognised that contracts could sometimes be highly prescriptive, with regulators adopting cautious, legalistic interpretations which bred a culture of mistrust (a poor basis for business). Thredbo 11 suggested inviting potential operators together in a competitive dialogue to participate in the formation of contract requirements. Relational contracting is more concerned with the contracting process as opposed to complete contracts. There are a number of important reasons for this: firstly, it is not possible to fully specify contractual obligations (with trusting partnerships the preferred approach) although there always remains an arm’s length commercial and legal contracting obligation regardless of what procurement model is adopted; secondly, overly detailed key performance indicators may distract operators from achieving high level goals; and finally, with trust comes a lesser need for detailed specifications in lengthy contracts and a lesser need to take precautions against unexpected actions and lawsuits.

In the long run, contracts are inevitably incomplete due to unforeseen circumstances. It is therefore better to build flexibility into the contracting process so as to facilitate service evolution and adaptation. Contracts ought not be prescriptive but rather ensure a fair commercial outcome. There has been great interest, particularly in Thredbo 13, on how to make flexible contracts work, where their focus is on objectives/targets/processes rather than on heavily specified services. There remains the issue, however, of how incomplete contracts can be exploited with strategic games played by bidders. Low-balling, as an example, describes a case where an operator bids for a subsidy which is too low (thus winning the tender) with the expectation that it can be renegotiated later. This will weaken cost control and lead to serious market failure. Thredbo suggests that regulators never renegotiate for simple gross-cost management contracts. The impetus to renegotiate can be reduced by requiring the bidder to post a surety which is surrendered in the event of contract renegotiation initiated by the franchisee.

In terms of contract delineation, there was limited new work on the optimal size of contracts in terms of the number of vehicles. The latest best practice for contract length has, however, been proposed to be (Nash & Wolański, 2010):

- 25 years for rail infrastructure upgrade and operation
- 10-15 years for rail infrastructure maintenance and operation (vertically integrated)
- 8-12 years for railway operation (vertically separated)
- 8 years for buses (with use of second-hand bus fleets this can be as short as 2-3 years)

6. Risk allocation

Risk allocation is a component of contract design and determines how production (cost) and revenue (patronage) risks are allocated between the operator and regulator. Net and gross cost contracts refer to the allocation of fare revenue and (despite being common terminology) represent a singular dimension for how risks may be allocated.

6.1 *The early years*

With contract design still in their infancy, the initial Thredbo conferences only recognised two forms of risk allocation—both with respect to fare revenue. These were gross cost (or cost-only) contracts which allocated fare revenue to the regulator as done in London, and net cost (also known as bottom line or minimum subsidy) contracts where the operator kept (all or a proportion of) the fare revenue, as was implemented outside London. Thredbo 1 made a strong case for gross cost over net cost contracts but this preference was less clear by Thredbo 3, which showed New Zealand favouring the net cost model. The introduction of incentives in contracts from Thredbo 4 blurred the gross/net cost dichotomy and introduced far more complex regimes with the shared distribution of risk (both production and revenue). The desire was to create incentives in contracts which could be self-enforcing, as whilst reasonable penalties ensured consistent service, excessive penalties could increase bid costs.

6.2 *Turn of the century*

During the turn of the century, more clarity emerged regarding the relationship between various contract attributes. Thredbo 5 suggested that net cost was better for area-based contracts (where an operator had greater control over a network and hence patronage on a particular route), whilst gross-cost was preferred for route-based contracts (as implemented in London). Thredbo 7 explored service or patronage incentives which were beginning to be considered in a number of countries/regions, especially in Scandinavia and Australia.

6.3 *Recent developments*

In line with the broader Thredbo focus on user requirements, as well as land use, well-being and wider economic benefits, Thredbo 10 moved away from the typical *micro* focus in terms of whether an operator or regulator could better manage risks. Rather, the conference took a broader view—a *macro* focus to encompass community risks and rewards in terms of the operator/regulator relationship delivering the strategic goals. Whilst the theoretical basis for this was laudable, it was unclear how this could be operationalised in terms of contract specifications.

The traditional dichotomy between gross and net cost contracts was too binary and unhelpful in describing various contracting models as risk became increasingly shared between the operator and regulator. Research suggests that the relationship between risk sharing and operator initiative was also not linear. Evidence from Adelaide, Australia in various rounds of tenders showed that operators were more innovative when allocated 25 percent of patronage risk as opposed to 50 percent of the risk (it can be assumed that at 0 percent patronage risk they would do nothing). The operators were more risk averse at 50 percent patronage risk, as they would have more to lose with any failed venture than at the 25 percent level. The lesson here is that whilst risks ought to be allocated to the party most able to manage them, a greater share of risk does not necessarily lead to a better outcome. Stanley and van de Velde (2008) provides an excellent summary of different contract types based on revenue and production risk allocated between the regulator and operator (Table 2). Refer to Table 1 for how these risk allocation models relate to various tactical environments of service provision.

Table 2: Various cost/revenue sharing contractual arrangements, adapted from Stanley and van de Velde (2008: 24)

		Revenue risk borne by...		
		Regulator	(Shared)	Operator
Production risk borne by...	Regulator	Management contract		
	(Shared)	Gross cost contract with shared production cost risk		
	Operator	Gross cost contract	Gross cost contract with patronage incentive	Net cost contract
			Net cost contract with shared revenue risk	Super-incentive contract

7. Contract management

Contract management specifies the performance management regime and incentivisation programs in place for an operator during the contract period.

7.1 The early years

The first Thredbo conference offered scant treatment on contract management, with only the suggestion of performance bonds (equal to three months' value of the contract) to insure against non-performance. It was only with Thredbo 2 and beyond that an emerging interest in performance management and monitoring developed. Performance management was required to select an operator, evaluate its performance and administer the renewal (or otherwise) for subsequent rounds of tender. A need was also demonstrated to move from univariate measures like cost efficiency and service effectiveness to total factor productivity. This view was more advanced in academia (theory) than in industry (practice).

7.2 *Turn of the century*

Contract management only became a major focus for Thredbo during the turn of the century era. In Thredbo 5, the Service Quality Index emerged as a performance management tool and service quality measure. In line with trusting (and perhaps also quality) partnerships premised on a symbiotic relationship between the operator and regulator, a new view held that not only should the regulator penalise the operator for non-performance, but the regulatory should also pay the operator for failing to deliver its part of the bargain (e.g., delivering bus priority where agreed).

7.3 *Recent developments*

In recent years, contract management (linked to performance, renewal or otherwise) has emerged to become a far greater topic that it was once given credit for. Thredbo 10 guided key performance indicator development with the acronym SMART—Specific, Measurable, Achievable, the Responsibility of the party being assessed, and Timely (Stanley & Longva, 2010). In Thredbo 12, the most important (family of) indicators were deemed to be cost efficiency, service quality and safety/security. A distinction was made subsequently between *task* related indicators such as on-time running and *service* related indicators like customer satisfaction. The latter was far harder to measure both statically and to draw temporal (and spatial) comparisons as it was based on expectations versus reality, with customers' old average emerging to become the new minimum standard. The issue of dependencies between key performance indicators was also raised—a prominent example being an operator improving punctuality by increasing running times (adding more slack into the schedule), which in turn reduced operational speed. Another trade-off more relevant for rail was between service delivery and on-time running, as operators improved punctuality by skipping stations, or through unscheduled short works and head offs (raising the issue of how the service delivery metric is defined). If several alternatives were available to formulate an indicator, then the passenger perspective was recommended—an example being measuring headway regularity rather than punctuality on frequent corridors.

There were multiple mentions of the role of technology in supporting performance measurement and the management of contracts. Ironically, however, whilst the internet of things is offering increasing real time access to management information, there is a move towards less complex, more transparent performance measures to improve the clarity of contracts without sacrificing minimum service requirements. The management of penalties was also thought to be better administered by an external regulatory body than by the public authority involved in the tactical planning, thereby helping maintain a trusting partnership. Finally, Thredbo 10 turned to necessary actions when a franchisee fails or withdraws. This is a major issue if market exit is too easy—hefty penalties ought to be in place including the surrender of any performance bond and the potential disqualification from future tenders. An operator of last resort who can immediately take over operations was also recommended.

8. Looking to the future: The next 30 years

Thredbo's journey over the past 30 years *is* the journey of land passenger transport reform in the modern era. As governments around the world joined the reform bandwagon, Thredbo has been there each step of the way documenting their experiences and disseminating best practice across both developed and developing economies. This review on developments in public transport institutional reform, contract

design and implementation showcased how the conversation and state of the art has evolved in terms of market arbitration, procurement mechanism, asset ownership, contract design, risk allocation and contract management. The three eras of thinking reflect changing government and community expectations on institutional performance. This is overlaid by the Thredbo cornerstones including the STO (strategic/tactical/operational) framework, regulatory cycles in the bus and rail sectors, as well as trusting partnerships between transport regulators and operators. Figure 1 offers a diagrammatic representation of these developments overlaid upon the three eras of Thredbo.

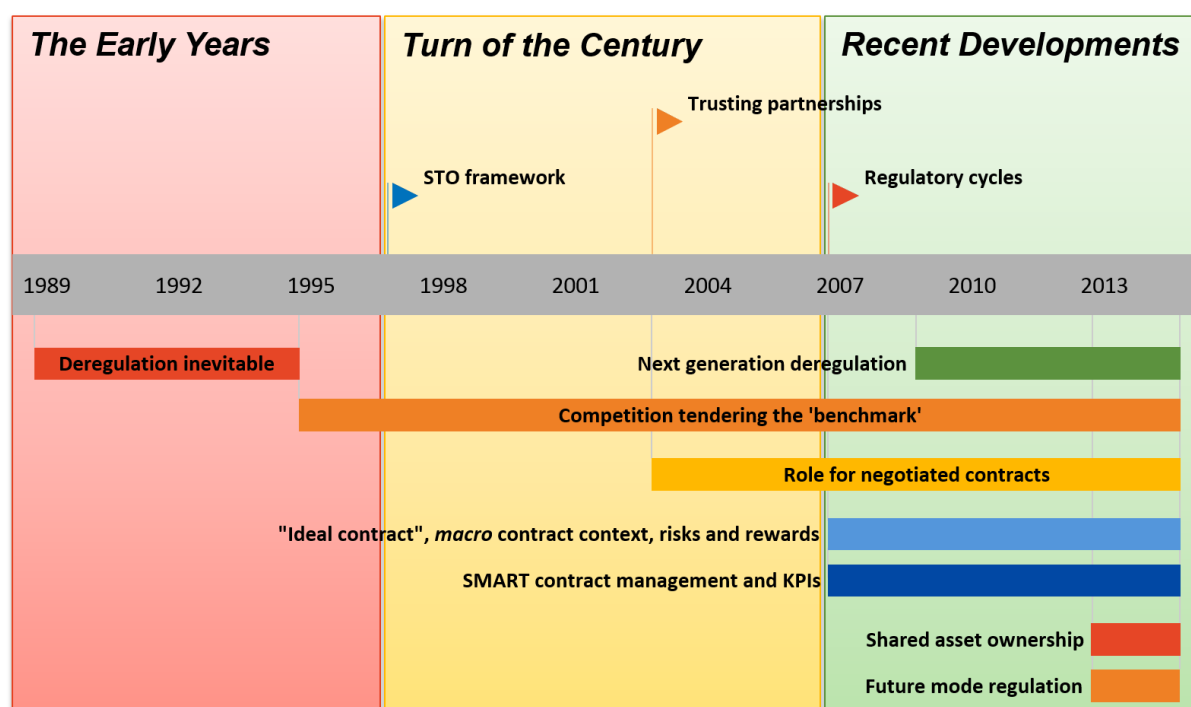


Figure 1: Thredbo cornerstones and development of major ideas over the Thredbo conference period

Thredbo’s success in being hailed as the world’s premier conference on competition and ownership is not a happy accident. Thredbo brings academics, consultants, politicians, regulators and operators together in close quarters in a way no other scientific transportation conference does, such that theory can genuinely inform practice and practice can drive theory. The workshop format is an innovative (yet controversial) concept which allows ideas to incubate in intense sessions within small groups of participants. Workshop themes are constantly refreshed and reflect the latest (often pioneering) developments in the land passenger transport sector. Thredbo 15 welcomes its first ever workshop on transportation futures with a focus on the “uberisation of public transport and mobility as a service”, reflecting the immense interest in new transport technologies, business models and future of public transport contracts in this digital era (Hensher, 2017).

Thredbo—being just 30 years young—has truly transcended beyond the sphere of any particular individual or personality. The conference series is on a sustainable footing and will live long to influence a transport paradigm we may not yet recognise. Looking to the next 30 years, we envisage a number of issues (roughly in this order) which will emerge to become key Thredbo contributions:

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- **Multi-modal contracts**—There is a move across government to enlarge contract regions and include complementary modes to enhance system integration and the customer experience. The recent multi-modal offering in Newcastle, Australia bringing together buses, ferries and light rail is a national first and a case in point. The private sector may form joint ventures to compete for these larger contract offerings.
- **Access contracts**—Railway (and perhaps also bus rapid transit) operators are looking at expanding their service offering to cover the first/last mile to/from stations, whether this be in the form of fixed route buses, flexible bus services (microtransit), carsharing or cycle hire. The implications of this on existing public transport demand and public transport contracts remain unclear.
- **Next generation deregulation**—Public transport contracts are shifting from their output-based form (delivering kilometres on defined modes) to outcome-based models which seek to deliver accessibility using any mode, maximising for network efficiency. There are opportunities to combine elements of competitive tendering and economic deregulation to create the next generation service delivery model.
- **Intermediate mode regulation**—Ridesourcing and microtransit provided by transportation network companies (and to a lesser extent cycle hire and carsharing) have had to battle outdated regulation to become mainstream. Opportunities exist for a more streamlined approach based on a common platform and incentive payments to better integrate intermediate modes with other modes (e.g., public transport).
- **Autonomous vehicle regulation**—The ownership model for autonomous vehicles will determine its implications for productivity, traffic congestion, road capacity and the urban form. Regulations and incentives can help pool vehicles and move the community towards shared mobility. Pricing signals can help discourage autonomous zero occupancy deadheading—the influx of which will clog cities.
- **Mobility as a service contracts**— A personalised, one-stop travel management platform digitally unifying trip creation, purchase and delivery across all modes can help move people away from vehicle ownership towards mobility consumed as a service. Mode-agnostic, mobility contracts offered by brokers/aggregators¹¹ of the system to suppliers of transport assets/capacity can help deliver such service. There will also be the opportunity to implement road pricing (revisiting the 1960s topic which also became prominent in Thredbo’s early years) defined by time of day, geography and modal efficiency within this system to help optimise for network efficiency (Wong, Hensher, & Mulley, 2017)—including, for instance, preventing an influx of point-to-point transportation.
- **Urban aviation regulation**—Uber and Airbus are working on autonomous vertical take-off and landing aircraft with the view of using them for urban point-to-point transport. Regulations will be required surrounding new safety challenges as well as to minimise externalities on the

¹¹ These may include existing transport operators and forward-thinking non-mobility providers (e.g., technology start-ups, banks, property developers) working in partnership to exploit this new business opportunity.

urban realm (perhaps only permitting flight above existing roads below a certain altitude). The conference title may also need updating to reflect this focus on the third dimension.

Regardless of how the future emerges, we are confident that Thredbo will be part and parcel of any such development. From humble beginnings, Thredbo has built up an enduring legacy, and this history will only get richer with time. The world will continue to have its eyes out to new developments in public transport institutional reform, contract design and implementation as they emerge through Thredbo—the International Conference Series on Competition and Ownership in Land Passenger Transport.

References

- Bray, D., Hensher, D. A., & Wong, Y. Z. (2017). *Thredbo at thirty: Review of papers and reflections*. Paper presented at the 15th International Conference on Competition and Ownership in Land Passenger Transport (Thredbo 15), Stockholm, Sweden.
- Cox, W., & Mannisenmäki, E. (1992). Report for Workshop 1: Experience with competitive tendering. In A. Talvitie, D. A. Hensher, & M. E. Beesley (Eds.), *Privatization and Deregulation in Passenger Transportation: Selected Proceedings of The 2nd International Conference, Tampere, Finland* (pp. 77-86).
- Cox, W., & van de Velde, D. (1998). Franchising and tendering: Workshop 3. In *Competition and Ownership in Land Passenger Transport: The Fifth International Conference. Transport Reviews*, 18(4), 334-336. doi:10.1080/01441649808717022
- Gargett, A., & Wallis, I. (1995). *Quasi-commercial bus service contracts in South Australia*. Paper presented at the 4th International Conference on Competition and Ownership in Land Passenger Transport (Thredbo 4), Rotorua, New Zealand.
- Glaister, S., & Beesley, M. E. (1991). Bidding for tendered bus routes in London. *Transportation, Planning and Technology*, 15(2-4), 349-366. doi:10.1080/03081069108717463
- Glaister, S., & Cox, W. (1991). The bidding process. *Transportation, Planning and Technology*, 15(2-4), 145-152. doi:10.1080/03081069108717449
- Gwilliam, K. (2008). Bus transport: Is there a regulatory cycle? *Transportation Research Part A: Policy and Practice*, 42(9), 1183-1194. doi:10.1016/j.tra.2008.05.001
- Hensher, D. A. (2014). Keeping the debate informed on reforms in land passenger transport: The influence of the Thredbo Series. *Transport Reviews*, 34(6), 671-673. doi:10.1080/01441647.2014.987472
- Hensher, D. A. (2015). Cost efficiency under negotiated performance-based contracts and benchmarking: Are there gains through competitive tendering in the absence of an incumbent public monopolist? *Journal of Transport Economics and Policy*, 49(1), 133-148.
- Hensher, D. A. (2017). Future bus transport contracts under a mobility as a service (MaaS) regime in the digital age: Are they likely to change? *Transportation Research Part A: Policy and Practice*, 98, 86-96. doi:10.1016/j.tra.2017.02.006
- Hensher, D. A. (2018). Public service contracts—The economics of reform with special reference to the bus sector. In S. Ison & J. Cowie (Eds.), *Handbook of the Principles of Transport Economics*. United Kingdom: Routledge.
- Hensher, D. A., Battellino, H. C., & Beesley, M. E. (1991). Competition and ownership of public transit services: Introduction. *Transportation, Planning and Technology*, 15(2-4), 85-93. doi:10.1080/03081069108717443
- Hensher, D. A., Ho, C., & Mulley, C. (2016). Disruption costs in bus contract transitions. *Research in Transportation Economics*, 59, 75-85. doi:10.1016/j.retrec.2016.04.002
- Hensher, D. A., & Potter, S. (1998). Competition, ownership and wider transport policy issues: Workshop 5. In *Competition and Ownership in Land Passenger Transport: The Fifth*

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- International Conference. *Transport Reviews*, 18(4), 342-347.
doi:10.1080/01441649808717022
- Hills, P. J., & Talley, W. (1991). Experiences from different countries. *Transportation Planning and Technology*, 15(2-4), 125-133. doi:10.1080/03081069108717447
- Lee, D., & Faller, P. (1992). Report for Workshop 4: Management, institutional structures, the transportation planning process and the future of passenger transport. In A. Talvitie, D. A. Hensher, & M. E. Beesley (Eds.), *Privatization and Deregulation in Passenger Transportation: Selected Proceedings of The 2nd International Conference, Tampere, Finland* (pp. 215-218).
- Nash, C., & Wolański, M. (2010). Workshop report—Benchmarking the outcome of competitive tendering. *Research in Transportation Economics*, 29(1), 6-10.
doi:10.1016/j.retrec.2010.07.003
- Preston, J. (2005). *The road to Rio: A brief history of the International Conferences on Competition and Ownership in Land Passenger Transport*. Paper presented at the 8th International Conference on Competition and Ownership in Land Passenger Transport (Thredbo 8), Rio de Janeiro, Brazil.
- Preston, J., & Nash, C. (1997). *From Down Under to Oop North: The past, present and the future of the International Conferences on Competition and Ownership in Land Passenger Transport*. Paper presented at the 5th International Conference on Competition and Ownership in Land Passenger Transport (Thredbo 5), Leeds, United Kingdom.
- Stanley, J., & Longva, F. (2010). Workshop report—A successful contractual setting. *Research in Transportation Economics*, 29(1), 80-88. doi:10.1016/j.retrec.2010.07.011
- Stanley, J., & van de Velde, D. (2008). Risk and reward in public transport contracting. *Research in Transportation Economics*, 22(1), 20-25. doi:10.1016/j.retrec.2008.05.006
- Van de Velde, D. (1997). *Entrepreneurship and tendering in local public transport services*. Paper presented at the 5th International Conference on Competition and Ownership in Land Passenger Transport (Thredbo 5), Leeds, United Kingdom.
- van de Velde, D., & Augustin, K. (2014). Workshop 4 report: Governance, ownership and competition in deregulated public transport markets. *Research in Transportation Economics*, 48, 237-244.
doi:10.1016/j.retrec.2014.09.050
- van de Velde, D., & Preston, J. (2013). Workshop 3B: Governance, ownership and competition issues in deregulated (free market) public transport: Lessons that can be learnt from developed and developing economies. *Research in Transportation Economics*, 39(1), 202-207.
doi:10.1016/j.retrec.2012.06.014
- Wallis, I., Bray, D., & Webster, H. (2010). To competitively tender or to negotiate—Weighing up the choices in a mature market. *Research in Transportation Economics*, 29(1), 89-98.
doi:10.1016/j.retrec.2010.07.012
- Walters, J. (2000). Conference introduction. In *Competition and Ownership in Land Passenger Transport: The Sixth International Conference, Cape Town, South Africa, September 1999—Part 1*. *Transport Reviews*, 20(3), 317-322. doi:10.1080/014416400412832
- Wong, Y. Z., Hensher, D. A., & Mulley, C. (2017). *Emerging transport technologies and the modal efficiency framework: A case for mobility as a service (MaaS)*. Paper presented at the 15th International Conference on Competition and Ownership in Land Passenger Transport (Thredbo 15), Stockholm, Sweden.
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