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Public private partnerships
– why the time is ripe for a new
generation of smarter PPPs to flourish

by **Chris Lewin**

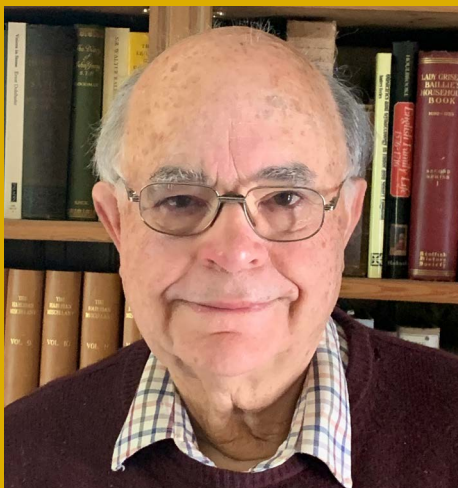
Independent thinking from the IFoA

Part of the IFoA's purpose is to promote debate within and beyond the profession, and to position our members as leading voices on the biggest public policy challenges of our time.

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Our 'think' series seeks to promote debate on topics across the spectrum of actuarial work, providing a platform for members and stakeholders alike and sharing views that may differ from the IFoA's house view. In doing this, we hope to challenge the status quo, question the orthodoxy, and shine a light on complex or under-examined issues, thereby stimulating discussion and dialogue to help tackle issues in a different way.

Thanks are due to the members of the IFoA's Infrastructure Working Party who helped to develop this simple concept to tackle a complex issue.



Chris Lewin

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Introduction

Need for a new system

There is currently no standard mechanism in the UK for investing in infrastructure through public-private partnerships (PPPs). This risks inadequate investment in infrastructure projects to meet the future needs of communities around the country. The PPPs mechanism used by the UK Government until 2018, the Private Finance Initiative (PFI), was latterly perceived as expensive and inflexible. However, this article makes the case for a new system of PPPs which would be much simpler and more flexible than the PFI, in which project design and risk management would benefit from private sector expertise.

Root causes

From 1992-2018 many new assets were financed through the Private Finance Initiative (PFI) on 30-year contracts or longer. These assets included sorely-needed hospitals and schools which would not otherwise have been built because of a lack of enough Government funds to pay for the capital expenditure. As a result of the PFI many communities are today benefiting from these new assets, rather than having to make do in facilities which by now would have deteriorated to completely unacceptable levels. However, the public bodies started to find that the rents they had contracted to pay for these PFI assets and services were more than they could afford as public sector budgets declined, particularly because in most cases the rents were linked to inflation. It was also proving difficult to unwind the contracts in cases where public sector needs had changed and the assets no longer met requirements but could not be sold. In cases where the assets were still required, the public bodies concerned would have liked more flexibility over the ongoing services of catering etc. provided by the investors.

The Government therefore decided that there would be no new PFI contracts after 2018, but existing contracts would continue in force until they were time-expired.

Ever since there has been no standard mechanism for the establishment of public-private partnerships (PPPs) to finance new infrastructure developments. There are mechanisms to aid private sector investment, such as Contracts for Difference and Regulated Asset Base, but these are aimed at regulated industries such as the energy sector and cannot be applied more widely.

One of the difficulties has been that private sector debt finance has been perceived as more expensive than the terms on which the Government itself may borrow, and this has been an important factor in discouraging PPPs. However, the UK Infrastructure Bank is now prepared to issue guarantees for approved projects which enable private debt finance to be raised on terms which are not much more costly than those on which the Government itself can borrow. This means that “public sector comparators” are likely to show financial results for a public body that will make a PPP not much more expensive (if at all) than the cost of financing the project itself. It is therefore timely to review the possibility of changing the investment landscape to encourage the development of PPPs in situations where they offer potential advantages.

One of the difficulties has been that private sector debt finance has been perceived as more expensive than the terms on which the Government itself may borrow

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Why is the issue important?

In the latest report of the National Infrastructure Commission (16 May 2024) Sir John Armitt writes:

“We face a make or break time for the long term prospects of UK infrastructure.

Big decisions lie ahead – particularly choices made in a refreshed National Infrastructure Strategy and associated spending commitments. These will set a trajectory that determines whether we get the infrastructure we all want for the future.

More specifically, they will determine whether the UK meets its own deadlines for goals such as growing regional economies, decarbonising the electricity grid and making the economy more resilient to the effects of climate change.

It’s a critical period for making decisions on things that are of immediate concern to the public – the three Ps of prices, potholes and pollution.

Across all infrastructure sectors, a window remains to ensure that practical delivery plans are in place, backed up by the necessary public and private funding, to help achieve economic and environmental goals that will improve life for British households.

But the window is closing, at least if we don’t want to delay those benefits and compound the disruption of recent years.”

For example, on transport the report says that local and intercity transport must be significantly improved to ease the constraints on economic growth in major cities. Taking infrastructure as a whole, *“there will need to be a sustained increase in private investment in order to close the infrastructure gap”.*

Source: **Infrastructure Progress Review 2024 – NIC**

What can be done?

There are now exciting opportunities to establish public-private partnerships (PPPs) which would unlock infrastructure investment by UK insurance companies and pension funds and broaden the pool of ideas about projects. We propose that such partnerships would be set up between public bodies and investors, to cover the construction and leasing of new assets, without the provision of ancillary services. Where revenues come from user charges, it may be possible for the relevant public body to receive a percentage of the ongoing revenues. One important possibility is to establish a semi-permanent PPP covering a number of projects (see **Appendix**). Creativity, flexibility, collaboration, risk sharing and value for money are at the heart of these ideas.

Our vision

We envisage that investors and their expert advisers would act in partnership with public bodies on a variety of projects. The aim would be to allow such investors to help to address national and local needs whilst having the expectation of financial returns comparable to those obtainable from other forms of investment having similar degrees of risk. The emphasis in a partnership would be on genuinely open discussion, negotiation and co-operation, with information freely exchanged between the parties. The advantages of such partnerships would include:

- The ability for the nation to get more projects finished because of the use of private sector capital on top of public money;

- A broadening of the pool of ideas about a project, including a more complete exploration of the possibility of achieving the desired aim differently and a deeper insight into the scope for risk mitigation, innovation and efficiencies;
- Maximisation of the value of a project, both socially and financially, as the result of joint working by the public sector and the investors to address the challenges and enable both sides to achieve their objectives;
- For public bodies, risk sharing and the ability to get their project constructed when there is limited availability of capital from public sources;
- For investors, the ability to earn competitive returns with greater diversification of risk and the possibility of rewards if the project meets specified targets.

The main investors would be insurance companies and pension funds but other private companies could also be included.

We are particularly enthused about the possibility of establishing semi-permanent partnerships between investors and local authorities, covering a variety of projects of different types.

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The basis of our proposal

Our proposal is based on the idea that private investment will be used to construct the asset (taking the construction risk), which will then be leased to the relevant public body in return for a revenue stream for (say) 20 or 30 years on a predetermined contractual basis. The revenue stream (which could come either from the public body or directly from charges to end users) would need to be sufficiently large to give investors a fair remuneration for providing the capital (which would not be refunded to them) and for taking the construction risk. The investors will provide risk-bearing equity capital, and the rest of the finance required will be interest-bearing debt. Prior to construction both sides will agree the design and specification of the asset, and construction contracts will then be controlled and supervised by the investors. No additional services other than the asset itself will normally be supplied to the public body. At the end of the lease, the asset will be handed over to the public body free of charge. If the needs of the public body change during the leasing period, so that it no longer requires the asset (or part of it), there will be specific provision in the contract for resolving the situation in a way that is as fair to both sides as possible. A PPP could be set up to cover just a single project, but the Appendix gives a diagram outlining how a semi-permanent PPP could be established between a public body and a group of investors to cover a succession of projects, thereby achieving greater efficiency and continuity.

Project development

A proposed PPP would be negotiated between an investor (or a consortium of investors) and a public body which needs new infrastructure in order to enable it to carry on its business effectively or provide services to the community. The negotiations should be conducted in a spirit of genuine partnership and openness, looking for the best solutions. The basic principle would be that the crucial preliminary stages of thinking about the community's needs and the form and scope of the project would be carried out in a joint working party between the public body and the investors (and their experts, such as engineers, architects, bankers, lawyers and actuaries), with occasional attendance by representatives of the eventual operators and other stakeholders. The working party would develop a preliminary contract and a main contract. The preliminary contract would include agreement to set up a special purpose vehicle (SPV) to develop the project, with the joint working party continuing but now under the auspices of the SPV. The preliminary contract should include provisions for work done by the investors during the negotiation period to be remunerated in whole or in part, if the project has to be abandoned before the main contract is signed. This will provide an incentive for the investors to devote enough resource to the development work while it is still possible that the project may be aborted.

The main contract should describe the responsibilities of the various parties and specify the financial outgoings and risks which each party will bear. It should transfer to the investors the ownership of land required for the project. The contract should specify how and when the revenue stream from the project is to be determined and distributed. It should provide that the whole cost will be met by the public body of any changes in scope, specification or design which take place during the construction or commissioning stages at the request of the public body. If agreed, this additional cost could be met by changes in the contract terms rather than cash payments. (It may be that the likelihood of changes in scope, specification or design after commitment would be reduced if a range of standard designs could be made available for common projects such as hospitals, schools, transport infrastructure, etc.) The ways of adjusting the project or its financial basis in the event of changes in the needs of the public body or the investors at any point during the contract should be specified in advance in the contract as far as possible and an independent arbitration mechanism specified for deciding on any further adjustments or payments needed.

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Asset design and specification would be carried out on the instructions of the project team and when completed would need to be formally approved by both the public body and the investors. The design should where practicable include the possibility of allowing the asset to be expanded in future to cope with additional demand. In some cases it may be possible for the asset to be designed in such a way as to be capable of being converted to an alternative use if demand reduces. The public body would be responsible for ensuring that the project meets all legal, regulatory, planning and service requirements, other than those associated with construction and commissioning (such as building regulations) which would be met by the contractors.

The main contract will be developed by the project team for signature by the public body and the investors before construction starts. The investors will then let construction contracts on the basis of the plans and specifications agreed between the parties and will be responsible for resolving construction issues.

Financial arrangements

The detailed financial arrangements will be negotiated between the parties, project by project. The investors will normally meet all the construction costs involved (with elements of temporary bank finance where appropriate), but the main contract may specify that excess construction costs (or a proportion of them) over and above a specified figure will be reimbursed to the investors in one way or another – this might be necessary for “high tech” projects. Once construction is complete, both the investors and the public body will sign off that the asset is ready for commissioning, though the investors will still be liable for any additional construction costs found to be necessary during the commissioning process. Any structural maintenance costs required after construction and commissioning of the asset are completed (but not day to day maintenance) will normally be met by the investors. The operational revenue stream to be distributed to the investors year by year will either be a share of the user revenues generated by the project (including shadow tolls where appropriate) or alternatively it may be a specified rent payable by the public body for the ability to use the asset, to be uplifted from time to time by adjustments for inflation. If the project meets pre-determined environmental or user-satisfaction targets, the public body may have agreed to make additional specified payments to the investors. It may have

been agreed between the parties that a specified percentage (up to 20%, say) of the yearly net revenue from user charges will be paid to the public body concerned, in return for its having contributed the land and ancillary resources, and generally facilitating the project, with only the remainder of the revenue being paid to the investors. In cases where the investors will finance part of the construction cost by debt finance, it is anticipated that a special purpose vehicle which they establish may be able to obtain a guarantee from the UK Infrastructure Bank, to enable the debt finance to be raised on terms similar to those obtained by the Government. (Note: The Bank, launched in 2021, is a government-owned policy bank focussed on increasing infrastructure investment across the UK. Its mission is to partner with the private sector and local government to help to tackle climate change and to support regional and local economic growth through better connectedness, opportunities for new jobs and higher productivity. It may therefore be possible for the Bank to help in the establishment of public-private partnerships.)

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Hypothetical case study

This hypothetical case study for a project where the revenues are derived from user charges is designed to illustrate some of our suggested principles. The figures used are not intended to be realistic. The ideas contributed by the investors have the effect of expanding the scope of the project, in order to give the public body an acceptable financial cost and level of risk. The arrangements which emerge will give both parties every incentive to co-operate to keep construction risks to a reasonable minimum.

A city council wants a new tramway to stimulate private housebuilding and associated commercial facilities in a run-down area on the outskirts of a large city. The initial proposal is that the tramway will run from that area to the city centre. If the council funds that scheme itself, the construction cost is estimated at £470m and the cost of tram purchase at £30m, making a total capital cost of £500m. If the council is able to borrow the capital, the revenues from users will be £25m a year, the interest cost will be £30m a year and the cost of operation and maintenance will be £8m a year, so there will be a deficit of £13m p.a., which the council cannot afford. Moreover, the whole cost of any overspend would have to be met by the council.

A pooled fund for investors holds preliminary discussions in a working party with council officials to discuss the affordability and scope of the project, and to develop an outline scheme acceptable to both sides. It is agreed that the scope of the project will be increased (at additional cost) so that the tramway is extended from the city centre to a railway station, sports stadium and hospital beyond; this is expected to double the revenues.

At the suggestion of the investors, a vacant site in the run-down area will be sold to the investors for a small sum as part of the project and used to construct a tram depot and a shopping/office/leisure centre. The pooled fund's capital cost of constructing the track, tram depot and shopping/office/leisure centre is estimated to be £800m (i.e. £700m for the track and £100m for the depot and centre, including a 20% contingency allowance). The trams will be leased by the council rather than purchased outright. The council will itself meet the cost of leasing, operating and maintaining the trams, while the pooled fund will meet the cost of maintaining the track, estimated at £3m p.a.

It is agreed that the gross revenue from the trams, estimated at £50m p.a., will be split between the pooled fund and the council on an 80/20 basis. The pooled fund will itself let the shopping/office/leisure centre for rents estimated at £20m a year net. From the investors' viewpoint, the capital cost totals £800m, while annual revenues are estimated at £40m (trams) plus £20m (shopping/office/leisure centre) less £3m (track maintenance), i.e. £57m, which can be expected to rise with inflation and may grow in real terms if the run-down area prospers. The pooled fund's initial yield will be just over 7% p.a. (which will be parcelled out between debt and equity investors, so that debt investors get about 6% p.a. and risk-bearing equity investors about 8% p.a.) The pooled fund may be able to obtain a guarantee from the UK Infrastructure Bank to help it to raise debt finance.

From the council's viewpoint, there will be income of £10m a year gross from the council's share of the trams' revenues, less expenditure on leasing, operating and maintaining the trams estimated at £16m per annum, leading to a net cost of £6m per annum, which the council can afford. If traffic grows, there will be increased revenues from the trams, which may mean that the cost of leasing, operating and maintaining them can eventually be fully covered. Assuming the run-down area prospers, the council can expect increased revenue from council taxes in due course.

The ownership of land for the track, the depot and the shopping/office/leisure centre will be transferred to the pooled fund before construction commences. The land for the track and depot will be transferred back to the council after 30 or 40 years. The pooled fund will own freehold the land for the shopping/office/leisure centre and it will not be handed back.

The parties have agreed to share the risks of any overspend on constructing the tram tracks on the same basis as the revenue will be shared, so that an overspend of £100m will be met £80m by the pooled fund and £20m by council borrowing – this means that both sides will have every incentive to estimate the construction costs as accurately as possible, having regard to preliminary investigations of expected ground conditions and existing cables and gas-pipe routes. The council will have an incentive to keep construction costs down by diverting traffic flows to leave construction sites free and accessible. It is possible that banks or insurance may be able to cover part of the cost of an overspend if it occurs.

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Risk Management and Sharing

To reduce the risk of time and money being wasted by both sides on a project which will have to be aborted, it is highly recommended that before engaging with investors the public body should work through the steps outlined on pages 4-8 of the short guide entitled **Major Infrastructure Projects: Key Front-end Issues**, (published by the IFoA and the Institution of Civil Engineers, 2017) and carry out an initial feasibility study. Once a preliminary contract with investors has been signed, the joint project team will review the work done by the public body already and then proceed to develop the project. One of the most important tasks for the team will be to appoint a skilled and experienced project manager who can understand the needs, objectives and constraints of all parties and help the partners to decide on the sharing and mitigation of risks. Normally each risk will be allocated to the responsibility of the party which is best able to control it.

Some situations which may arise in future will have been agreed to be the responsibility of one partner rather than the other. However, there will be many situations where it would be equitable for the responsibility for putting things right and the costs involved to be shared between the partners in some way, and it will not always be clear from the contract how this should be done. This is why it is important that there should be continuing good liaison between the partners, and in the case of a partnership intended to cover future projects as well there will be incentives for both sides to reach agreement if possible. However, there should be provisions in the contract for mediation and arbitration, or even legal action as a last resort. Accountability will often be an important issue and there will need to be regular audits and an appropriate mechanism with independent elements for assigning responsibilities for things which have gone wrong.

Financial risks

The investors' risks will include:

- the risk that part of their initial expenses may be non-recoverable if the project is aborted before construction commences
- the risk of interest rate rises if part of the capital cost has been borrowed on a variable interest basis,
- the risk that anticipated guarantees from the UK Infrastructure Bank may not be forthcoming,
- the risk that it may turn out to be impossible to insure construction costs to the planned extent,
- the risk of construction costs being higher than expected, so that extra capital has to be raised from the investors or by borrowing,
- the revenue risks from low usage of the asset,
- the risk of higher than expected structural maintenance charges.

All these risks have hidden costs. They will be mitigated as far as possible and the residual risks will be borne by the

equity capital raised from investors.

The risks for a public body paying an annual charge out of its own resources for a lease on a building include the possibility that it may become difficult to afford the annual payments (including any price inflation adjustments built into the contract). There are several possible ways to mitigate this risk to some extent:

- Time delays could be built into the inflation adjustment, so that there is a lapse of a year or two before the adjustment comes into force.
- Perhaps part of the capital could be raised on a fixed-interest basis, either from some of the investors or from banking sources, with a proportion of the annual charge from the public body being fixed likewise without an inflation adjustment.
- Possibly the public body could make inflation-adjusted charges to users for some of the services it supplies to them.
- Flexible asset design could enable the asset to be re-purposed and perhaps sold.

Accountability will often be an important issue and there will need to be regular audits and an appropriate mechanism with independent elements for assigning responsibilities for things which have gone wrong.

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Other risks

We have identified many of the other risks which could arise in a PPP, all of which will need to be thought through by the project team before the main contract is signed. These risks include:

Late changes required by the public body

It may sometimes happen that, while construction and commissioning are under way, the public body decides that some modifications to the design and specifications would be desirable, perhaps following the emergence of new equipment or economic studies, or unexpected difficulties in obtaining planning permission or utilities. The investors should co-operate with such a request where it is reasonable to do so, but the whole of the extra costs should fall on the public body, which will also be fully responsible for the resulting delays.

Operational risks

It will normally be the case that operational risks will be borne by the operator, including cyber risks.

Climate risks

Climate risks will need to be addressed when deciding upon the design and specifications of the asset, and decisions made on what degree of robustness should be built into the asset from the outset. The contract will have to specify which party is responsible for reinforcing the asset if necessary at a later stage, should climate risks turn out to be more severe than anticipated.

Late opening

If construction and/or commissioning is delayed, the opening of the new service may be delayed, perhaps by months or even years. An independent professional report may need to be commissioned on the reasons for the delay and whether it is as a result of failures by the investors, the contractors, or the public body, or as a result of unforeseeable circumstances.

The contract should have clauses which provide a guide to the partners on any financial adjustments which are necessary.

Reputation issues

A public relations plan of action should be developed in advance to deal with any difficulties which arise. Regular communications with the public and potential users of the service would help to create a level of understanding in case crises occur.

Construction cost over-runs

There could be many underlying causes, including a failure by the public body to do sufficient preliminary work on site investigation, an inability to get quotations from contractors at expected levels, an inability of contractors to procure necessary materials or workers, strikes, contractors' insolvency, introduction of new construction regulations, the discovery of archaeological remains, etc. The investors need to consider whether it is appropriate to seek fixed-price contracts, which would pass some of the risks onto contractors. There should also be an exploration of how far it is possible to insure certain aspects of the construction cost. Contractors should be required to consult the anticipated operators to make minor adjustments which will minimise unforeseen design flaws.

Revenue risks

Where it has been agreed that the partners will share the revenue from users, it may be that any shortfall or excess compared with planned revenues will be borne by both sides in the same proportions. It may be necessary to enable the investors to require user charges to be raised to protect revenue streams.

Service standard falls below expectations

If a continuing failure to provide the expected level of service to users is due to inadequacies in the design and specifications of the asset, both sides may have to share in the reputational responsibility. If it is due to ways in which the asset has been operated by or on behalf of the public body, the operator will have to bear the whole responsibility. Whatever the cause, it may be that remedial works will have to be undertaken, the cost being apportioned between the partners.

Changing needs for the service

It may sometimes happen that there turns out to be an eventual reduction in the need for the service, perhaps due to social changes or the emergence of competing services. In cases where the revenues are coming from users, the investors may have to bear their share of the cost of a usage downturn. One way to mitigate this risk would be for the investors to have power in the contract to provide users with different or enhanced services. In cases where the revenues are coming from a public body under its lease of a school, hospital or prison, much would depend on whether the asset had been designed to permit alternative uses. If the new use would generate additional revenues from users, it could be that the investors would be willing to pay for the cost of conversion to the alternative use, in return for a share in those revenues. Alternatively it may be that there are additional needs for the service and the asset must be expanded, which the investors in a successful partnership could finance.

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Our conclusions

We think now is an auspicious time to advocate for a new, smarter generation of PPPs. In the King's Speech the new Government announced plans for a Planning and Infrastructure Bill which aims to generate more infrastructure delivery by removing barriers in the current planning system and giving greater autonomy to local decision-makers. There is also planned legislation to create a statutory National Wealth Fund (NWF) to increase investment in UK businesses, which will deploy an additional £7.3 billion funding through organisations such as the UK Infrastructure Bank and will aim to generate £3 of private sector investment for every £1 it invests.

We believe that there are real possibilities for public-private partnerships to provide more and sometimes better and more flexible infrastructure. Some other countries have had such partnerships for many years. Most, though not all, of the risks can be identified in advance and mitigation measures can be put in place to reduce their impacts for both sides of the partnership.

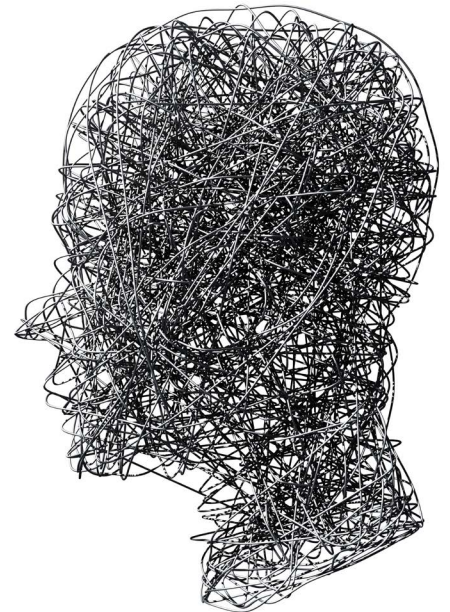
Do you agree?

You may wish to think about how this suggested PPP framework could have been applied to constructing or renewing infrastructure near where you live, and whether it would have been successful given new situations and changing demands from users.

Three useful publications for further reading are:

1. Maltin, Elyse, "What Successful Public-Private Partnerships do", *Harvard Business Review*, January 8, 2019, at: [What Successful Public-Private Partnerships Do \(hbr.org\)](https://hbr.org/2019/01/what-successful-public-private-partnerships-do)
2. "How Integrated Project Insurance is Changing Construction Project Risk", at: [How Integrated Project Insurance is Changing Construction Project Risk \(marsh.com\)](https://www.marsh.com/en-gb/insights/public-works/how-integrated-project-insurance-is-changing-construction-project-risk)
3. "Public-Private Partnerships Reference Guide, Version 3", International Bank for Reconstruction and Development/The World Bank, 2017 (updated 2022), at: [PPP Online Reference Guide | Public Private Partnership \(worldbank.org\)](https://www.worldbank.org/public-private-partnerships-reference-guide)

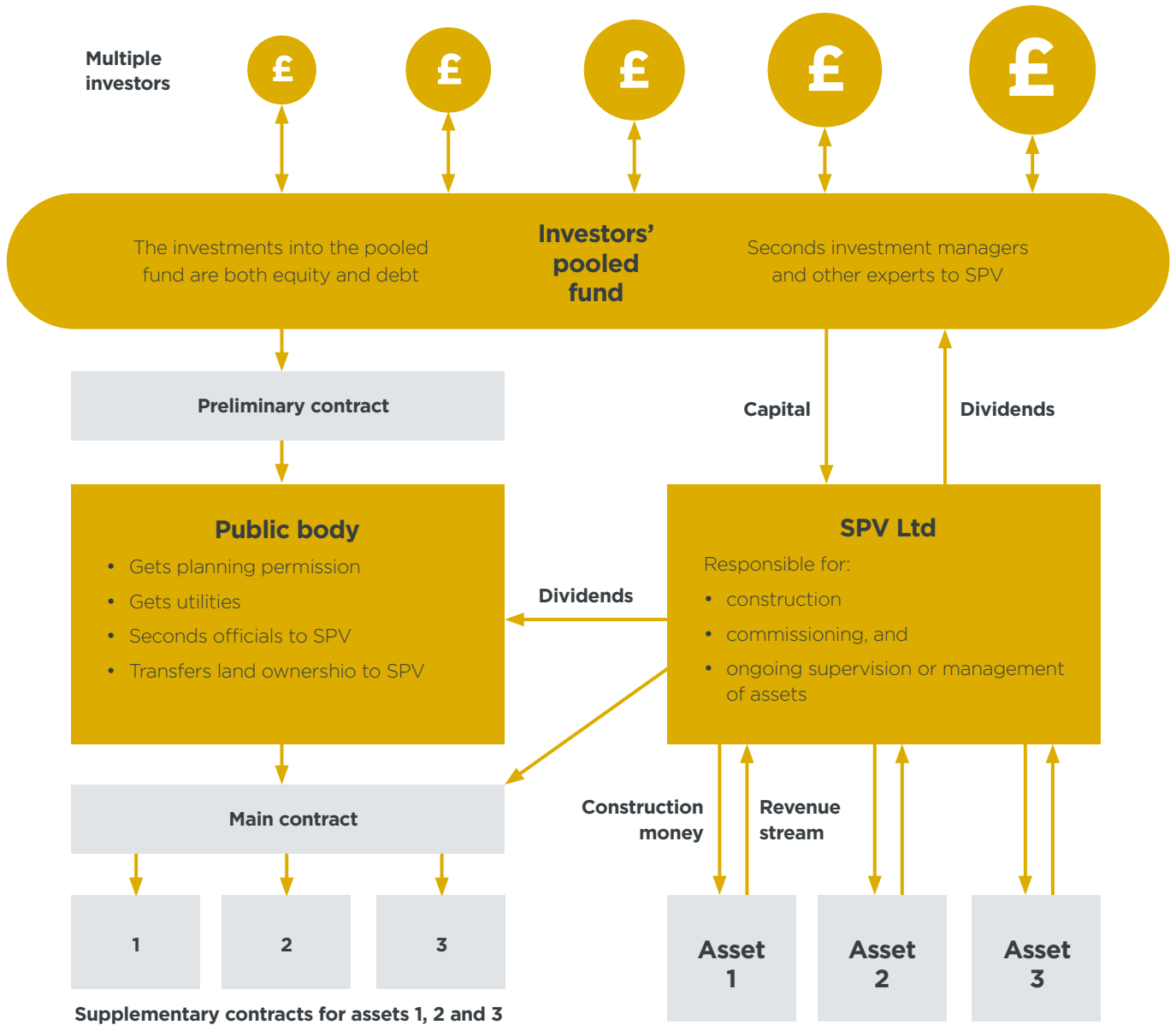
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Appendix

Outline of a possible framework for a multi-project PPP



Notes:

1. The preliminary contract agrees to the formation of SPV Ltd and includes premature termination provisions.
2. The SPV may borrow from external lenders part of the capital needed, with a guarantee from the UK Infrastructure Bank.
3. The SPV will appoint its own experts and obtain advice from contractors and stakeholders.





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