Chapter 19 – IPD Governance Implications

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Chapter introduction

Interest in PM governance has grown steadily over the past decade. Turner (2006) introduced over a decade ago, the role of governance (based on a definition of corporate governance) in the development of a theory of project management (PM). Arguably, this was at the cusp of an emerging perspective of the importance of governance in understanding how projects are delivered.

This whole area of how projects are governed provides a good starting point for the emerging discourse about how PM is successfully delivered, and how governance and governmentality may apply to Integrated Project Delivery (IPD) projects compared to traditional project delivery approaches. Müller (2017, p12-13) differentiates the concepts of project governance and governmentality. He notes that *governance* may be seen as a structured system of controls, a set of formal and informal processes and a set of relationships that defines and steers people between and across boundaries such as within and between organisations. He contrasts governance with governmentality defined (Müller, 2017, p20) as '… the mentalities, rationalities, and ways of interaction, chosen by those in governance roles to implement, maintain, and change the governance structure.' Thus, governmentality has more to do with the culture, norms and mindset of people concerned with governing projects both from the perspective those that develop governance arrangement and how they expect these arrangements will be implemented and those that are governed.

The governmentality concept fits with Scott's (2014) *three pillars of institutional theory* concept. Scott argues that the way that institutions enact governance arrangement may be explained as being influenced by not just the organisation's set rules and regulations but by the operational culture and the way that this culture interprets the meaning of the rules etc. Scott identifies a *Regulative* pillar of rules, regulations and officially prescribed routines that are legitimised and sanctioned by the prevailing authority of an organisation. The *Normative* pillar is characterised by the culture of the organisation that sets norms and behavioural expectations. Organisations are not mono-cultural and so there will also be sub-cultural influences or logics based on for example professional associations standards and ethics guidelines or other workplace traditions (Schein, 1996). The third pillar the *Cultural-cognitive* pillar, represents the way that people make sense of and agree on how to act upon regulations given their cultural norms. Thus the concept of governmentality extends our understanding of governance beyond merely being a set of codes, regulations and prescriptions.

Clegg, Pitsis, Rura-Polley, and Marosszeky (2002) report on research of an IPD project, an alliance that was part of the Sydney Olympics infrastructure investments. They discuss in detail how the traditional business-as-usual model of governance was modified, adapted and novated on that alliance project. They show how the project's governmentality moved from a power-centred authoritarian interpretation of how alliance participants should conduct themselves towards acceptance of a more liberal interpretation of how to interpret governance arrangements. This freer and more tightly self-disciplined mindset was achieved by observing the *spirit* of the project aims and strategy rather than *written* prescriptions while substituting new measures, means and routines providing the boundaries and guidance needed to support responsible and responsive collaboration.

In Chapter 2 of this book the Collaboration Framework is described in detail. This identifies the need for a joint governance structure as its second element and incentivisation as its twelfth element. These two elements relate to governance. However, the framework also identifies other behavioural and process governmentality elements. This chapter aims in part to provide a more in-depth background for us to better understand the Collaboration Framework from the perspective of the role played by governance and governmentality in IPD projects.

What do we mean by the term 'governance'? Turner's (2006) early paper described one governance theme that emerged around structures, the formal enablers of governance hierarchy, rules and regulations, and contractual arrangements that define what is to be delivered etc. He identified another theme related to stakeholder legitimacy in influencing how a project may proceed including roles and responsibilities and legitimate influence by the project stakeholders. Stakeholders comprise sponsors, owners or stewards and the project team as internal stakeholders and that of external stakeholders such as society, government agencies, the end-user/beneficiary and other interested parties who feel they have a stake in a project or what it may deliver. Turner also drew attention to the special feature of governance of a project in terms of its life cycle, as opposed to a focus on an organisation or corporation. This introduced questions about how projects are initiated and how they emerge from value desires to plans of actions and then to the project outcome. All stages or phases may be seen to be governed or guided in some way. His third theme is useful for us to pursue in this chapter: the way governance impacts upon project delivery and the way that projects may be resourced and the legitimacy of how that resourcing is agreed upon and managed (including issues of monitoring and control).

This chapter focusses on two phases of governance, at the front end of projects as well as operational processes aspects of IPD. Considering the Collaboration Framework introduced in Chapter 2 as a basis for structuring this chapter, we pose a question to be answered by this chapter:

How do clients ensure that IPD projects are appropriately governed so that the briefing process facilitates the project being the 'right project' and that the project is effectively and appropriately delivered?

This question is disaggregated into the following two questions:

1. What are the organisational structures and institutional pillar characteristics that provide the structure and culture for effective project/program governance? [Governance]
2. What mechanisms and processes ensure that ensure that these governance intentions are enacted and that in practice IPD project participants made clearly accountable? [Governmentality]

This chapter specifically explores governance and governmentality at the project front-end through gateway processes. We also investigate how IPD projects operationally manage the design and delivery stages through governance structures such as an alliance management teams (AMT) and alliance leadership team (ALT) and how various tools, techniques and processes are used to govern project delivery to minimise the impact of surprise events. We also highlight governmentality aspects that are relevant to IPD style projects.

What do we mean by governance within an IPD project context?

Taking and adapting the concepts of governance and governmentality (Müller, 2017) we can describe how governance may help us understand what structural arrangements may be necessary to deliver a project, and more particularly an IPD project and how governmentality helps us understand how to ensure that people and processes are aligned to deliver a successful project.

Table 19-1 - Governance and governmentality concepts applied to IPD

Concept	What it means in general	How it applies to IPD
Governance as a system of controls	perceived as a system or collection of control structures and mechanisms to direct and control organisations, including related balanced economic and social responsibilities;	The IPD form of alliance agreement and the way that it is designed to shape and maintain collaboration as a 'one-team' concept with a best-for-project mindset. Incentivisation based on project, not individual team performance, instils collaborative shared joint accountability to create a 'one-team' mind set.
Governance as processes	perceived as the role and functioning of processes through which organisations are directed and controlled to be responsive to the rights and wishes of their stakeholders	The IPD agreement form includes processes specifically designed to engender collaborative behaviours such as no-blame, commitment to innovation, consensus decision making. The process for measurement of key results areas extend beyond 'iron triangle' measures to include broader social and environmental concerns.
Governance as motivation	perceived as the mechanism by which accountability and responsibility is influenced.	The IPD agreement encourages collective responsibility and accountability as opposed to individual team performance. This is formalised through incentives under a gain-pain sharing contractual clause.
Governance as relationships	perceived as the role of governance in defining the relationships among the various internal or external stakeholders and their rights, responsibilities and influence upon the organisation	The IPD agreement is framed in 'we' not 'you' language to emphasis collaboration. Participants agree to transparency and an open-book policy and accept their mutual dependency within a 'one-team' concept of mutual shared obligations to deliver best-for-project outcomes.
Governmentality	The culture, norms and mindset of people concerned with governing projects	The way that authentic leadership is demanded in IPD projects. The designed accountability system that balances trust with control and the best-for-project mindset to focus everyone on avoiding power, information and knowledge asymmetries to facilitate effective collaboration. As highlighted in Chapter 27, the team selection process has a very strong emphasis on proponent alliance team's governmentality and culture.

Control in IPD is centred on ensuring transparency, accountability, responsibility and fairness. There is a focus on encouraging, and indeed achieving, an outcome by all participants jointly through their collaboration as members of a single project team with aligned common goals. Governance control systems are enacted through governance processes that support relationships between participants and relevant external stakeholders to get on with the job. A considerable effort is made to minimise barriers to collaborative effort and to maximise enablers to do so.

When we consider IPD projects compared to more traditionally procured projects, we see a greater focus on a stakeholder rather than shareholder orientation. IPD projects are usually developed as part of civil engineering and building infrastructure programmes to deliver value to multiple and layered stakeholder groups. The deliverers of IPD hospital projects in the USA are concerned not only with the economic returns to the Health Services Provider, Sutter Health for example (Lichtig, 2005; Post, 2007), but also to the whole range of medical workers engaged in those facilities as well as the patients receiving treatment and those that may be considered as the general public visiting a hospital. Fischer, Khanzode, Reed, and Ashcraft (2017) discuss sustainability in their book in terms of business as well as environmental sustainability. Similarly the infrastructure alliance projects studied by Walker and Lloyd-Walker (2015) in Australia were focused on multiple stakeholders as well as achieving triple bottom line (economic, social and environmental) outcomes. We also see in IPD projects a need and a design to be concerned with both outcome control to deliver to stakeholders what they need, and also to be highly focussed on control of process and behaviours that are designed to support collaboration. This fits with the 'agile pragmatist' characterised by Müller (2009, p11) as a paradigm that:

> 'Balances the diverse requirements of a variety of stakeholders by maximizing their collective benefits through the timely development of functionality or value. Project management methods maximize value of a series of outcomes over time, based on the strict prioritization of user needs.'

It is against this backdrop that we now discuss how projects may be delivered across the initiation to outcome phases. In doing so we focus on the IPD approach and contrast this with traditional project delivery approaches.

Governance at the front-end of projects

This section takes a more detail focus on governance process at the front-end of projects. The origins of the process emerge from the end of the last century. A gateway process was recommended by Peter Gershon (1999) to the UK government, based on private sector best practices. The Office of Government Commerce implemented it from 2000 (Klakegg, Williams and Magnussen 2009 p80, Department of Finance and deregulation 2009 p2). OGC developed it further (2007) for commercial and infrastructure projects to test assumptions about a project's viability involving a formal process for government projects in the UK. During development, the process has had many names and its scope and application has evolved. The terms stage-gate or phase-gate is also used and Cooper, Edgett and Kleinschmidt (1993, 1997) used the concept for managing new product development before it was adapted to manage the approval of project proposals.

The UK and Australian front-end governance approach

The gateway approach has been adopted by other governments for example in Australia (Commonwealth of Australia, 2006, 2009). The Australian process has a series of five stage gates across seven identified project delivery phases in which the project proposal is developed and reviewed for relevance, efficacy and potential benefit impact.

- **Phase 1** is the business need identification phase in which strategic proposals are developed to frame potential options. *Gate 0* is the business need gate testing for stakeholder support, demonstrated alignment with the organisation's business goals and proposals more detailed plans about how to proceed to the next and subsequent phases. This is a 'why bother?' testing phase to ensure that there is a real need to be satisfied.
- **Phase 2** follows a successful Gate 0 outcome and involves the development of a business case where options are explored and appraised for being affordable, value for money/best value, and whether the initial plans for the subsequent stages is still valid. The checking and appraisal of the Phase 2 plan details is undertaken through the *Gate 1* – Business case stage gate for the strategic direction and concept to ensure that the business case process and assumptions are robust enough to proceed to the next phase. The identified project benefit concept should be SMART, that is **S**pecific, **M**easurable, **A**chievable, **R**elevant and **T**ime-bound.
- **Phase 3** is where the delivery strategy is developed for example for infrastructure it may be a traditional design and construct (D&C), Public Private Partnership (PPP), or IPD forms such as an Alliance. *Gate 2* is focused on how prepared the project proponents (owners/sponsors) are to enable proposals to be called for from within their organisation if it is to be an in-house project (rare these days) or offered to the market. The gate checks for robust procurement options and ensuring that the plan's feasibility is still justified.
- **Phase 4** is where the procurement delivery tender solution is examined. The business case is reviewed and updated to reflect accumulated knowledge about the business need and other general environmental factors. Bids are assessed and the readiness of the partner's plan for design and delivery is detailed. *Gate 3* is the procurement form choice decision gate. The focus here is on matching the business need with the procurement strategy and readiness of the market to participate. It also involves questioning the robustness of the planning for design and delivery as well as what project governance controls will be put in place.
- **Phase 5** is the tender decision stage to deliver the project solution where the contract for the project to go ahead is given as approved. The project is actually delivered during this phase which may be significantly longer that previous phases. Plans for testing at completion, commissioning and transition are also approved in readiness for the asset/benefit to begin delivering value to the organisation as planned. *Gate 4* tests for readiness for service upon project completion and its transition to hand over. This gate reviews the decision before it is formally made and communicated for work to commence.

It could be argued that a post-handover stage gate when the asset is fully operational should be considered. This may reveal useful lessons-learned or flag conditions for asset refurbishment or change of use.

In the following section, we will use Norway as a stage gate governance illustrative case.

The Norwegian front-end governance approach

The Norwegian government (The Ministry of Finance) took active lead in improving public sector investment projects in 2000, following a period of vast budget overspends accompanied with projects that was delivered too late, and with less benefits delivered than originally planned. The Ministry of Finance saw this as a serious governance problem and developed a so-called Quality Assurance Scheme to fix it (SamsetBerg & Klakegg, 2006). The first version of the scheme (2000) was a control intervention before the final decision in Parliament to finance and execute the project. This broadly corresponds to Phase 4 and Gate 3 described above for the UK and Australian approach.

Later (2005) a second intervention was introduced earlier in the development stages, before the Government accepted the project for further planning after thorough assessment of the business case. This corresponds to Phase 2, Gate 1 above. Similar governance arrangements have spread to other parts of society when copied by local government in large municipalities and regions. Over time, this scheme has developed further into a complete governance regime for major public investment projects in Norway. Private sector parties that want to be suppliers to the state funded investment projects also needs to adapt their practices to this governance regime. This effectively makes the principles of governance installed in Norway influence the whole project management community across sectors and industries. Ministry of Finance also installed in 2002 a research program called *Concept* to follow and document this regime. We suggest that this is the most well documented governance regime currently available. All information is freely available online: https://www.ntnu.edu/concept (although much is in Norwegian).

The original governance system in UK was based on private sector experience, whereas the Norwegian system was developed from the public sector but later spread to the private sector through the project bidding mechanism (KlakeggWilliams & Magnussen, 2009).The purpose was similar (value for money) and the means focussed front-end practices that stimulate choice of alternatives the maximise value (SamsetAndersen & Austeng, 2014). Similar processes have been adopted and implemented by large commercial companies as recommended by Merrow (2011) for petrochemical and mineral extraction industry sector mega-projects. There is consequently no clear-cut difference between private and public sector in terms of what means can be used to reach the ultimate goal.

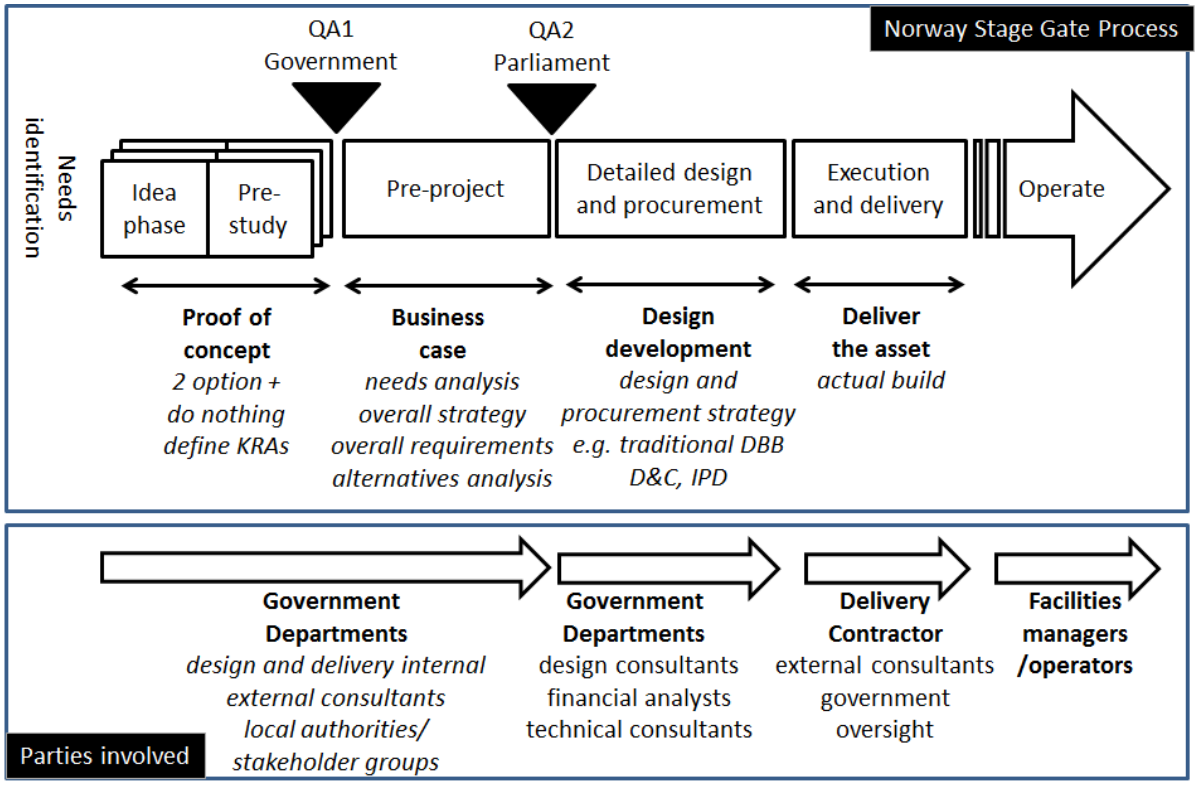

Figure 19.1 - The Norwegian stage gate **process (Source adapted from: Samset & Volden, 2013)**

Figure 19.1 illustrates the Norwegian project stage gate process. It moves across a similar process to the UK and Australia. There is a proof of concept stage in which the project need is identified and ideas to address these generated ideas. This is followed by pre-study works that results in two options and a 'do-nothing' business-as-usual (BAU) option being proposed for a government decision whether to proceed to the next stage or not. If neither of the two active options are approved to proceed then the BAU option is followed by default. Should the proof of concept be accepted then more detailed work on the business case is authorised to proceed. The option accepted as best is then developed. Pre-project work develops the basis for:

1. **Needs analysis** that includes mapping all stakeholders and affected parties to assess the relevance of the anticipated investment in relation their needs and priorities;
2. **Overall strategy** that ideally specifies consistent, realistic and verifiable immediate and long term objectives;
3. **Overall requirements** that need to be fulfilled, e.g. functional, aesthetic, physical, operational and economic requirements and;
4. **Alternatives analysis** that defines the zero-option and at least two alternative concepts, specifying their operational objectives, essential uncertainties, and cost estimates. Alternatives should be subjected to a full socio-economic analysis (Samset et al., 2006, p6).

In the Norwegian system, the business case and pre-project study results are presented to Parliament to gain national rather than the ruling political party's approval. This removes uncertainty about projects being cancelled once there is a change of government with a political party being hostile to the project taking power as happened in Australia for example. The Liberal Victorian state government rushed through The East-West Link freeway extension PPP approval by executive orders immediately prior to a state election that proved to be highly controversial that resulted in the

incoming Labor Government cancelling the contract at great expense (Victorian Auditor-General's Office, 2015). Once approved at QA2 full design development documentation and tendering takes place. A project delivery contractor is then appointed through a tendering process and the successful entity delivers the project.

Figure 19.1 also illustrates the parties involved throughout the process with Government departments being actively involved and all stages up to successful tenderer appointment to proceed with construction. While external consultant advice is sought throughout this process when appropriate internal resources are unavailable, the process varies from the Australian alliance process in several important ways.

The business case pre-project phase is undertaken under the auspices of the Government Departments under the Norwegian system. Under the Australian and New Zealand alliancing approach a consortium of designers and contractors and often operators (where the infrastructure operator has been outsourced) is involved at the pre-study and pre-project stages (Walker, 2016). The process adopts either a selected single syndicate alliance team approach with full government project owner representative involvement at the pre-study stage or a competitive dual syndicate approach is used in which the successful syndicate is appointed at the QA2 point. Chapter 27 in this book provides details of how this collaborative process operates in the Australian context.

The execution stage proceeds after contract award for project delivery and involves government representation for contract administration purposes such as dealing with contract variations for example. It could be possible for Norway to introduce a procurement system similar to that of the Australian project alliance IPD type approach where the integrity of the current system is maintained. We are not advocating for such a change as the motivation to engage in IPD, and alliancing in particular. This choice is highly context dependent. Chapter 1 of this book provides a summary in Table 1-1 of the motivation and context for alliancing. Context and all participants having the requisite knowledge, skills, attributes and experience to deliver projects through an IPD process, determine whether or not to choose an IPD project delivery approach for the project execution phase. There has not been a long history of IPD in Norway and so any such move towards IPD would be a new experience for many potential project participants. However, there have been a wide range of examples of projects where collaboration was evident from cases in the Norwegian private sector (Borve, Ahola, Andersen, & Aarseth, 2017; Børve, Rolstadås, Andersen , & Aarseth, 2017).

The Norwegian stage gate approach started out as a control intervention and developed further into an approach that took form of a governmental control system. During this development, all sides of governance are dealt with as indicated in Table 19-2; from the perspective of a governmental control system, processes adopted at the front-end, how it defines and predicates relationships through that front-end stage and the governmentality it demonstrates.

Table 19-2 - Governance and governmentality concepts applied in the Norwegian QA scheme

Concept	What it means to the Norwegian approach	How it applies and may be used to better integrate the project owner, designer and deliverer
Governance as a system of controls	An active intervention to check whether the proposed investment alternative represents good value, is realistic, ready for implementing the next stage. Documentation is controlled for completeness, correctness, consistency etc.	The process of passing the gateway QA1 and QA2 is so demanding that it takes great effort by all involved parties to produce a viable proposal and acceptable documentation. This has led to an increasingly detailed and involved process up front of the stage gate to make sure all relevant information is available and taken into account. This has a significant integrating effect, and is reinforced by arenas for professional debate on these matters provided by the Concept research program. The Norwegian QA scheme is by no means a complete system, as Government has never intended to tell the Agencies or private sector HOW to do their job, just what they need to achieve (Christensen, 2009; Klakegg et al., 2009).
Governance as processes	As part of the intervention, defined planning and control processes are implemented. The results are documented and will decide whether or not the project passes into the next phase. The intervention processes are described, anchored at a strategic level, and requirements are explicitly defined and strictly implemented.	The business development, briefing, design, procurement, project execution or operation processes of the public organisations and their infrastructure is not directly subject to the scheme. However, by imposing critical control on both professional quality of the process and its results, the QA regime has had significant influence on the extent of professionalism at all organisational levels. The requirements are so rigid and the transparency so comprehensive that any deviation will expose the project and key actors for public criticism (Klakegg et al. 2009, 2016). This leads to a growing understanding that no party will succeed unless in collaboration with key stakeholders. The approach requires significantly more resources to be used in the early stages of development, and the involvement of more parties on an earlier stage compared to before.
Governance as motivation	The current stage of considering project incentivisation within the Norwegian stage gate process is emerging but is still somewhat reticent and exploratory.	Motivation to deliver the best value in an holistic sense (recognising social and environmental value), rather than value for money (that tends to focus more heavily on cost/value (MacDonaldWalker & Moussa, 2013) is best served with incentives that link to broad triple

		bottom line key result areas. Incentives are based on gain and pain sharing on the **end project outcome** rather than **individual participants' performance**. This fosters a united team vision for a a best-for-project outcome.
Governance as relationships	The QA scheme came out of a situation where Ministry of Finance wanted more control over budgets and thus over the development of public projects. To achieve this they used political power, economic resources and professional knowledge to build a completely new environment for project management.	Even though the Norwegian QA scheme was originally a pure control regime, it quickly developed into an innovation arena, supported by the Concept research program. The scheme was controversial at first, but results shown positive effects that turned the discussion into an active seeking of opportunities to improve processes, methods, knowledge and access to information. The selection of a few, highly professional private sector parties (consultants) as external controllers and development partners defined them as role models, and Ministry of Finance invited all relevant Ministries and Agencies to join in development of the processes and criteria involved in the quality assurance. The Ministry of Finance' position as gate-keeper (Klakegg, Williams, Walker, Andersen, & Magnussen, 2010) was in control of which projects where allowed to proceed to the project decision stage. This made it highly relevant and important for all parties to join. From this joint innovation process and with increasingly positive results, good relations between the parties developed and opened up for broad collaborations and integrated processes.
Governmentality	Any governance approach needs to be developed and implemented in accordance with and with respect for existing culture and mindset. After all, it is always about the people and groups involved in the process, not primarily about the formal structures.	Culture (egalitarian, work-life regulations, democracy etc.) and mindset (trust, communication, openness etc.) forms an important premise for the Norwegian QA scheme (Klakegg et al., 2009). It would not work without them. Avoiding a mismatch between the formal governance structures and people's behaviour is a guiding principle (Klakegg & Volden, 2017). However, the governance scheme also strengthens these qualities and develops them within the context of the project development

		process. The openness to exchanging experiences and good practice across sectors, organisations and levels helps all parties reach a level of good performance fast. By keeping arenas for innovation as (an associated) part of the QA scheme important aspects of governmentality is upheld and further developed.

"Good governance" includes four principles that constitute sustainable and ethical project governance, namely, transparency, accountability, responsibility and fairness (Millstein, Albert, Cadbury, Feddersen, & Tateisi, 1998). The Norwegian governance framework introduced here has significant influence on all these dimensions of public projects. It works through its formal structures; controls, processes and roles, and through its more cultural sides; relationships and governmentality.

Governance at the development phase of projects

Front-end governance measures are primarily aimed at improving the process of selecting the most suitable projects to fund and execute and ensure they are given appropriate scope, time, and budget conditions, typically seen from the perspective of the project owner and funding bodies. One interesting question to consider is whether such measures are conducive to setting up IPD projects in a manner that helps facilitate their success. Are there activities, analyses, etc. woven into such governance processes that somehow help set the stage for an IPD-oriented type of execution of projects that undergo these processes? As far as we are aware of there are very few, possibly none, examples of case projects in Norway and possibly elsewhere, that have both been subject to the level of intensity of the Norwegian project governance processes and been carried through to completion as an IPD project. Thus, an attempt to answer this question must rely on a hypothetical discussion, which we will base on Table 19-2 and Table 19-3 as well as applying our knowledge of the governance schemes of the UK, the Netherlands, and Norway (KlakeggWilliams & Shiferaw, 2016). For interested readers, this source includes more about how the Netherlands chose different means to reach similar ends as in UK, Australia and Norway as explained in this chapter. Klakegg, Williams and Shiferaw (2016) concludes that all schemes will suffer from "wear and tear" and thus needs renewal and development to stay sharp and efficient. The project environment will also change and new approaches will be introduced or developed by project actors. These trends and developments illustrate the need for continuous improvement to any governance regime and quality assurance system.

We present two views of governance at the development phase. The Norwegian perspective is useful because it is a sophisticated non-IPD approach that features many collaborative characteristics. The second perspective is from alliancing in Australia as this provides a pure IPD arrangement.

The Norwegian project development and delivery governance experience

The assessment of the Norwegian state governance process is presented in Table 19-3.

Table 19-3 - Governance and governmentality concepts in the Norwegian governance process and their relevance for integrative initiatives such as IPD

Concept	What it means to the Norwegian governance approach	How it may be used to better integrate the project owner, designer and deliverer
Governance as a system of controls	This is the most prominent aspect of the Norwegian scheme; the historical motivation for introducing the scheme was to establish a new control mechanism to make public agencies more accountable. Initially, the motivation was to address the problem of frequent cost overruns. This led to the QA2 decision gate, and was later followed by QA1, aimed at ensuring the most suitable projects under promotion were selected and designed based on the most appropriate design concept. Thus, the Norwegian scheme is fully aligned with the control aspect of governance theory.	Since the QA1 decision gate involves analysis of several different solution concepts, this most likely also has an impact on integration of future actors involved in project execution. The alternative solution concepts must be investigated in sufficient details to allow analysis of investment costs, benefits delivered, stakeholders affected, etc. To enable this, inputs must typically be sought from different stakeholders such as future operating bodies, users of the infrastructure delivered, engineering consultants, and contractors (such contact does not imply any obligation to award future contracts to suppliers consulted). We believe that this aids in initiating a process that facilitates integration across the project owner-agency-supply chain at an earlier stage in the project development process that would not necessarily be started until a later stage if the QA1 decision gate had not existed. This indicates QA1 has significant potential in promoting IPD. Similarly, the QA2 decision gate, which is mainly focused on risk, contracting strategies, and cost estimates, also requires that the external quality assurers conduct various analyses that rely on specifying design concept details further from the QA1 stage. Consequently, the agency should have progressed the project design concept further after QA1 For example, arriving at sufficient detail to allow undertaking a QA2 assessment at the QA1 stage, can thus contribute to further front-end integration of actors in future execution. However, QA2 is more transaction oriented and focused more on actual control than QA1 and as such probably has less potential for promoting IPD compared with QA1.
Governance as processes	Both in terms of formal instructions posed to the external QA consultants and the procedures that have been established over the	This is closely linked to the discussion above; the QA scheme drives processes that mandate contact and dialog among different actors involved in the

	years, both QA stages involve various processes that constitute governance processes. These involve stakeholder consultations, collaborative design concept development and evaluation, risk identification, cost/benefit analyses, etc. While most of the processes that directly feed the QA deliverables are delivered by external consultants, they are normally preceded by preparatory analysis processes managed by the agency (as part of a choice of concept evaluation that result in a formal report that forms an important part of the basis for the QA1 work). Thus, the QA scheme itself drives processes that results in more extensive governance at the front-end of these projects.	development of the project. We assume this to have a positive effect in terms of laying a groundwork for future implementation of IPD as project execution approach. This certainly applies to the actors involved in such processes who later inevitably become involved in the execution of the project (the project owner, operating body, users, and agency) as well as actors who are involved in the front-end phase, but who may not play a part during execution, i.e., various types of suppliers. Some of these may be chosen as actual suppliers, but the national supplier market in Norway is rather limited and even for actors not involved in the execution of the project in question, involvement in front-end governance processes in general can help create general maturity for collaborative approaches like IPD.
Governance as motivation	The original motivation for the stage gate approach was to ensure greater financial responsibility and control but it has evolved into a best-practice rigorous approach to developing a business case based on wider key results areas (KRAs) than budgeted cost and time or even fitness for purpose quality. This evolution has fostered greater collaboration between government and inter-disciplinary consultants through preparing a rigorous QA1 and QA2 proposal.	The IPD incentive regime of establishing a fixed price cost and time target outturn cost (TOC) together with the gain and pain sharing agreement may be the next step in the development of the Norwegian project stage gate process. We suggest caution, however, as noted in Table 1-1 in Chapter 1 of this book, the motivation to engage in IPD and in particular alliancing is highly contextual.
Governance as relationships	This follows naturally from the discussions about governance as control and processes. As a direct consequence of the analyses and processes driven by the QA investigations, actors involved in the project (but excluding suppliers due to the law of public acquisitions that rules for impartiality) are brought together at several instances and for different purposes that might otherwise not have happened. These interactions can certainly help form and evolve relationships	The fact that the governance processes force the formation of relationships early in the development of projects should help stimulate relations that IPD could benefit from. If such relationships have to be established from scratch after project execution is formally started, it will naturally take longer for these to evolve than if they have been seeded far earlier in the project development processes. The Norwegian QA scheme even builds relations across projects because several arenas for collaboration and experience sharing was established as part of it.

	among actors internal and external to the project.	There still remains impediments to alliancing similar IPD due to existing Norwegian competition and public procurement law that needs to be considered and addressed.
Governmentality	This final aspect of governance is the least tangible one, but nonetheless, relevant to the Norwegian QA scheme. First, inside each individual project, the processes and interactions that result from imposing the QA1 and QA2 investigations certainly influences aspects such as trust, working culture, etc. in the extended project organisation. We argue that the net effect of this influence is positive, i.e., that trust among actors is increased and that the basis for future collaboration is improved. However, some of these processes might also bring to light and sharpen disagreements and conflicts that can lead to deterioration of trust and working relationships (in some cases, the QA investigations make issues surface that otherwise might not appear until later and then with greater negative consequences – as such it is preventing conflict). At the industry level, although many of the projects that are run through the QA scheme employ international suppliers to smaller or larger extents, a majority of the actors involved from the owner, agency, user, and supplier side are Norwegian and collaborate on many projects over the years. The way the QA scheme has forced a much more structured governance model unto state-owned investment projects during the last fifteen+ years has undoubtedly created a much better understanding of front-end governance in the industry as a whole. While some voice criticisms against the scheme and its implementation (mostly for requiring too much resources and	As such, the Norwegian QA scheme is seen to have had a positive effect on relationships, trust, and the general climate for collaboration in bringing public mega-projects through to funding and execution. There is no reason to doubt that this also has a positive effect on the likelihood of successful implementation of IPD or other relational-based contracting and execution models. Chapter 29 discusses trust and open rigorous debate, and Chapter18 discusses innovation and its diffusion for IPD projects. Both chapters stress the need for open and vigorous debate about proposed project concept solutions in an atmosphere of no-blame and low power and knowledge asymmetry. This raises the prospect of conflict as potentially being positive if well managed. The Nordic countries generally have a natural collaborative culture in which social good, low power distance and seeking consensus are societal norms (Hofstede, 2001; Högberg & Adamsson, 1983; House, Hanges, Javidan, Dorfman, & Gupta, 2004). This could work in favour of experimenting with IPD more fully in Norway.

	time), most agree that it has had an overall positive effect on the development and decision processes for these projects and there is a clear sense that there is trust in the system and among the actors. Interested readers might like to learn from the paper by Klakegg *et al.* (2016) about this issue.	

The whole complex problem addressed here is about how it is possible to ensure future projects (investments) will produce the benefits they are expected to, and thus create the value intended from the initiators. As indicated above there is a multitude of formal instruments available, but also that it is important to combine them in a way that aligns well with the culture and mindset that dominates the current environment in which it is to be implemented (Klakegg et al., 2009). This points to culture and attitudes in the society where the arrangements are meant to work: Copying other countries or organizations' governance arrangements will not work. Our opening discussion on the relevance of institutional theory and Scott's (2014) three pillars emphasise the importance and relevance of local cultural norms in interpreting regulations and rules. Judicial and cultural differences will force different responses to the same formal arrangements.

In terms of promoting IPD the governance and governmentality aspects above represent possibilities for all parties based on the following:

- Project initiators need to find the best concepts and options for their projects. The knowledge needed to identify and develop these resides with the key stakeholders and specialists. Thus, IPD may be a useful approach to strengthen the project initiatives because it draws together the principle parties of the owner, design team and delivery team much earlier than is currently the case as evidenced by the IPD literature in the USA for example (Cheng, Allison, Dossick, & Monson, 2015) Finland (Aapaoja, 2014; HietajärviAaltonen & Haapasalo, 2017), New Zealand (Ibrahim, Costello, Wilkinson, & Walker, 2017), the Netherlands (LaanVoordijk & Dewulf, 2011; Plantinga & Dorée, 2016), and Australia (WalkerMills & Harley, 2015).
- Project financing parties need to ensure that the investment is viable in a financial sense. Triple bottom line social and environmental sustainability of the projects have also become critical issues to those who make finances available for future investments as this also provides longer term competitive advantage (Porter & Kramer, 2011) and others in the accounting literature argue that ethical financing represents enlightened stakeholder engagement (Macve & Chen, 2010). Non-viable investments are unacceptable from an economical point of view and represents unethical investments that financers today need to distance themselves from. IPD will help financing parties avoid future investments that end up as bad publicity. Examples from the project management literature taking the ethics and public good perspective to IPD may be found in the Australian Sugarloaf Alliance project (Lloyd-Walker & Walker, 2017; Melbourne Water, 2014; SmithAnglin & Harrisson, 2010). Chapter 23 of this book discusses ethics, corporate responsibility and IPD.

- Long term sustainability of built infrastructure is also crucial for long term project success. The facility's users need to be confident that they will get a solution that is relevant and functional for future use and operation as well as from the short and medium term perspective. It is important to apply knowledge from use and operations data and obtain that feedback early in the design development. Clients also need to consider flexibility in design for inevitable future needs. IPD offers the opportunity to achieve both these at the same time by integrating users and operators in the development process as evidenced in cases from the USA for example (Fischer et al., 2017).
- Regulating parties need to access complex information, including permit information, in order to consider consequences of the suggested solutions. This information will be present up front in the planning process even before formal procedure for approval starts. In order to avoid future conflict in the regulating process, active involvement to clarify premises for development is possible in an open, transparent process where parties are accessible. This highlights the advantage of having facilities management expertise brought into the early stages of project design. The book by Fischer *et al.* (2017) provides many practical examples of this.
- The asset owner/client needs to know that the suppliers are willing and able to deliver the most appropriate solutions with the intended effects from a long-term perspective, and simultaneously to match expected cost, time and quality from the short term perspective. Projects are becoming too complex for one party to fully understand and oversee. Project owners need to procure suppliers and service providers that they can trust. IPD is purposefully designed to do so, as described in other chapters of this book, particularly Chapter 13. The Norwegian situation above suggests that this is possible in public sector as well as it has been shown in private sector elsewhere such as in the USA (Pishdad-Bozorgi, 2012) and Australia (Davis & Walker, 2008).
- Suppliers need to know they will be reasonably paid for their effort and knowledge contribution. IPD offers models that takes this as a starting point and accepts this as fundamental, unlike traditional (transaction based) models where the basis is a competitive win-or-lose process (Love, Davis, Chevis, & Edwards, 2011; Ross, 2008). The concept of reasonable return was specifically addressed in for example the National Museum of Australia project. The Australian National Audit Office confirmed that alliance delivery team participant fees were based on recent average profit margins over a business cycle so that fair recompense was provided (2000, p40) and that these margin figures were verified by the probity consultants engaged to ensure that project participants acted and behaved according to legal and contractual (the project alliance agreement) conditions (2000, p49).

There are numerous practical governance challenges that the parties involved need to address before entering an integrated and collaborative process such as IPD:

- Project initiators need to be well prepared before making the first move. The official start of a project development (especially in public sector) builds expectations among key stakeholders and the society in general. Preparation includes ensuring that the selection process is fair and transparent and that adequate governance measures are in place to counter potential for either parties engaging in opportunistic behaviour (Laan et al., 2011).

- Regulating parties need to be careful in terms of not pre-accepting future solutions before they are adequately mature for a formal decision. The QA1 stage gate is an important point at which clear carefully considered options should be presented that have been rigorously developed to avoid the client (government) being pressured into hasty decision making.
- The asset owner/client needs to yield traditional hierarchical and authority based control in exchange for collaborative involvement (knowledge and relation based control). This is a challenge because of the massive pressure to make quick decisions that accelerate in intensity. Owners may not have the competence, capacity or courage to do so (see Chapter 11 in this book for more details). There will be little time to investigate and make formal reports – so they need to learn to trust decisions being made collectively. There also a need to keep some major business decisions formal and take time to anchor them in a wider national strategic planning context. The Australian and Norwegian governance frameworks described above illustrate this.
- Suppliers need to be able to refrain from the traditional philosophy of building a case to get extras. The transaction-based world of procurement arrangements takes the starting point that suppliers shall tender low to get the contract, then, after contract award they look for opportunities to improve their economic results (Cox, 1999, 2004, 2014). This is known to frequently lead to conflict. IPD changes this all together (Laan et al., 2011). IPD takes the position that contracts are awarded to those who are best able to solve the problem at hand, and that payment needs to be reasonable to avoid conflict.

The Australian project development and delivery governance experience

The Australian and New Zealand IPD alliancing governance process stretches across the pre-project through to the delivery phases of a project. This process has evolved over time. Several features are explained in greater depth in this section; however, interested readers should consult Chapter 27 in this book that explains the Target Outturn Cost (TOC) process. The term TOC may be considered somewhat restrictive because it is much more strategic than the establishment of a fixed price cost estimate for a project. The PAA has several governance features including, development of the TOC, development of delivery strategies, coordination mechanisms and an incentive arrangement that influences alliance participant behaviours. Readers may wish to refresh their understanding of the motivation to engage in an alliance (see Table 1-1 in Chapter 1) and the Collaborative Framework elements and how they relate to each other (see Chapter 2, particularly Figure 2.2 and Chapter 2 Appendix 1).

IPD, as its name suggests, place the word ‘integrated’ front and foremost. The governance system that supports integration includes integrating a joint governance structure, (Element 2 in the Collaborative Framework see Chapter 1), integrated risk mitigation and insurance (Element 3), joint communication (Element 4), substantial co-location (Element 5), common best-for-project mindset/culture (Element 9), consensus decision-making (Element 11), joint incentivisation (Element 13), and mutual dependence and accountability (Element 16). These elements are explained in great depth in Chapters 6, 15 and 21. However, we discuss them here in this section from a governance perspective. IPD and alliancing in particular has collaboration as its hallmark with supporting behaviours and processes.

Coordination governance arrangements

The first and most obvious collaboration alliance element is joint governance. This means that common integrated systems are used for making decisions, taking action and joint responsibility and accountability for decisions and actions. Systems include the way that each participant has authority and agency delegated from their home base organisation. There would also be common protocols for raising concerns, requesting information or clarification of information. Common systems would include standards and performance expectations such as for health and safety, environment, dealing with stakeholders and aligned human resource management systems such as performance reviews, disciplinary actions and a host of other administrative functions.

Structurally, governance is usually enabled through two main coordination, monitoring and control committees. Tactical and operational level coordination and control is undertaken by the Alliance Management Team (AMT) which is led by the Alliance Manager (AM). This team has representation from each alliance participant organisation and their role is to help plan, monitor and control progress. The team resolves issues that cannot be dealt with by individual team members, perhaps because of lack of information, authority, or other conditions beyond their level of agency. This committee is very similar to typical project control committee on any project except that the style and culture is one of low power and information asymmetry. Generally, the AMT has a shared leadership style in which those people with expertise and specific knowledge about a particular topic of discussion will in effect 'chair' that item of discussion. The aim is for openness, transparency and disclosure. A no-blame clause in the Project Alliance Agreement (PAA) protects people from retribution and the whole thrust of the committee culture is to get problems out on the table so that they can become resolved rather than fester. This also encourages and triggers innovation and experimentation so that novel solutions are often found. The Walker and Lloyd-Walker study (2015) provides numerous examples of these.

A strategic leadership committee, the Alliance Leadership Team (ALT) is also a structural feature of alliance governance. This committee comprises the alliance participant home organisation based champions for the project. They are usually senior executives with extensive experience of managing projects and in the Australian and New Zealand context, where alliancing has been used for several decades, ALT members often have project alliance experience as well. Their role is to strategically guide the project. They take responsibility for ensuring that KRAs are being satisfactorily achieved and they also act as a conduit to their own home organisation and also may have other community influence. Their position and role often means that they have greater agency to authorise actions or additional resources from their home base organisations to speed up resolution of project issues or to ease tensions. The ALT meets periodically, usually monthly, and ALT members frequently visit the site from their home base. A similar governance AMT/ALT system is currently being used on the Tønsberg hospital project in Norway.

The alliance as a whole would also have set, articulated clear KRAs. These would be established early on and be part of the framework for the alliance proposal response. The way that KRAs are monitored is through key performance indicators (KPIs). KPIs are important for maintaining coordinated action and are integrated so that a set of KPIs ranging from one to several may relate to one KRA. For example a KRA for community engagement may include a KPI for communicating anticipated upcoming disruptions to the local community to KPIs relating to support for professional association and industry group presentations. KRAs such as cost and time would be simple as these

can be measured against the TOC plan but other KRAs may need finessing as the project moves through the delivery stage. Participant P20 in the Walker and Lloyd-Walker study (2015, p172) explains the process as follows:

> '… the KRAs were initially developed by the owner very early on and massaged to death might I say, you can quote me on that, but finalized at the time of agreeing the TOC as well, so the TOC was really, the value and the scope of work that we landed on in the TOC had to reflect the KRAs that we had for the project and also had to reflect the initial business case of the project, so all of that alignment of value statements and value requirements had to be done at the time of TOC to make sure that what we were putting forward was going to meet the objectives that we had initially planned, but also was going to create that value that we had promised.'

KRAs were often varied and specific to the project as those noted by P34 (2015, p173).

> '… the KRAs were around reducing congestion, improving safety, improving connectivity. And that improving connectivity is also about access control as well. Then community relations; so a very difficult community that we were living in, and socially very poor, and lastly, the integration with the maintenance regime.'

Risk and opportunity management is also managed in an integrated manner in alliances. One advantage of this is that because of the no-litigation clause and the client largely assuming overall risk that there is a project wide insurance policy rather than each participant taking out their own insurance (Department of Infrastructure and Transport, 2011). This not only saves money but engenders trust and confidence between team members.

A further coordinating governance arrangement is the incentivisation provision of the PAA. Coordinating the alliance team is facilitated by the KRAs being applied to project performance as a whole and KPIs not being measured against any one team but for the project alliance team as a single entity. The TOC, as explained in more detail in Chapter 27 of this book, establishes the baseline cost, time and other minimum satisfactory criteria as defined by the KRAs. The incentivisation part of the PAA sets out the agreed percentage each individual participant team is exposed to in terms of any gain or pain sharing resulting from deviations from the TOC. This not only motivates participants to collaborate, but also to coordinate their activities to ensure that the end project result is favourable. It becomes pointless to pursue an uncoordinated agenda based on any one team's individual goals if that jeopardises the end result.

A further coordination feature of alliancing and IPD in general is co-location. Teams are, as far as is practicable, located together, usually in a single complex of site office accommodation. This not only encourages collaboration but also facilitates coordination. Co-location also relates to mental co-location as those in the team that are not physically co-located are usually 'virtually' co-located and linked through digital technologies to be able to communicate freely. Another aspect of co-location is power and information symmetry. Alliances and other IPD forms usually have hierarchical structures that are flatter and considerably less command and control oriented so that it is easier for alliance participants to share perspectives on issues to arrive at common ground. Processes, structures and technologies are all geared to a unified team sharing a coordinated best-for-project vision for the project. Similarly, this approach is currently being used on the Tønsberg hospital project in Norway.

Collaboration governance arrangements

Various governance arrangements help to cement collaborative behaviours in place. Communication technologies that are used by all PA participants not only help coordinate activities but also facilitate collaboration. Building information modelling (BIM) in construction and manufacturing projects provides one example of this. Where several design disciplines may use different BIM platforms in their home organisations they either agree on a common PA BIM platform or ensure that there is sufficient interoperability to ensure that BIM product is transparent to those using the systems. BIM not only helps with design coordination but also for collaboration with interfaces to visualisation and digital emersion technologies. These can be used to help the whole team appreciate consequences of design on the delivery phase. Fischer *et al*. (2017, p270-276) illustrate an example of IPD use of this technology in what they term a computer-assisted virtual environment, a CAVE, where interdisciplinary team collaborative work takes place to not only improve design detail effectiveness but to better understand sequencing and logistics of construction delivery. This is one example of digital technologies having an impact on project delivery. Once these kinds of tools are being used it draws together disciplines into a more coordinated and collaborative collective united team.

Governmentality arrangements are facilitated by IPD behaviours. In alliancing, in contrast to IPD in the USA Integrated Form of Agreement (IFOA), there is a no-litigation clause in the PAA. The way that the PAA legal framework frames the way that IPD contractually varies from the traditional approach is highlighted by Ross *et al.* (2014, p11).

- 'The pure alliance legal and commercial framework 'changed the game' by sharing most or all risks between the parties, so the parties would genuinely 'all win or all lose together'
- This meant there was no longer any incentive to argue over which party bore a particular risk or blame each other – instead the commercially sensible thing to do was to work together as one team in all circumstances – exactly the kind of behaviours required to succeed in high-risk environments
- The concept of unanimous decision-making was a stark and legally tangible symbol of how much the game had changed from the traditional 'master slave' relationship'.

Governmentality is also evident by the consensus decision making and unified best for project mindset. It becomes clear that governance and governmentality, the way that governance is interpreted by participants in a project (MüllerPemsel & Shao, 2014; PitsisKornberger & Clegg, 2004/3), has a significant bearing on behaviours and actions on IPD projects.

Conclusion

We set out to answer the following problem statement: How do clients ensure that IPD projects are appropriately governed so that the briefing process facilitates the project being the 'right project' and that the project is effectively and appropriately delivered? Obviously, the answer given will be limited to the context described in this chapter.

We further disaggregated this question into the following two questions:

1. What are the organisational structures and institutional pillar characteristics that provide the structure and culture for effective project/program governance? [Governance]

2. What mechanisms and processes ensure that ensure that these governance intentions are enacted and that in practice IPD project participants made clearly accountable? [Governmentality]

The text and tables above illustrate the questions do not have short exact answers, but we will extract some main aspects here:

Question 1: The main structure elements are defined stages with decision gates for major business decisions. This needs to be supplemented with proper organisational principles including definition of roles and responsibilities compatible with the IPD principles. Adequate processes are then needed. It is important to define what information (documentation) is needed at each decision gate, and necessary control interventions are required. IPD does not rely on all activities and deliveries to be described up front, so one main aspect of this organisational form will be to make it able to make timely decisions as the project develops. This includes not only ability to conclude on complex technical and financial matters but also conflict resolution and priorities between conflicting goals and priorities. We also argue that organisational governance structures such as the AMT and ALT help shape and guide the way culture of IPD alliancing supports collaborative governance arrangements.

Question 2: Probably the strongest force installing governmentality in this context is full transparency. This reduces any room for opportunistic behaviour to a minimum and increases the level of trust since there are no hidden agenda. The opposite is probably also true – if there is no basis for trust up front it will not work – the lack of trust will be exposed as soon as transparency is required and implemented. Open sharing of knowledge and experience is also a major issue. The next major feature, specific for IPD, is the risk sharing and incentives mechanisms. These are key to motivation and an innovative mindset. The cultural-cognitive pillar described in institutionalisation theory links governance with governmentality. We see many examples in this chapter that illustrates how behavioural requirements of IPD guide a specific way of thinking by IPD participants that guides collaboration.

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