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Making Progress or Standing Still? Learning to Contract in Public-Private Partnerships for Road Infrastructure

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Abstract

Public-private partnerships (PPPs) are known as challenging contractual endeavors to public sector managers, and governments are developing standard contracts in order to ease the contracting process towards PPP deals. This study examines the learning process governments go through while managing the procurement trajectories of PPPs over time and revising the model contract they use, thereby gradually moving towards the formulation of a standard contract. It presents a case study of four consecutive road infrastructure projects in Belgium that looks into the contractual changes that were made over time and explains the reasons behind those changes. The results indicate a learning process that is characterized by an open attitude to learning of public sector actors, and a leading role of private sector actors—primarily financiers—in proposing or even requiring change. Contrary to theory-based expectations, the government continuously tested whether its model contract was in line with market practice, rather than increasingly limiting the room for negotiation as it gained experience.

INTRODUCTION

Large-scale public infrastructure projects—e.g. highways, railway stations, and hospitals—have historically been challenging endeavors to public sector managers. More often than not they turn out as disappointments due to the paramount presence of cost overruns, construction delays, and eventually unfulfilled ambitions. In recent years, governments have increasingly embarked on public-private partnerships (PPPs) to provide new infrastructure on time and on budget (Pollitt, 2005; Savas, 2000; Yescombe, 2007). Compared to a conventional infrastructure project, a PPP is characterized by a more advanced and complex contractual relationship between the public sector and the private sector: the project partners commit themselves to a long-term contract according to which the private partner takes care of the design, construction, financing, and maintenance of an infrastructure asset

(Design-Build-Finance-Maintain, i.e. DBFM) (Hodge & Greve, 2010).¹ The main rationale for this approach is that the private sector acts more efficiently than the public sector. By transferring a considerable amount of project responsibilities and risks to a private sector partner, and given that it can only recoup his investment by properly identifying and managing the risks, it will be incentivized to act accordingly and thus deliver a project on time and on budget (Grimsey & Lewis, 2004).

While PPPs are often reported to indeed take care of timely construction in alignment with the prescribed budgets, they are a different ballgame than conventional projects and bring in plenty of new challenges to government. A most prevalent one is the need for public executives to acquire new contracting capacities. For example, instead of executing project management in a conventional project, PPP requires them to act as directors—‘steering’ instead of ‘rowing’—and they have to bear this in mind while negotiating a contract. PPP also implies that public executives have to be output-oriented rather than input-oriented, which requires a different management focus, and the aspect of private financing necessitates that they build a technical understanding of a nearly unprecedented type of project development (Brown & Potoski, 2003, 2005; Hartmann et al., 2010; Joaquin & Greitens, 2012). Unless public executives succeed in acquiring the knowledge and competencies (such as management capacities) that are required to successfully fulfill their new role, their cognitive biases will put at stake the quality of the contracts they close. This will not happen overnight. As an example, most public executives deal with PPP only once in their career, hence it is practically impossible for them to learn from their own prior mistakes and reuse knowledge of a previous project. PPP thus marks an important learning challenge for the public sector.² The urgency of this challenge increases as PPP grows in popularity; European governments are already closing PPP

¹ Various other PPP models have been used over time, such as Build-Finance (BF) and Design-Build-Finance (DBF) contracts, both of which require less private sector involvement, and Design-Build-Finance-Maintain-Operate (DBFMO) contracts which require more of that. In this article, I focus on the DBFM model.

² Learning as in “the acquisition of new knowledge by actors who are able and willing to apply that knowledge in making decisions” (Miller, 1996, p. 486).

contracts at a total value of roughly €15 billion a year (EPEC, 2014), and these figures are bound to increase in the future.

Several national governments have acknowledged the need to facilitate and coordinate learning in such difficult public infrastructure endeavors as PPPs. In an increasing number of countries, standard contracts are used to promote a common understanding among public authorities of the risks involved in PPP (HM Treasury, 2007, 2012; Rijkswaterstaat, 2012; UK Ministry of Defence, 2001). A standard contract is a modularly structured documents that provides standard terms for elements of PPP that are common to all procurement processes. It is typically drafted by a public sector body, forms a preferred model or template, and serves as a starting point for the negotiations between public and private actors. It is argued that standard contracts play an important role in codifying new knowledge and prevent repetitive mistakes: “public authorities could standardize parts of the contracts [...] as a means to reduce the likelihood of contract and output misspecification” (Iossa et al., 2007, p. 10). Cycles of repeated use and rewriting will make the standard contract more sophisticated over time: it will become more contingent as core elements are reinforced by elaborating elements (Argyres et al., 2007; Mayer & Argyres, 2004).

Strikingly, despite the increasing use of standard contracts in general—not just in the field of PPP but in many other areas, to my knowledge there are only a few academic contributions that address the nexus of standardization and learning or the way standard contracts are developed through a process of learning (Petsoulas et al., 2011; Timmermans & Berg, 1997; Wright et al., 2012). Furthermore, many management scholars may discuss contractual learning, yet their work is predominantly in business and organization studies, certainly not in public-private endeavors (see e.g. Argyres, et al., 2007; Mayer & Argyres, 2004; Vanneste & Puranam, 2010), and often refuses to pay attention to learning as part of the contracting process (for some exceptions, see Lumineau et al., 2011; Van der Veen & Korthals Altes, 2012). In addition, whereas much has been written on PPP management, financing, and risk transfer issues (Akintoye & Beck, 2009; De Vries & Yehoue, 2013; Yescombe, 2007, to mention but a few contributions), major literature gaps remain in terms of learning in PPP. Hence the question: how are the lessons learned by public executives during public-private contracting processes incorporated through a process of standardizing contracts? In this article,

I aim to fill this lacuna by explaining the learning process governments go through as they manage PPP processes over time and revise their model contract in an attempt to eventually arrive at a standard contract. To this end, I select a Belgian road infrastructure PPP program—the Via-Invest Program, analyze the contractual agreements of four of its projects, and seek to disentangle the advancements that were made over time, both within project-specific procurement processes and on a more programmatic level.

The article is organized in the following way. First, I explain on the basis of existing theories why practitioners have difficulties closing long-term contractual agreements efficiently and successfully—particularly in the field of PPP. Following that, I discuss how the current tendency of standardizing contracts can be seen as an outcome of learning processes in PPP trajectories, and I come up with a number of testable propositions. Then I provide a brief introduction of the Via-Invest Program and outline the methodology applied in this study. The remaining sections elaborate on the empirical findings, and I conclude by recapitulating my argument and discussing the theoretical implications of this study.

COMPLEX CONTRACTING

Indispensable for setting up a successful PPP is a contractual agreement that makes actors confident about the long-term relationship to which they commit themselves. Formally laying down the rules of engagement will protect a partner from opportunistic, rent-seeking behavior of another partner, which signifies the safeguarding role of a contract (Ring & Van de Ven, 1992; Vincent-Jones, 1994; Williamson, 1979). In addition, a contract coordinates relationships by assigning roles and responsibilities (Brown et al., 2010; Schepker et al., 2014), and it includes contingency plans that help actors adapt to changing conditions (Luo, 2002). Scholars notice an increase in the use of long-term infrastructure contracts closed between public and private actors and foresee a continuation of this process (Bouckaert et al., 2010; Cooper, 2003).

The larger the sunk investments and the more specific the infrastructure that is to be constructed, the greater actors' concerns regarding the manageability of a project. They will typically opt for using sophisticated contracts in order to confine the complexities, uncertainties, and risks

involved (Van der Veen & Korthals Altes, 2012). A contract is thus seen as a necessary governance tool for undertaking public-private endeavors in infrastructure. However, drafting and closing a contract are probably the least obvious aspects of these ventures. According to Macneil (1980), contracting is a matter of making present decisions about all, including future, aspects of a contractual relationship (i.e. *presentiation*), but since human actors are not rational and do not have full information on what could possibly happen in the future (Williamson, 1985), presentiation is a non-achievable goal (see also Campbell & Harris, 1993). Actors have no choice but to write incomplete contracts. Furthermore, contracting is not just an economic activity, but a social phenomenon (Macneil, 1980; Vincent-Jones, 2006). These aspects make contracting a challenging and costly task, particularly in such highly complex, uncertain, and risky undertakings as PPPs. Actors will typically fall back on trying to make a contract as complete as possible, which implies drafting and negotiation processes which are not resolved overnight and are a serious burden for both governments and private sector partners in that they are time-consuming and require significant efforts. The contracting process towards a PPP deal will generally evolve into a typical case of *complex contracting* (Brown et al., 2015).

STANDARDIZATION: A VENUE OF LEARNING

Governments have undertaken action aimed at easing the burdensome contracting processes that usually come with PPP deals. They have started to standardize contracts to lay down the lessons learned in previous trajectories. To put it briefly, they formulate a model contract that is to be used as a point of departure for a contractual negotiation, and as time goes by and experience builds up, this model contract undergoes revisions until it forms such a solid basis that it becomes known as a standard. As such, standardization plays an important part with regard to the learning challenge that I discussed in the introduction of this article. A standard contract can serve as a state-of-the-art body of knowledge about what a PPP deal should or could comprise, thereby helping public executives make better informed contractual decisions during a contracting process. In the remainder of this section, I link aspects of learning with the standardization of standard contracts as I formulate propositions on (1) the openness to learning of public executives who are building a standard contract for PPP and the

possibility that lessons are learned and incorporated in a revised and more standardized contract for future use; (2) the type of learning that is most likely to occur given the public executives' knowledge and expertise that have already been turned into standards over time; and (3) the transfer of project-specific lessons to the general program level.

(1) *Openness to learning.* The extent to which learning can be achieved, and contractual clauses are thus refined either during a specific negotiation process or for future projects, depends on how receptive a standard setter (i.e. a principal, typically a contracting authority) is to both acknowledging the mistakes it made and accepting the recommendations delivered by its agents in the PPP process (e.g. contractors and financiers). The principal could be inclined to use a model standard contract as a hierarchical arrangement aimed at maintaining control over the situation (Van den Hurk & Verhoest, 2014, p. 9). The principal is often also the standard setter, hence the model contract is likely to fulfill the public sector partner's needs (Cargill & Bolin, 2007), protect policy requirements, or reduce risks (Petsoulas, et al., 2011; Vincent-Jones, 2006). In this situation, the principal could be hesitant to concede standard clauses and rigidly defend its own interests. Using model contracts in this way will be at the cost of opportunities for learning and thus complicate the codification of new knowledge towards a solid standard. In the opposite situation, a model contract would be employed as a guiding tool, which would be reflected in an accumulation of knowledge that will be codified in revised versions of that contract until an acceptable standard is reached. In that case, the model contract will be constantly in flux as it is adjusted on a continual basis to changing conditions (cf. Timmermans & Berg, 1997 on crystallization and local universality).

My proposition is that the standard setter is more likely to use its model contract for guidance when it lacks experience. In the early phase of a PPP program, the public sector partner will allow more contractual changes to the contract it proposed upfront, assuming that model contracts need to be tested before they can actually be imposed. As the model contract increasingly aligns with market practice and thus becomes more generally accepted by market players, the public sector partner gains confidence in its approach. Therefore, the public sector partner will increasingly use the model contract as a control tool, i.e. as a standard, and the number of contractual changes applied during a negotiation phase will drop over time.

(2) *Different types of learning.* Although the learning potential is usually high in the early stages of a PPP program, it is not easy to achieve it since the object of learning (e.g. a complicated road infrastructure PPP) is not related to what the public executives already know. Their *absorptive capacity* is then considered to be low (Cohen & Levinthal, 1990, p. 131; see also Zollo & Winter, 2002 on dynamic capabilities). Where there is a lack of basic knowledge, most contractual changes will be the result of the government's strong reliance on other parties' knowledge: *vicarious learning*, which is defined by Lumineau et al. (2011) as learning on the basis of interventions by external parties.

The absorptive capacity of the public partner increases over time as the object of learning becomes more related to what is known. For instance, mistakes that have been made in the first project will be avoided in the second project by revising the model contract that was used, and similar actions will be undertaken in light of the subsequent projects. Zollo and Winter (2002) speak of knowledge evolution: once experience accumulates, problems will be recognized by the actors involved (knowledge articulation) and finally be laid down in contracts (knowledge codification). This process of trial and error is called *experiential learning* (Doz, 1996; Faems et al., 2008; Vanneste & Puranam, 2010). By building up relevant expertise and in-house capacity (i.e. manpower) to deal with contracts, the public partner will require less external support. Therefore, I expect that as time and projects go by, the share of vicarious learning will decrease, and the share of experiential learning will increase. The extent to which certain learning mechanisms are active in a PPP program thus depends on the phase of concern: vicarious learning will overrule experiential learning in the early years of the program, but this will turn around as the program matures and the public sector partner gains expertise (cf. Ariño et al., 2014; Lumineau, et al., 2011). Fig. 1 illustrates the two propositions discussed above.

[INSERT FIG. 1 ABOUT HERE]

(3) *Transferring lessons from project level to program level.* If neither the first, nor the second proposition are supported by my empirical data, that could be an indication of both (a) a continuing learning process on the side of the public sector and (b) a continuing reliance of the public sector on

external advice, despite the use of increasingly complete model contracts. While this would certainly indicate a willingness of public executives to keep learning, which is essentially a positive thing, it would also raise questions about the character of the standardization process: to what extent are the lessons learned in one project incorporated in a more elaborated version of the model contract, thereby helping forward the future contracting processes within a PPP program? What would a lack of transferring the lessons learned say about the overarching coordination (cf. Hartmann & Dorée, 2015)? And to what extent can we actually speak of standardization if the learning process does not reach a point of saturation, meaning that the model contract continues to be subject to change and therefore never gets used in a highly rigid manner, that is, as a true standard following the adagio of “comply or explain”?³ I will further discuss these questions in the closing section of the empirical part of this article.

THE VIA-INVEST PROGRAM

This article focuses on the learning processes within a policy program consisting of a number of road infrastructure projects, all developed through PPP and established by the Flemish Government. In October 2006, a Flemish public limited company (PLC) was established going by the name of Via-Invest. This investment company would serve as a holding for a range of special purpose vehicles (SPVs) that were to be founded in the light of a series of PPPs in road infrastructure: the Via-Invest Program. It comprehended six separate projects concerning either the construction of new roads or the reconstruction of existing roads. The construction costs of each of these projects ranged from €54 million to €539 million and equaled over €1.5 billion in total (Flemish Parliament, 2013). In terms of the organizational structure and business model of the Program, two Flemish public actors were shareholders of the PLC: PMV (a public investment company) and the Flemish central government (hereafter abbreviated to Flemish Government). PMV can be defined as an autonomous agency under private law that is fully owned by the Flemish Government. Its tasks in the field of PPP have been to

³ This expression is widely used in countries where standard contracts are common, for instance the United Kingdom, Canada, and the Netherlands.

support economic investment initiatives in the Flemish Region by setting up and investing in a number of PPPs, and by assisting other public entities that are active in the landscape of PPP—i.e. it provides risk capital, which is not a common activity for a government actor (Belgian Court of Audit, 2009; Flemish Parliament, 2011). PMV holds 51 percent of the PLC's shares. The remaining 49 percent are held by the Flemish Government, and more specifically by the Agency for Roads and Traffic (AWV by its Dutch acronym). By integrating the efforts of these agencies into one PLC, the company was expected to achieve higher scores in terms of expertise in financing and PPP (through PMV) and technical expertise in public works (through AWV).

In this paper, I will focus on four projects envisaged under the Via-Invest Program for reasons addressed in the methodological section. Three of these projects had entered the operational phase by the time of the analysis (early 2015); the fourth project was in the construction phase. Table 1 provides an overview of the four projects. For each of the first three projects, Via-Invest launched two separate tender procedures: one procedure that invited (consortia of) contractors to come up with bids concerning the design, construction, and maintenance of the project, and one procedure aimed at tendering the financing of the project. As soon as private partners had been selected in both procedures, Via-Invest would bring them together in order to finalize the arrangements. It would set up an SPV that would sign three types of contracts: (1) a Finance (F) agreement with the financial partner—usually banks (debt financing) and private investors (equity financing);⁴ (2) a Design-Build-Maintain (DBM) agreement with the consortium of contractors; (3) a comprehensive, back-to-back Design-Build-Finance-Maintain (DBFM) agreement with the Flemish Government. Fig. 2 depicts the organizational structure of these first three projects. The fourth project was procured in a different manner as it included a single tendering trajectory which incorporated the design, construction, financing, and maintenance of an infrastructure asset. Therefore, a back-to-back arrangement as used

⁴Although debt financiers and equity providers can (and often will) bid together during the procurement process, they will eventually sign separate contractual agreements with the SPV. External financiers like banks and/or bond providers will typically sign a credit contract. The shareholders of the SPV (including Via-Invest) will sign a shareholders' agreement that will link to various underlying credit contracts.

in the former three projects was not necessary; there was simply one private consortium that would establish and lead an SPV and take care of the entire lifecycle of the infrastructure asset by closing a contractual deal with the Flemish Government.⁵

[INSERT TABLE 1 ABOUT HERE]

[INSERT FIG. 2 ABOUT HERE]

METHODS

In order to examine my propositions on the nexus of standardizing contracts and learning, I subjected the four aforementioned Via-Invest projects to an in-depth comparative analysis. The Via-Invest Program has been able to mature for over eight years and over four projects, and three of these projects overlapped in terms of the timing of their procurement processes (see Fig. 3). I expected this program to show considerable processes of learning within specific procurement processes, but also between the different procurement processes, because the program has been led by one and the same public actor (the Via-Invest PLC). Moreover, even though the four projects I selected differed considerably in terms of capital value, they were particularly suitable for comparison because all of them were procured in one and the same region and under the umbrella of one and the same infrastructure investment program. In fact, by the time of the analysis the contracts for all four projects had been closed—three projects were operational and one was under construction, hence I expected these projects to be less sensitive in terms of political and business information, and thought it more likely that I would be able to retrieve previously undisclosed information.

⁵ Merely due to a different tendering approach than the first three projects, the contractual agreement of the fourth project included a number of clauses that had not been used in the agreements of the preceding projects. In order to make the fourth project fully comparable with the other three projects, I have not taken into consideration those highly project-specific clauses. Instead, I have focused my study on clauses that would be applicable regardless of the degree of project specificity.

[INSERT FIG. 3 ABOUT HERE]

I conducted a case study (Eisenhardt, 1989; Flyvbjerg, 2006) aimed at (1) unveiling the differences between the DBFM agreements both within and between the four projects over time (dependent variable) and (2) explaining the learning processes behind these dynamics (independent variable) in order to disentangle the role of learning and its interaction with standardization. In the first part of the study, I was given access to the DBFM agreements used and signed in the four projects. Eight DBFM agreements were included as units of analysis, i.e. two agreements for each project involved: the version that was sent to the market once it had been approved by the Flemish Government (the model contract), and the version as signed by the Flemish Government and the SPV on contract close (the final contract). In order to measure the differences between the contracts I analyzed, i.e. to unravel *whether* and *what* was learned in the Via-Invest Program, I used two indicators. First, I looked at dynamics of contractual *complexity* (Lumineau, et al., 2011). Insights into this indicator would be provided by measuring the length of the contracts (Poppo & Zenger, 2002) and the number of clauses included in the contracts (Parkhe, 1993). An increase in contractual complexity would be interpreted as a result of a learning process: I assumed that newly retrieved knowledge would be incorporated by adding it to an existing contract or at least replacing existing text—not by shortening the document. The second indicator concerned the *content* of the contracts. I investigated which clauses were amended, and set up an inventory of these changes. Three types of developments were considered as changes: (1) addition of an entirely new (sub)clause; (2) change of an existing (sub)clause; (3) removal of a (sub)clause. It is important to emphasize that because it was the public sector partner (Via-Invest PLC) led the process of drafting and revising the model contract and thus acted as the standard setter, every contractual change would denote a possible achievement of learning on the side of the public sector.

The second part of the study comprised semi-structured interviews and additional desk research aimed at illuminating the learning process behind the evolution of the DBFM agreements, i.e. to explain *why* and *how* was learned in the Via-Invest Program. I spoke to persons who played a key role in one or more of the four projects: public sector managers, contractors, and financiers. In

addition, I collected the views of five respondents who had a rather general overview of the Via-Invest Program. The interview questions were aimed at revealing how contractual changes came about, with a focus on the most prevalent and notable changes. I asked the interviewees who initiated changes, for what reason (i.e. knowledge articulation), and how a solution was found and put in the contract (i.e. knowledge codification). For confidentiality reasons I preclude the publication of the informants' names, but I have included their profiles in the Appendix. The interviews (16 in total) took place in 2015 and lasted between 45 and 120 minutes (80 minutes on average). They were taped and fully transcribed, and after reading the transcripts thoroughly and repeatedly I started a systematic coding process using QSR NVivo 10—qualitative coding software—in order to arrange the large amounts of data (Bazeley, 2007). The largest part of the data was coded deductively. I recognized vicarious learning on the basis of the interviewees' references to an initiating role of a private sector partner as the basis for contractual change, for instance a contractor or a financier, and I noticed experiential learning where they referred to a public sector partner's growing expertise or trial and error in regard to change. In addition, I inductively coded a number of other elements during the coding process in order to contextualize the information. For instance, I would code the reason for a particular change if a respondent mentioned it (e.g. a lack of certainty or comfort for a particular actor, a lack of clarity, a change of market conditions, or a lack of conformity with market practice), and I would do the same in regard to the question how the result of a learning process was laid down in a revised contract (e.g. a better protection of the interests of a particular actor, a clarification of responsibilities or expectations, or a creation of consistency) (cf. types of changes as distinguished by Mayer & Argyres, 2004, p. 399).

Finally, I interpreted the data by developing matrices on the (co-)occurrences of codes, which enabled me to unveil patterns and recurring issues (see Boyatzis, 1998 on thematic analysis). The interpretations were shared with the respondents for the sake of empirical accuracy. Table 2 provides an overview of the indicators used in this study. In the remainder of this paper I report my explanatory findings of a systematic analysis of the contracting and learning processes in the Via-Invest Program.

[INSERT TABLE 2 ABOUT HERE]

THE EVOLUTION OF CONTRACTS

The figures and tables presented in this paragraph serve as guides for my explanatory analysis as they point out which developments have been prevalent or striking. Fig. 4 illustrates my analysis of contractual complexity. A number of developments stand out. The first notable development concerns a change which occurred between project 1 and project 2: while the length of the model contract decreased, the number of clauses showed a strong increase. Second, we see that in projects 2, 3, and 4 a larger number of words was added to the contracts between the model versions and the final version in comparison with the additions made in project 1. Third, we see that the length of the contract increased significantly between projects 3 and 4, but this development does not exclusively refer to another wave of learning; as I already mentioned in the methodological section, the fourth project was considerably larger than the first three projects, hence the need to bear in mind its higher degree of specificity. All in all, we see a clear increase in contractual complexity over time, so the question *whether* anything has been learned in the Via-Invest Program can be answered positively. The next question to be answered is then: *what* has been learned?

[INSERT FIG. 4 ABOUT HERE]

As for contractual content, Tables 3 and 4 provide insights in the changes applied over time. Table 3 shows which clauses and appendices were added or removed. Every pair of a and b connected to the same project signifies the additions and removals conducted during the tendering process of a specific project, i.e. on the way from model contract *a* to final contract *b* (e.g. between 1a and 1b). The table also shows the development of the model contract over the various consecutive projects by indicating the differences from model contract *a* of one project to model contract *a* of the consecutive project (e.g. between 1a and 2a). While aggregating the data, I checked for clauses and appendices that seemed to be added or removed at first glance, but that appeared to be relabeled or relocated clauses once I had delved further in the data. The developments shown in Table 3 are similar to those in contractual complexity. Again, a first line can be drawn between projects 1 and 2 as we see that some

(sub)clauses and appendices were removed (e.g. ‘Conditions precedent’, ‘Configuration’) and many were added (e.g. ‘Termination for exceptional disturbance of financial markets’, ‘Equivalent project relief’). We can draw a second line between projects 3 and 4 where a second wave of new clauses can be noticed (e.g. ‘Interruption or delay of construction works by contractor’, ‘Bonus points for energy efficiency’) while other clauses, which were used in previous projects, were actually removed (e.g. ‘Dispute resolution regulation’, ‘Termination for exceptional disturbance of financial markets’). Between these two virtual lines, projects 2 and 3 involve contracts with a largely similar content in terms of the present of specific clauses. The tendency seems to be that an increasing number of clauses and appendices have become generally accepted over time.

[INSERT TABLE 3 ABOUT HERE]

Table 4 gives an impression of the number of contractual changes applied within each tendering process, including some examples. It provides a clear indication of which clauses have changed often and which have not,⁶ and the pattern largely aligns with the former observations. It is confirmed that project 1 is relatively atypical since the number of changes applied in this project (13) has been much lower than the figures observed in each of the other three projects (40 or more), and no new clauses were included during its procurement process as opposed to the other projects. Table 4 also helps us draw a line between clauses that have been the subjects of repeated discussion and clauses that have barely received attention over the course of nearly a decade—i.e. where hardly any change occurred. For instance, the clauses ‘Conditions precedent’ and ‘Configuration’ were included in the contract of project 1, but did not come back in the other projects. Other clauses have been present in all contracts and have been discussed and amended every now and then. Examples include clauses on non-

⁶ While making this comparison, I controlled for clauses that were included, changed, or excluded merely due to a different procurement approach (‘Insurance’, ‘Intellectual Property Rights’) or project specificity (‘Guideline for adapting financial model’, ‘Financial close certificate’). Including these clauses would have skewed the analytical results.

compliance and payment, and to a larger extent clauses on termination and variations. Finally, a number of subjects have always been part of debate as we see that a number of clauses were changed in every project, for instance dispute resolution, relief events, and subjects that fall under general clauses—e.g. insurance, permits, and the issuance of availability certificates. These are the clauses where most learning has been achieved if we use the number of changes as an indicator.

[INSERT TABLE 4 ABOUT HERE]

CHANGING CONTRACTS EXPLAINED

The open attitude of the public sector partner

As the former tables show, the contracts have constantly been in flux. There has been a significant amount of contractual change during procurement processes. The respondents stated that the lion's share of the contractual changes was facilitated by the public sector partner's openness to listen to the concerns expressed by the private actors involved in the process. They referred to vicarious learning 38 times, while experiential learning was mentioned 16 times. These numbers indicate that vicarious learning has been the predominant type of learning. The contracts that were used were continuously tested on their accordance with market practice, and according to the respondents PMV typically provided significant room for manoeuvre during the procurement process. Many respondents offset PMV's approach in the Via-Invest Program against the more rigid approach applied in other countries. They referred to (1) the relatively young age of Belgium's PPP policy and (2) the PMV's 'skin in the game' (i.e. to have incurred monetary risk by being invested in achieving a goal). First, Belgium has been a late adopter of PPP policy, and therefore the standardization of contracts has been a very recent process in which the public sector had to be cognizant of market practice in order to arrive at workable contracts. One of the respondents mentioned how the opposite is often the case in countries where PPP policy is more mature, thereby addressing the counterproductive effects of the use of standard contracts:

Generally, the Anglo-Saxon approach is the most elaborated one. When I was working on projects in England, the public sector partner referred to the standard contract all the time. It also occurred to me in the Netherlands. You would have negotiations where the public sector partner always said: "This is not market practice and this is not standard," thereby stalling the discussions ... Standardization has its merits, but if you use it to stall a discussion, you are overshooting the mark. (Respondent K)

The model contracts for the Via-Invest projects were not directly fit for use. They required significant additions and amendments. Respondents H and M argued that many of the clauses were initially aimed at a high level of protection of the public sector's interests. "These contracts are typically made with the best intentions, but always undergo a transformation through market testing," said respondent M. Respondent H added that "at the very beginning, you do not have a standard contract. You always have to test the contract before you can actually deliver a standard." This will sometimes involve that the level of protection of the public sector's interests is reduced.

Second, as a majority shareholder in Via-Invest PLC—which in turn was a minority shareholder in the SPV of each Via-Invest project—and in its role as the leader of the procurement process, PMV always had a strong incentive to close the most beneficial deal possible for the government while combining this as much as possible with aligning with the private sector and searching for workable contracts for both the public and private partners. To a certain extent, the public sector partner had an incentive to cooperate with the private sector partner in that it could claim a part of the revenue that would be generated—after all, Via-Invest was a risk capital provider. The interviewees made clear that in comparison with public sector partners in other countries, PMV was more flexible and willing to act cooperatively with the contractors and the financiers in order to achieve the best deal for the contracting authority (i.e. AWV). Now that the contract of the fourth Via-Invest project has been closed and the model contract has matured, PMV is likely to be more confident in imposing its clauses to the private parties involved in a bid.

Financiers drive the process

As for initiating contractual change, the financiers have played a key role. They were explicitly mentioned as initiators of change twice as many times as the contractors were mentioned. About 90 per cent of the financing of the projects was financed by the lenders, so they had a powerful bargaining position. Financial requirements and market practices had to be followed for a potential project to become a bankable and thus realizable project. The clause ‘Compensation on relief events’ provides an example here. In the early model contracts for the Via-Invest projects, the calculation of the compensation on a relief event did not include elements such as swap breakage costs and commitment fees. However, since the swap breakage costs in a relief event can run into millions of euros, the financiers expressed their concerns on this issue. In fact, “this was simply a fierce requirement set by the financiers, who argued that they would not finance the project as long as those elements would not be included in the contract” (Respondent M).

The financiers also successfully raised red flag issues relative to other clauses. For example, clauses on step-in rights were amended so that the financier could exercise more power over the contractors in the event of a default. Furthermore, in the second and third projects, a clause on equivalent project relief was inserted in order to avoid that the SPV could be squeezed between the arrangements laid down in the DBM agreement (i.e. between the SPV and the contractor) and the arrangements included in the DBFM agreement (i.e. between the Flemish Government and the SPV). Respondent L explained that the incorporation of this clause ensured that the liability of the SPV to the contractor(s) would not be any greater than the entitlement it had against the Flemish Government through the back-to-back DBFM agreement. A final example concerns the uninsurability of risks. If a certain risk that is borne by the private sector partner becomes uninsurable, there typically is a maximum period of uninsurability in which the private sector partner needs to find a solution and get the risk insured again. If the private sector partner does not succeed, the risk has to be transferred to the public sector partner until it is insurable again. In the model contracts this period was set at 60 days, yet in every final contract it had been shortened significantly to 10 or 15 days. Again, the financiers had been the drivers of these changes:

There is always the tension between desirability and feasibility. A 60-day period is probably a more feasible period for us [i.e. the SPV] to find a solution [than 10 or 15 days] ... But it is not desirable that the SPV is uncertain of its risks for a period of two months. The longer this time span, the bigger the chance of something happening that will end up in no man's land, or worse actually, that will become a burden for us because we bear the responsibility, even though we are no longer able to insure the risk. (Respondent L)

Not all clauses that were enforced by financiers continued to be part of the contracts over time. A clear example of this is the clause 'Termination for exceptional disturbance of financial markets' which was included in the contracts of projects 2 and 3, during the aftermath of the global financial crisis. It essentially incurred a higher level of protection of the financiers, as the risk of an exceptional disturbance of financial markets would be borne by the public sector partner. Interestingly, this clause was no longer included in the contract of the fourth project. Eurostat⁷ came to interpret an exceptional disturbance of financial markets as a commercial risk event, rather than a force majeure event. Therefore, if the government wanted to finance a PPP off its balance sheet, it would make more sense to transfer this risk back to private sector partners. So even though financiers have played a pivotal role in the learning process, the public sector partner sometimes revised earlier decisions in light of new circumstances, policies, and projects, and transferred more risk to the private sector partner.

Contractors have no choice but to go along

The driving role of financiers in PPP embodied a difficult change for the contractors. The respondents often referred to the fact that contractors struggled with PPP, since they had to distance themselves from the conventional and familiar method of outsourcing and had to get used to having a less influential role. The contractors had difficulties abandoning the use of the General Contracting Conditions (AUR by their Dutch antonym), which are the general specifications used by the government in public procurement, issued by Royal Decree in 1996 and updated in 2013. The AUR

⁷ Eurostat is a Directorate-General of the European Commission which is responsible for providing statistical information to EU institutions and member states, and promoting the harmonization of statistical methods across Europe.

are aimed at conventionally procured projects, hence not directly applicable to PPP. For instance, as the availability-based payment mechanism in a PPP is totally different than the one-off payment mechanism in a conventional project, the AUR cannot apply to this element. The logic of the PPP model forces the government to deviate from the AUR in some cases, and the consequence is that contractors face a number of terms and conditions that are completely new to them. In the Via-Invest Program, the DBFM agreement prevailed over the AUR, and the following quote illustrates the feelings contractors had about this:

The financiers do not know the AUR. They simply look at the contract. We had discussions with them on the use of sections of the AUR that we had claimed in the beginning of the process and that would be applicable in the deal. But it just did not get off the ground. The AUR were always overruled by the contract. And given the fact that the AUR essentially is legislation, you could say that [the financiers] lay aside legislation.
(Respondent C)

The AUR typically form a strong protection of the rights of contractors. As the use of large parts of the AUR is abandoned in PPP, the contractors' comfort is significantly reduced, and their bargaining position weakened. The contractors involved in the Via-Invest Program did not get used to their new role and the new approach overnight. Respondent K said that the contractor did not always understand why the financiers asked certain questions or came up with certain requirements, and he added that “[contractors] used to be in a more advantageous position in the past, where they could easily come up with contract extras [after they were assigned the job] without further consequences.” In a PPP, the risk of contract extras is typically borne by the private sector partner, and the contractor in particular. As Respondent B indicated, “this was something the contractors did not automatically recognize ... But the big players are now familiar with the structure of PPP, and they recognize that it brings in additional obligations compared to classical public procurement.”

Despite their weakened position, contractors were able to generate some contractual changes to their advantage. The respondents referred to changes that had been advocated by the contractors who found that the initial clauses lacked clarity or disproportionately jeopardized their comfort. The

solution was often to clarify definitions, responsibilities, and procedures—for instance on the payment mechanism—and to upgrade the level of protection of the contractors' rights. As an example, based on the input of the contractor, the clause 'Interruption or delay of construction works by contractor' was inserted in the contract of the fourth project. This clause allows the contractor to delay or shut down the works if the client fails to make payments on time. However, even though there have been positive changes for the contractors, they have remained critical of their loss of influence for the benefit of the financiers. As Respondent D put it, "the financiers requested a lot of things from us. It is supposed to be a matter of give-and-take, but from their side it was mostly just the taking."

Progressive insights and practical experience

Next to the predominant presence of vicarious learning, the analysis revealed a number of cases of experiential learning in the Via-Invest Program. It was not until the second and third projects that this type of learning was mentioned by the respondents. According to respondent F, public sector managers at PMV would ask themselves the following questions: "What did we learn in the second project, how should we integrate these lessons in the third project, and what would be the best way to formulate it, and to put it in better, clearer, or sharper words?" Experiential learning was either based on (1) progressive insights or (2) the lack of practical use of a contractual clause. An example of the first type is the decision of PMV to start splitting the Via-Invest projects into subprojects. During the procurement process of the second project, PMV found out that this was an interesting venue. It would enable the use of different completion dates so that one part of the project could already be available to the public while the other part would still be under construction. As the construction of the second project had been underway for quite some time when PMV came up with this solution, there was no longer an opportunity to create separate availability certificates. Therefore, PMV developed a system of bonuses and penalties to incentivize the private sector partner on this matter. However, as the third project was initiated a few months later, PMV was able to include in the final contract of this project a clause on different availability certificates: "A payment of x per cent when the first availability certificate is issued, and a payment of the remaining percentage upon the issuance of the second

availability certificate” (Respondent F). This is an example of learning based on progressive insights that was achieved as the projects proceeded.

The second example relates to the recognition that the formulation of certain clauses caused so much discussion during the negotiation phase, or that the use of these clauses was so limited, that they were deleted from the model contract. Table 3 reports that clauses on dispute resolution were no longer included in the final contract of the fourth project. The respondents said that the establishment of a dispute resolution committee always spared debate during the contractual negotiations because it needed to be an impartial structure, yet “none of the actors involved really has the right people to do that job ... You will get committee members who, in one way or another, are tied to one of the parties. What is the point of that?” (Respondent L). The irony of a heated debate during the negotiation of dispute resolution clauses is that, once a contract is closed, there is no one who actually cares about that specific clause anymore. In fact, in some projects the dispute resolution committee was not even established, even though the formal agreements required this. A partner in a PPP will do as much as possible to avoid a dispute resolution procedure:

Nobody wants to establish a dispute resolution committee. Just look at the establishment procedure. It requires that the members of the dispute resolution committee have to be appointed within 30 or 60 days after the commencement of the construction phase. That never happens ... Because everyone knows: once you go to the dispute resolution committee in order to settle an argument, the floodgates are open ... If you call in the dispute resolution committee to sort out an issue, it will trouble the partnership anyway. (Respondent Q)

The former experiences and considerations led to the decision to no longer include clauses on dispute resolution in the contract. Alternatively, the parties established a consultation committee that would deal with arising disagreements.

LEARNING AT A PROGRAMMATIC LEVEL

In the previous sections I have argued that the public sector has continued to apply a considerable number of contractual changes to its model contract both during project negotiations and from one

model contract to another. I also observed repetitiveness across the different projects in terms of the content of the changes that were applied. Some clauses would be included in the model contract for a new project, despite the fact that they had been a recipe for debate in a procurement process for a project that had been launched six months earlier—or longer ago. Finally, I have emphasized that most contractual changes have been the result of vicarious learning, both in the early stages of the Via-Invest Program and more recently. It was shown that the model contracts were tested by the market on a continual basis. These findings are not in line with my expectations (see again Fig. 1). This is where I come back to my third proposition which was on transferring project-specific lessons to a higher, programmatic level: to what extent were the lessons learned within a specific project automatically laid down in a revised version of the model contract?

The first project within the Via-Invest Program was procured well before the other projects in the program were procured, and the respondents argued that this project was atypical compared to the other projects: it was procured in a completely different period (before the global financial crisis) and incorporated in a much bigger project that involved the construction of a railway tunnel, and the initial intentions had been to procure it as a conventional project rather than a PPP. It was only after the financial close of the first project that the programmatic approach to Via-Invest projects gained momentum, hence the differences between the model contract of project 1 and the model contracts of the other projects.

The procurement processes for projects 2, 3, and 4 overlapped in terms of timing (see again Fig. 3). The process of project 3 was initiated while the process of project 2 was still ongoing, and according to the respondents a lot of information was exchanged between these projects. Furthermore, the Flemish Government launched the tendering procedure of project 4 while neither the second nor the third procurement process had been completed. However, not nearly all lessons learned in one project were automatically codified in the model contract for the next project. As an example, the procurement processes of the second and third projects took off with the exact same definitions on typically important subjects, such as the compensation on relief events and the grounds for immediate termination. In both tendering procedures, these definitions had to be changed significantly before a contractual deal was achieved. Interestingly, even though (1) one and the same public sector entity sat

at the negotiation table for these projects, (2) the negotiations for both projects started with similar contractual bases, (3) and the timing of both procurement processes overlapped, the definitions and many other clauses included in the final contracts of these projects were rather dissimilar. Some contractual changes were applied in both projects, some were only applied in one of them. This raises some questions about how systematically lessons were transferred in this particular period. There may have been too little time for public executives to adequately or systematically process the lessons learned (see also Hartmann & Dorée, 2015), or the learning process may have been compromised by the internal organizational structure of Via-Invest PLC. After all, not all projects have been led by the same people. The tendering procedure of the fourth project was launched later, and the model contract used in this process was significantly different than earlier model contracts, so the timing of the fourth project may have created more room for knowledge codification based on previous projects.

By procuring four Via-Invest projects within a short period of time, the public sector partner also limited the possibility of codifying knowledge relative to the construction and operational phases. A striking example of this refers to the clause ‘Variations’ and the definition of a variation in particular. In each project, disagreements came up between the public sector partner and the private sector partner on the distinction between a variation on the one hand, and the freedom of design of the contractor on the other. The core question in these disagreements was: to what extent can a contractor revise the design of an infrastructure asset without having to report this as a variation to the public sector partner, and thus without bearing any financial consequences? The public sector partner has logically been inclined to apply a wide definition of a variation, because a variation on behalf of the contractor typically incurs a financial compensation for the public sector partner. Conversely, the contractor preferred a very narrow definition of a variation, because every design modification that lowers the construction costs, and that is not considered a variation, would increase the contractor’s profit margin. The disagreements revealed that the definition of a variation was not clear enough, but as they only came up during the construction phase and the projects were procured in such a brief timeframe, the model contract had not been changed. As the dispute has recently been solved in one of the projects, the clause ‘Variation’ will likely be changed in a revised model contract.

CONCLUSION

PPP forms a challenging endeavor for the public sector that aggravates the complexity of infrastructure deals. Many governments have focused on the standardization of contracts to codify knowledge that is developed in PPPs and improve the contracting process by transferring the lessons learned on the way to a generic, standard contract. The aim of this article has been to deliver a contribution to the study of the learning process of governments that are looking to standardize contracts for public-private partnerships. I examined the contractual agreements of a major PPP program in Belgian road infrastructure by unveiling what, why, and how contractual changes occurred over time, and interpreting the findings in light of standardization. The study offers important insights into the maturation process of the Belgian PPP market: it shows how public sector partners used model contracts to test their approach, and to what extent they transferred the lessons learned to an advancing model contract that was to gradually become a standard.

One of the determinants of learning in the Via-Invest projects has been the open mind of the public sector partner relative to changing clauses that had been included in the model contract it drafted, and particularly to ideas and recommendations of other actors involved in the process. The contracts used in the Via-Invest Program have constantly been in flux, which I did not expect to see as I assumed that by gaining PPP expertise the Flemish Government would increasingly use its model contract as a control tool (i.e. a standard) and as such leave increasingly limited room for negotiation or change. While the model contract has definitely become the basis for the negotiations within procurement processes of the Via-Invest Program, the Flemish Government has not yet used it as strictly as governments in other jurisdictions have been doing. Furthermore, I expected to see a strong reliance of the public sector partner on vicarious learning in the early phase of the PPP program. There were indeed strong indications of vicarious learning being the primary type of learning in the program, but I did not notice a gradual decrease in this type of learning. In both early and recent projects, the Flemish Government relied strongly on external knowledge. Most striking was the strong influence of the financiers on the form and content of the contractual agreements. I also observed contractual changes that had been the result of experiential learning, but this type of learning was less dominant.

The continuing learning process of the Flemish Government indicates that it takes both time and project-specific experience for public executives to formulate a model contract that can truly be considered a standard. Whereas the Via-Invest projects that have hitherto been procured undeniably helped the Flemish Government mature in terms of project-specific knowledge, questions remain as to how systematically lessons learned were transferred to a programmatic level in order to strengthen the model contract and give it more of a standardized character. It requires further research on the timing of the procurement processes, as well as internal organizational structures, to confirm these doubts.

Theoretical implications

This article advances the understanding of the microdynamics of contracting, a research area that was championed by Ryall and Sampson (2009), Lumineau et al. (2011), and Ariño et al. (2014). What distinguishes this study from earlier works is its focus on PPP. Scholars have mainly addressed contracting in inter-firm relationships (see e.g. Vanneste & Puranam, 2010) and alliance governance (see e.g. Faems, et al., 2008). Although I applied a different scope in this study, many conclusions of works in different areas were supported. As we have seen contractual complexity increase in the Via-Invest Program, this study strengthens the findings of Mayer and Argyres (2004), Argyres et al. (2007), and Kim and Brown (2012), who show that contracts become more complete as projects go by and experience builds up.

The study adds to the literature on the impact of standardization. It depicts a generally positive interaction between the contractual learning and standardization in the field of PPP, thereby supporting scholarly arguments on standardization as a means to process change or innovation. The public sector partner did not manage the process in a very rigid way. On the contrary, there seemed to be a strong will of the government to learn from actors outside the public realm. This finding contravenes theories that relate standardization to rigidity and resistance to change (see Wright, et al., 2012 for an account of the ambiguity of the literature on this matter). My argument on the Via-Invest Program also contradicts the common phrase that contractual parties often have to experience an adverse situation before they address problems and contingencies in a revised contract (Mayer & Argyres, 2004; Vanneste & Puranam, 2010). By consulting market actors, the public sector partner got informed on a

number of essential aspects, and incorporated these in new versions of either its model contract or a project-specific contract without having to experience problematic events.

Finally, PPP is often understood as something that is gratefully implemented by decision makers as a procurement instrument that combines off-balance-sheet financing with a better on-time and on-budget delivery of infrastructure projects. PPP can thus be an interesting political tool, and scholars have elaborated on this topic (Coghill & Woodward, 2005; Flinders, 2005; Hodge et al., 2010). However, as most of the lessons learned in the Via-Invest Program were the result of financiers' remarks or requirements, it is indicated that PPP is essentially a financial model in which decision making is largely driven by banks and lenders. Therefore, this paper contributes to the growing awareness that the way in which infrastructure assets are being developed today articulates a wider phenomenon called *financialization* (Ashton et al., 2012; Torrance, 2008).

Limitations and future research

This research has a number of limitations. First, it has been difficult to captivate contractual changes *between* different projects. My initial intention was to make a distinction between internal learning, i.e. contractual changes applied within a specific project negotiation, and external learning, i.e. contractual changes applied in the period between the financial close of one project and the launch of the tendering procedure of the next project. By analyzing the difference between internal and external learning, I would be able to report on the possibly varying openness to contractual change of the public sector partner. However, as the Via-Invest Program was characterized by overlapping procurement times of different projects and highly mutual and iterative learning processes between these projects, I had to let go of this linear way of measuring external change. This remains a venue for research in the field of PPP programs.

Second, a classic limitation of the study would be that it only reports on a very specific program (Flyvbjerg, 2006). However, to my knowledge there has not been any similar research approach to a PPP program before, nor in the road infrastructure sector. This paper sets the stage for research aimed at gaining a better understanding of how governments actually learn in PPP, and it could serve as a point of reference for future studies. It would be interesting to see whether the

arguments raised also apply to PPP programs that are larger, situated in a different policy area, or situated in a different jurisdiction. In countries like the United Kingdom or Canada, contractual evolution in PPP stretches over a decade. Does having a longer history of public-private ventures in infrastructure development limit contractual change? Will public sector partners in these countries be more inclined to defend their standard contracts? And if they are more hesitant to changing their standards, is that because they are confident of the quality of their contracts, or rather to meet policy requirements?

Third and finally, I have paid limited attention to non-changing clauses, yet these could indicate an important lack of learning. As an example, I was only able to notice the dysfunctionality of clauses on dispute resolution because these were eventually omitted from one of the contracts in the Via-Invest Program. Other than the removal, I had no direct indications of the issues this subject used to cause—apart from the minor modifications that used to be made during the contractual negotiations. Moreover, it was only in the fourth project that the clause on the dispute resolution committee was omitted, despite the fact that the clause had not been actively pursued in each other project. This makes it interesting to look for other clauses in standard contracts which are not being used, but remain to be included. What happens if a clause that has obviously become obsolete, but has remained in the standard contract, is brought up by one of the actors at a certain point in time? This type of boilerplate provisions deserves further scholarly attention.

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APPENDIX: LIST OF INTERVIEWS

1. Respondent A: Project director at DBM partner, 7 January, 2015.
2. Respondent B: Director project finance at F partner, 12 January, 2015.
3. Respondent C: Project director at DBM partner, 16 January, 2015.
4. Respondent D: Project director at DBM partner, 16 January, 2015.
5. Respondents E-F: Investment managers at Via-Invest, 19 January, 2015.
6. Respondent G: Project manager at MOW, 21 January, 2015.
7. Respondent H: Associate partner at law firm, 21 January, 2015.
8. Respondent I: Project manager at MOW, 22 January, 2015.
9. Respondent J: Project manager at MOW, 26 January, 2015.
10. Respondent K: Director at F partner, 27 January, 2015.
11. Respondent L: Investment director at F partner, 29 January, 2015.
12. Respondent M: Legal counsel at law firm, 4 February, 2015.
13. Respondent N: Project manager at MOW, 6 February, 2015.
14. Respondent O: Advisor at Flemish PPP Knowledge Centre, 10 February, 2015.
15. Respondent P: Project director at DBFM partner, 16 February, 2015.
16. Respondent Q: SPV manager, 2 March, 2015.

Project	Description	Procurement approach	Construction costs incl. VAT (€ mln)	Annual availability fee incl. VAT (€ mln)	Financial close	Date of construction completion
1. Via-Invest Zaventem	Improvement of northern road access to Brussels International Airport	DBM+F (30 years)	53,8	5,62	September 2007	February 2012
2. Via-Invest North South Kempen	(1) Extension of N19g road between Kasterlee and Geel; (2) reconstruction of 23 Geel-West junction	DBM+F (30 years)	190,04	18,9	October 2011	February 2014 (1) and June 2014 (2)
3. Via-Invest R4 South	Extension of southern section of R4 road near Ghent	DBM+F (30 years)	84,42	8,29	February 2012	April 2014
4. Via-Invest A11 Bruges	Construction of A11 ring road section south of port of Zeebrugge	DBFM (30 years)	539,4	53,27	March 2014	Expected September 2017

Table 1 Overview of cases selected for analysis. Data have been extracted from the 2015 annual report on alternative financing of the Flemish Parliament

Dependent variable: learning outcomes, or <i>whether</i> anything has been learned, and if yes, <i>what</i>?	Indicators
Contractual complexity	Length of contract in number of words; number of contractual clauses in contract
Contractual content	Qualitative inventory of contractual change: addition, change, or removal of clauses
Independent variable: learning processes, or <i>why</i> and <i>how</i> has been learned?	Indicators (for deductive coding)
Type of learning	(a) Vicarious learning: contractual change initiated by private sector partner (contractor, financier) (b) Experiential learning: contractual change initiated by public sector partner (AWV or PMV)
Contextual matters	Indicators (inductively coded)
Reason for change	(a) Lack of certainty or comfort for particular actor (b) Lack of clarity (c) Change of market conditions (d) Lack of conformity with market practice
Type of change	(a) Better protection of interests of particular actor (b) Clarification of responsibilities or expectations (c) Creation of consistency

Table 2 Indicators used in this study

Core contract (DBFM agreement)	Project^c							
	1a	1b	2a	2b	3a	3b	4a	4b
Contractors and shareholders; Liability and indemnities; Relief events; Communications protocol; Confidentiality; Non-compliance; Transition; Insurance; Variations								
Commitments over lifecycle of contract – General								
- Management plan and quality								
Definitions								
- Interpretation								
Early termination								
- Termination for (long-term) delay; Termination for grounds for immediate termination								
- Termination for exceptional disturbance of financial markets								
Obligations and duration of contract								
- Equivalent project relief; Subprojects								
Other provisions								
- Surplus profit sharing								
- Continuous obligations								
Dispute resolution and applicable law								
Completion certificates								
Intellectual property rights								
New assistants; Conditions precedent; Object								
Applicable law, consultation committee, and courts								
Appendix of core contract	1a	1b	2a	2b	3a	3b	4a	4b
Communications protocol; Definitions; Guideline for adapting financial model; Compensation on relief events; Compensation on early termination; Variation procedure								

Payment mechanism				
- Disputed amounts				
- Bonus payment for early availability				
- Interruption or delay of construction works by contractor				
- Bonus points for energy efficiency				
Dispute resolution regulation				
Financial close certificate; Consultation committee; Supplied data				
Configuration				
Protocols				

Table 3 Clauses and appendices in Via-Invest contracts over time, from the first project to the fourth project. The shaded areas indicate the incorporation of a clause or appendix in the contract

^c Contracts marked with an *a* are model contracts, contracts marked with a *b* are signed contracts.

Subject	Clauses	Examples of change	Project				Total
			1	2	3	4	
General clauses	Commitments over lifecycle of contract – General; Other provisions	Decrease of maximum period of uninsurability of risk borne by private sector partner before public sector partner steps in; new obligation for private sector partner to obtain ISO-certified management plan; clarification of refinancing process	3	11	12	13	39
Responsibilities	Contractors and shareholders; Definitions; Liability and indemnities; Obligations and duration of contract	Price cap on maximum liability of private sector partner; new clause on equivalent project relief; insertion of possibility for subcontractors to lead or monitor project; splitting of project into partial projects	3	9	6	5	23
Relief events	Relief events; Compensation on relief events	Addition of several elements to calculation of compensation of relief events, e.g. swap breakage costs and commitment fees; clarification of procedure on compensation financial disadvantage	4	4	6	8	22
Certificates, protocols	Communications protocol; Completion certificates; Expiry	Stricter deadlines for reports on completion requirements and transition; clarification of procedures regarding	0	3	4	5	14

	transition procedure; Protocols; Confidentiality	failure to meet completion requirements					
Dispute resolution	Dispute resolution regulation; Dispute resolution and applicable law; Consultation committee; Dispute resolution procedure	Clarification of procedure when disputes simultaneously come up in DBFM and DBM agreement; inclusion of possibilities to go to court; modifications regarding constellation of dispute resolution committee	0	4	4	4	12
Variations	Variations; Variation procedure	Stricter deadlines for public sector partner to respond to variation proposals; wider range of possibilities for private sector partner to propose variations	0	2	5	3	10
Termination	Early termination; Compensation on termination	Addition or modification of elements for calculation of compensation on termination; stricter delineation of grounds for early termination	1	5	1	2	9
Payment	Payment mechanism	Better protection of contractors' right in event of late payment; clarification of indexation procedure and renegotiations	2	1	1	2	6
Non-compliance	Non-compliance	Clarification of private sector partner responsibility in event of non-compliance emergency	0	1	1	0	2

Various remaining clauses	Configuration; New assistants; Conditions precedent; Supplied data; Object	Not applicable	0	0	0	0	0
Total			13	40	42	42	137

Table 4 Number of clauses that were subjected to change within each of the Via-Invest projects (i.e. internal changes)

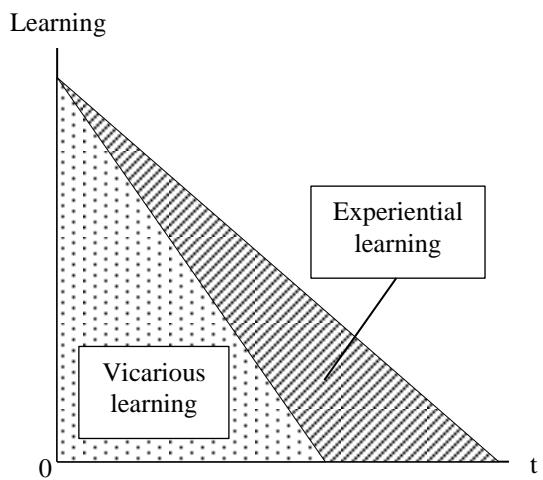


Fig. 1 Theoretical propositions on the learning process and the use of model contracts over time during a process of standardization

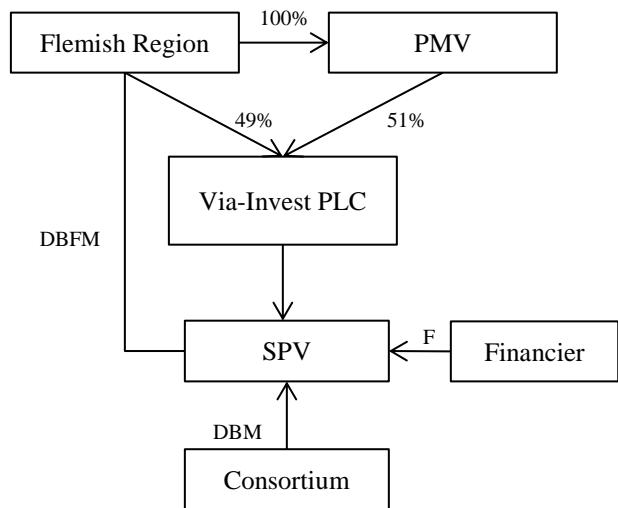


Fig. 2 Organizational structure of a PPP under the Via-Invest Program with a separate tender of DBM and F^a

^aIn a DBFM tender (i.e. project 4), the financier is part of the private consortium, hence the private sector partner himself brings together DBM and F. In a DBM+F tender, the contracting authority takes care of this task.

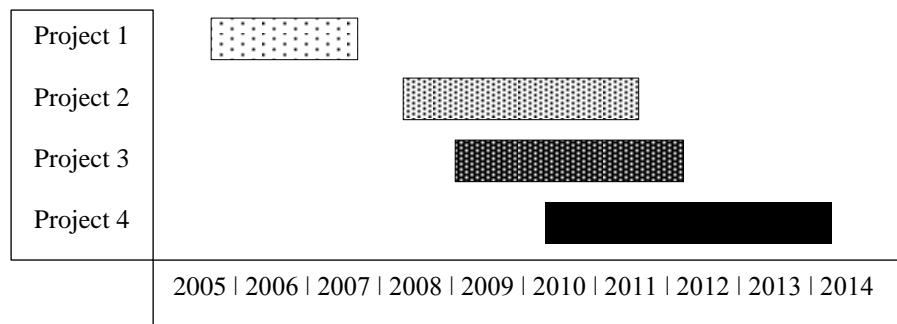


Fig. 3 Chronology of procurement processes within the Via-Invest Program, from launch of tender to financial close

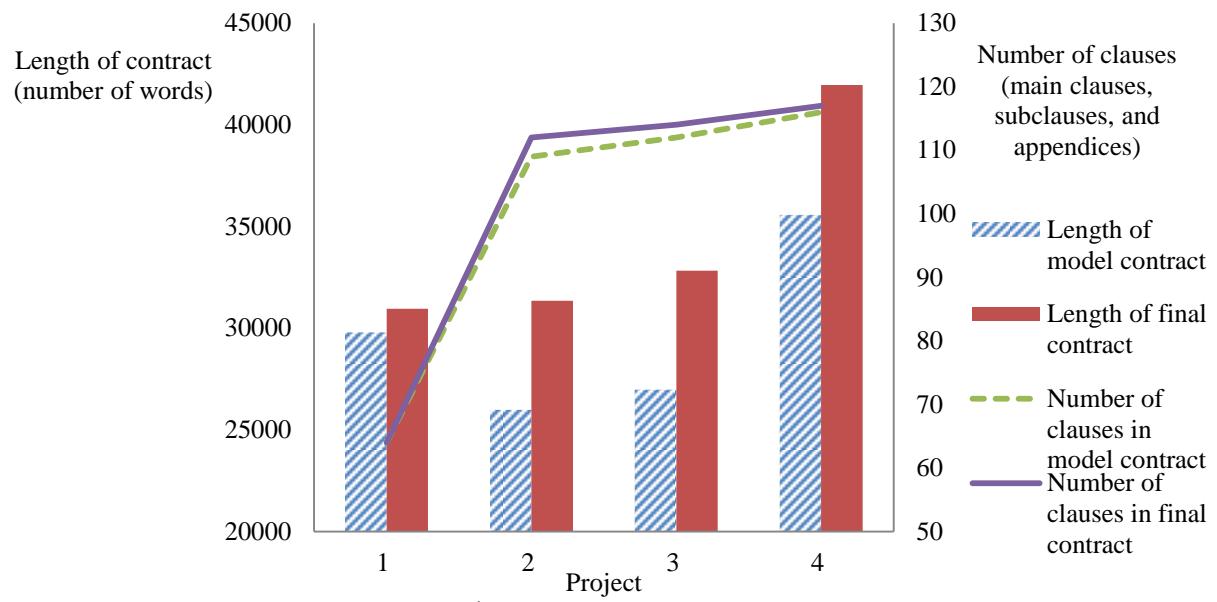


Fig. 4 Contractual complexity over time^b

^b The length of the contract excludes title page, table of content, and signing pages; the number of clauses excludes annexes containing technical specifics, e.g. terms and specifications for construction