

Contracting out services with long lived assets - who manages the assets.

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Abstract

Maintenance and operations contracts in the water industry include varying degrees of asset management. There are opportunities and risks in the transfer of this responsibility. There is a growing pool of supplier expertise in this field. Taking the opportunities requires managing the risks. Contractual tools are available for some risks, but are they proven and are they worth the cost? Is provider capture an issue or can smooth transitions between providers be achieved? With owner funded capital, if contractors are given asset renewal decisions are owners potentially funding unnecessary works to reduce operational and maintenance costs with benefit only to the contractor?

Introduction

Some business operations have very substantial asset bases in relation to their turnover. The water industry is one.

The historical reasons for this relate to there being in part poor investment disciplines, perceptions of very low risk, donated assets which came with an implicit requirement that their equity was free and modes of operation which did not consider any objectives other than service.

The contrast can be seen in a couple of comparisons.

Business	Asset value	Turnover	Ratio assets / turnover
Fonterra	9378M	11830M	79%
Telecom	7755M	5191M	149%
Watercare Services	1587M	166M	956%
North Shore City water and sewerage operations	666M	52M	1288%

What we see with the two water undertakings is a vast difference from two other organisations we might regard as asset intensive. Part of the explanation is that the water assets have a long lifetime. In Auckland for example the cast iron rising main from the Western Springs pump station is still in service as a distribution main 128 years later. There are not many undertakings which if they took an

asset out of service would find it immediately classed as an archaeological site by the Historic Places Trust legislation.

Aside from that what are the implications of these extraordinary ratios? If an asset of Fonterra was unexpectedly redundant through some change in the market or of food regulation they would be well buffered by their substantial income in relation to any capital loss. Are water undertakings so risk free they can operate with so little apparent ability to respond to shocks?

They are of course not risk free. The risks are low but the shocks if they come can be taken up, because they are monopolies and because in what ever form they operate there is a guarantee implied from public ownership. Hence there is an ultimate guarantee. This guarantee works for risks but it also works for poor investments and poor operation.

A common mode of operation now is for maintenance work to be contracted out and some, if not all of the operation. Commonly the contracts incorporate some sort of goal alignment system that seeks to reward the contractor through performance using key performance indicators. Often there is some element of asset management included in these contracts but only some – the planning core of asset management is retained by the Council.

Many of the contractors now working in this field offer themselves as being available for facilities management. However some of the contracts they are currently working to offer little more than body hire. There is little prospect of the water industry gaining efficiencies of scale by amalgamation of service areas. The greatest opportunity there is in the emergence of a competitive market for facilities management with providers who have skills they can offer in assisting with asset management. That involves getting well away from the body hire syndrome that contracting out has started with.

What I want to work through here are some typical asset management issues and decisions and consider where the opportunities arise for greater involvement by the contractor.

The territory I am working in is shown diagrammatically below.

Form of operation	Features		
Conventional	Principal owns assets, bills customers	Principal operates and maintains assets	Council funds new assets
Outsourced 1	Principal owns assets, bills customers	Council contracts out maintenance undertakes operation	
Outsourced 2	Principal owns assets, bills customers	Council contracts out operations and maintenance	

Outsourced 3	Principal owns assets, bills customers	Council contracts out operations and maintenance	Contractor funds new assets and transfers
Franchise 1	Council owns present assets, plans capex		Council funds new capex
Franchise 2	Council owns present assets, plans capex	Franchisee bills customers, operates and maintains	Franchisee funds new capital works and transfers at end
Franchise 3	Council owns present assets		Franchisee plans capex, funds and transfers at end
JV between council and private party ¹	Council owns present assets	JV operates and maintains	JV plans and undertake capex, council funds
Corporatisation	Council owns shares in CCO	CCO owns assets, bills customers, makes own choices about operations / maintenance/ funding assets	
Privatisation	(Council may regulate)	Business owns assets, bills customers, makes own choices about operations / maintenance/ funding assets	

It is outsourcing and flavours on that that I will be considering primarily. I will be returning to separate out-sourcing of asset management services, but it is a secondary focus in this paper.

GIS / Asset Management Systems

Making a lot of assets work best in a low cashflow environment is the trick faced by many water undertakings. Many are investing in Geographic Information Systems and asset management systems with interfaces to call centres so the asset service information is recorded. These systems are expensive and the trick with them is to ensure that cost is not being added faster than value. Smart provision of these services is a key part of overall facilities management.

With the franchise models lower in the table above, the provision of these systems lies with the service provider. With out sourced models it is more commonly with the council, but not always.

Councils usually have substantial other assets beside water infrastructure, requiring application of asset management systems. They always have an interest in GIS beyond its utility service recording capabilities. They have wider customer management interests. Hence there is a natural tendency to have these systems in-house with the council. There are risks with provision by the operations and maintenance contractor.

¹ There are other flavours of this possible not followed up here.

The provision by the contractor of the software systems and their population with data will happen if they are specified and adequately rewarded. A contractor may invest in these systems of their own volition if there is adequate time to make a return on them. Hence expecting a major contractor investment in them and ownership of them for the contractors benefit must require the contractor having a long term interest in them. This implies a long contract term, but that is not necessarily so. A contractor interested in maintaining competitiveness across an industry will be prepared to invest in systems with a long term advantage in serving that industry, beyond their application in any immediate contract. Industry standard systems will emerge. The trick with this approach is not to have the systems selection captured by the service providers. In the water industry the Hansen system is a strong indication that the owners have considerable power in this area.

Risk to Principal	Management of the risk
Loss of data on abandonment of contract	Transfer of back-ups to the principal, council data warehouse use as a requirement.
Low interest in data integrity late in the term	Step up oversight in the late stages.
Systems become idiosyncratic to the contractor	Open specification requirement
Skill loss in these systems	Standard systems where there is a market place for providers.
No reinvestment in the systems late in the term	Ownership by the council, or industry standard systems that the contractor can carry elsewhere.

While council provision and operation of GIS and asset management systems is the norm I would argue that operations and maintenance contractor provision is an alternative. I expect though in most cases the pull of “whole of council” standard systems will be enough to overcome that.

I do strongly advocate that the contractor has a live role in maintain the data in these systems even where basic provision is by the council:

- to correct data on existing assets found to be erroneous in the field
- to be able to see asset serviceability information so the contractor’s decisions are informed by that
- to update information as part of repair / renewal job closure

Such access needs to be designed as part of the system so the contractor has the skills on the completion of the contract initiation and the ability to add and amend the appropriate data.

I want to work through some areas of asset operations to consider the potential role of the contractor.

“What to do next”

The scenario here is a contractor who has responded to a job be it reactive or programmed and discovered a problem. A lot of contracts will not have the contractor remedying the effects of the fault on their own initiative but having to seek direction from the principal as to what to do next.

This is often wasteful. The crew that investigated the problem often have to get gear on site to investigate the problem, will have to have established traffic control and already know where the conflicting services are. Going back later to do what is decided to be done will often involve going back again another day. The travel cost is wasted and the first establishment on site is wasted.

This sort of detailed control arises out of command and control styles of contractual relationships. They are common from organisations which have had a regulatory role – like councils – where coercive styles of relationship management have prevailed in the past.

The alternative is to give the contractor discretion to make decisions.

This can be a qualified discretion, limiting the size of commitments, or having some other rules around them. The best way to develop the limits of the discretion is to do it co-operatively. The contractor will know best where the opportunities for efficiency will arise through having the freedom to decide. The rules over discretion can be fine tuned with no consequence to the contract. They could well be something that is subject to a regular review undertaken jointly by the parties.

What are the risks with this? I believe they are quite slight.

Risk to Principal	Management of the risk
Unlimited commitment	Period budgets, \$ limit to discretion in individual cases.
Poor decisions in terms of asset lives	Audit of a percentage, periodic review between the parties
Manipulation to maximise contractors profit	Structure the contract so the <i>what to do next</i> decisions are profit neutral
Service objective lost	Ensure service performance has separate reward

These are the sorts of issues that should be worked through in a workshop situation in the relationship forming stage of a contract.

“Make or Buy”

In some situations there is a choice of using the contractors’ resources to overcome some problem or using an external resource.

An example might be a legacy pump which requires a new impeller. The choices are to make a replacement from scratch or buy a new pump of a new model, with the future maintenance consequences involved in that. Another example might be hiring a high capacity sewer pipe cleaner rather than using the contractor’s low capacity one.

The two examples offered here are somewhat different as the first – the pump decision has some long term consequences. The second will normally be in the realm of the contractor’s discretion. However one notes council’s reporting frustration at the work method decisions made by the contractor. There is often the suspicion there is a bias towards using the contractor’s on-hand resources over the most efficient ones, i.e. of provider capture. There is then a tendency to want to exert command and control over these sorts of make or buy decisions.

Yet the contractor must have an experience knowledge base to input to these situations. I believe the answer again is to allow some discretion but put qualifications around it.

Risk to Principal	Management of the risk
Piecemeal expansion of the inventory range	Have defined lists of standard inventory (pipe sizes, materials etc)
Poor decisions in terms of asset lives	Audit of a percentage, periodic review between the parties
Manipulation to maximise contractor’s profit	Structure the contract so the <i>make or buy</i> decisions are profit neutral
Service objective lost	Ensure service performance has separate reward
Fossilisation into archaic technology	Review the standard inventory regularly, involving the contractor. Incentive to the contractor for improvements.

This seems overly defensive. It is important that the contractor has an incentive to look for new methods and technology. Some contracts will be structured so the gains from these are captured by the contractor. In other cases the gains may go to the principal.

Where the contractor introduces new methods or materials and there is no direct benefit some form of gain share may be appropriate. The benefit may be a whole of life one rather than immediate. This would need translation into a present value sum for the gain to be shared.

“Repair or Renew”

Organisations expect to find situations where repair is uneconomical and renewal is preferred. With buried assets much of this is not known in advance but comes to light in the course of maintenance and operations. Typically the renewal is a small capital job and is funded out of a bucket of capital funds budgeted for the purpose of funding many small unpredictable jobs.

Typically with contracts there is a provision that such small capital work items will be undertaken by the contractor. There are tensions around this. The contractor is expected to have the resources on and to do the work. A reasonable quid pro quo is that the contractor is guaranteed a minimum amount of this work. On the other hand the competitive element is an issue for the Principal concerned that value is obtained for the capital investment.

In some contracts it may be in the contractor's interest to maximise the amount of renewal work undertaken, for each new asset will generate fewer callouts than the old problematic one. Hence situations of perverse incentives need to be avoided. Late in a service contract the contractor will get little benefit from a renew decision as the benefit will fall outside the contract term.

An important thing here is for the principal to be sufficiently aware of the ongoing cost implications of a repair decision. This means there needs to be good asset serviceability and cost records. It should not be asset information where the contractor has an advantage. Following from this there needs to be good systems for analysing this information for some standard scenarios, like frequency of pipe bursts, frequency of control system failures. However there is no reason for this data and analyses to be private to one party.

In some cases the future redundancy of an asset will be known, such as a pump station that is going to be bypassed by a new pipe in the near future. Here the renew option for some part of that pump station should be closed off. It makes no sense in that situation. Hence a repair option will be dictated in some situations but that needs good knowledge of the asset plans of the owner.

Here then is a situation where there is a time horizon disparity between the contractor and the principal.

One suggestion I have seen on this is to have the renewal of contracts a discretion on the part of the principal alone, so the contractor will always be wary of taking too short a term view. Interesting though this may be I have not seen it applied and I suspect it would attract a risk element to the profit margin. It might also mean a Council could be challenged in a situation of non-renewal to demonstrate that performance justified that step.

I believe there is some case here for joint decision making to bring the contractor's experience into the loop.

Once the asset plan is set there is no reason for the principal to need to be involved in cases where renewal is excluded. Once the systems are in place for standard situation analyses there is no reason for the principal to have to operate these, though the final decision might still need referral to the principal.

Again this is an area where establishing a contractual working relationship through partnering workshops should establish the understandings on the way the principal wants renewals handled.

Risk to Principal	Management of the risk
Unlimited commitment on renewal capex	Period budgets, \$ limit to discretion in individual cases.
Poor decisions in terms of asset lives / costs	Asset plans that identify non-renewal assets, Good asset performance records, good standard analysis systems for <i>repair or renew</i> decisions. Audit of a percentage, periodic review between the parties
Manipulation to maximise contractor's profit	Structure the contract so the <i>repair or renew</i> decisions are profit neutral
Manipulation to minimise contractor's maintenance cost	ditto
Service objective lost	Ensure service performance has separate reward
Value for money on small capex	See text.
Late in contract low interest in renewals	Step up oversight in the late stages.

Value for money on small capex has been handled in a variety of ways in contracts. In some contracts the principal reserves the right to tender work out but this has to be a limited discretion if there is a minimum volume of work which has to go through the contractor. As well the contractor needs to know if this option might be exercised before or after a job has been priced by the contractor.

In some contracts the cost of capex work is cost recoverable and there is KPI incentive on cost outturn against the Council estimate for the item.

In some contracts there is third party pricing of small capex and the contractor is given a gain share / pain share around that estimate. A further addition is an incentive / disincentive around time performance. I am sceptical that adequate KPIs can be developed on capital works quality but I know one that is considering it.

The choice between these can vary as to the volume of small capex work there is in relation to the other work. If it is relatively small great sophistication might be gilding the lily.

Contributed Assets

These are called vested, donated or gifted assets by some. They arise from major subdivisions where the developer is required to install the water and wastes reticulation and sometimes even pump stations to the council's standards. The assets are typically inspected, and cut over (connected to the existing live reticulation) by the council and they are transferred to the council's ownership without any payment by the Council. They are ultimately paid for by the people who buy the lots in the subdivision.

The contractor often undertakes the cutover on behalf of the council, but more rarely undertakes the inspections, or even more rarely has an involvement in the standards the subdivision has to work to.

One might think that councils would insist on Rolls-Royce standards for things they were getting for free. In fact their discretion is not unlimited here. There are national standards that most adopt for subdivisions, at least in greater part. As well though extra rating base is a matter of interest to councils. If they make the standards too tough, development will go elsewhere. There is competition for development between different councils.

Typically there is a warranty period from the asset going live. There is the usual bathtub curve effect of early pipe bursts from defective workmanship, drain chokes from defective workmanship and debris left in the systems. Enforcement of these against developers is often problematic.

Where could facilities management contractors get more involved here? I believe they could have a major role in setting the standards and monitoring the standards. They potentially will have better knowledge on best practice than councils. They are the ones who might potentially learn new methods by observing others.

There is a risk there might be overly cosy relations with other contractors, that there might be a time horizon disparity between the contractors interest and that of the asset owner, that late in a contract if there were no consequences to the contractor of premature failures, then attention might well fall off.

In my view these should be the responsibilities:

Area	Responsibility
Standards	Council but with consultation
Inspections	Contractor, with responsibility for enforcing warranties, and measured for serviceability from cutover.
Cutovers	Contractor

The risks around this area are:

Risk to Principal	Management of the risk
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Poor workmanship	Make contractor responsible for enforcing warranties, repairs where these are not achieved, performance from cutover.
Inappropriate standards	Involve contractor in setting these
Late in contract low interest in standards	Responsibility not extinguished at contract term end but after a warranty period.

Funding Capital Works

This feature is normally only found in franchise contracts or build own operate contracts for particular pieces of infrastructure. It has found little favour here or in Australia. The reason is simply those ratios in the table at the start of this paper – the interest cost coverage by income looks risky. The private sector faces barriers getting finance for projects in this sector. Private finance is more expensive than that available to local government. This is because the latter has the backing of rates income – a tax source that rarely fails. The newly trumpeted public / private partnerships idea has in fact been around for a while in the water sector. It has no great uptake.

Returns on many projects need to be supported from outside the immediate project benefit. It is my experience that few water infrastructure projects are supported by directly attributable income or savings. Most often the investment is a regulated service obligation, or a regulated standard change. Pricing differentiation to areas of benefit is often not a practical step.

One solution often proposed to help with funding is longer term contracts. The disadvantage with these is that at the outset contractors will be reluctant to offer up long term efficiency gains. It is now a sustained experience that year on year efficiency gains can be achieved. The best way councils can capture these is regular re-tendering of the work to a competitive market. There may be proxies of this available but the proxies involve someone else testing the market.

A public sector partner in the water industry then has a great incentive to provide the capital themselves and contract the other aspects of capital projects separately, be they proprietary knowledge, project or operational skills. Typically these are being done primarily on a project basis. They can be acquired on a multiple project basis but that is outside the scope of this paper.

What I will constrain myself to is capital works management as an addition to operations and maintenance contracts.

Managing Capital Contract Works By Others

Some contracts transfer the management of all capital works to the contractor. This can extend to tendering or even design.

Where there are issues of new works taking place within operating environments and where there are commissioning issues which must involve the contractor running the existing assets, there are clearly advantages in proceeding this way. However this is not always the case. Major capital works are not always the expertise of operations and maintenance contractors, certainly of those operating at the modest scales that some of the smaller ones currently do.

What is more typical here is if the principal wants to outsource the asset management particularly in respect of the capex planing is for it to be done independently of the operations and maintenance contractor.

Where are the advantages in putting them together and where are the conflicts?

The issues around capital projects often fall into four headings, timing, size, technology and acquisitions strategy.

Issue	Means:	Potential contribution from ops and maintenance contractor
Timing	When to build it, is it stageable?	Knows the present asset condition if it is a replacement
Size	E.G. how big a pipe, how large a reservoir for this location?	Relatively small
Technology	E.G. what materials, what treatment process?	Knows what works in the existing system
Acquisition Strategy	E.G. conventional, design and build, turnkey, design build and operate, target out-turn cost	Knows the market

We can see here that the contractor has a contribution to make to this. Is this enough that the contractor should essentially have the Asset Management Plan preparation as a task?

There are risks around that:

AMP preparation by the contractor

Risk to Principal	Management of the risk
Not a long term commitment to service	? Contractors have a long term interest in their reputation
Not full knowledge of the stakeholder interests in setting CAPEX priorities	?
Manipulate capex priorities to minimise opex	Could make opex reduction reward neutral but is that a sensible objective?

The risks in my view would not justify building asset management planning with an operations and maintenance contract. However the penultimate table argued there were some advantages in getting the contractor involved even if not giving them the responsibility.

There is another area of opportunity through involvement. Often with mature systems new capital works involve interfaces with the current operation. This is not simply a cut over at the end. With treatment plants, pumpstations and control systems there are commissioning issues that need the involvement of the operations and maintenance contractor. Often councils struggle with getting new assets capitalised into asset registers, populated into asset management systems, the positions of pipes into GIS systems, because the responsibility is diffused across different parties. Often there is no incentive to complete these promptly. Centralising these tasks on a single contractor can achieve better and more prompt updating of these systems.

There is then an advantage in having the contractor involved. However having some discretion for particular projects may be wise. Usually at a contract commencement a council will know what major projects are upcoming. A case by case review of the advantages or not of the operations and maintenance contractor involvement might be a wisest course. The extent of involvement can also be fine tuned to the project.

As with the minor capital works there is the opportunity to have the contractor gain / pain share on the out-turn cost of projects they manage. These might be known targets for projects early in the contract but for later less developed projects there would need to be a mechanism for setting the target cost. Cost is not the only objective so there need to be management systems about controlling time and scope as well.

What I would advocate is:

Area	Primary responsibility	Contractor
Asset management planning	Council	Budgeted contribution of a dedicated in-house resource to the AMP team
New asset funding	Council	Gain share / pain share can be considered (where managing)
Project management	Council for flagship or complex projects	Routine projects
Asset registers, GIS, asset management systems	Council	Updating at project end

Operations and maintenance contractors have ambitions to have greater involvement in facilities management. This need not be jumping to a franchise model of operation. As argued here there is considerable scope for operations

and maintenance contracts to extend into areas of asset management. However the total bundling of this is not appropriate. Councils looking to outsource all of asset management need to look to some separation between roles.

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