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Institutionalising Digital Public-Private Partnerships:

Long-Term Governance Models and Policy Alignment

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Institutionalising Digital Public-Private Partnerships: Long-Term Governance Models and Policy Alignment

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Abstract Digital Public-Private Partnerships (DPPPs) have the potential to become central components of sustainable governance, with an impact that extends far beyond project-based collaborations. While traditional PPPs were usually limited in time and focused on specific construction or operational tasks, digitalisation opens up the possibility and necessity of institutionalising hybrid structures as long-term platform infrastructures. The central question is how DPPPs can be designed to enable scalability, standardisation and reuse not only technically but also institutionally. This paper argues that this requires the comprehensive implementation of a public-private shared value logic that combines economic, social, institutional and existential dimensions, thus going beyond the traditional shared value approach. It also discusses possible governance models such as federated platforms, public data trusts and multi-layered control architectures designed for durability, legitimacy and adaptability. By linking DPPPs to European strategies, national digital programmes and mission-oriented policies, it becomes clear that they can only be effective if they are embedded in political and regulatory frameworks. Resilience and reflexivity appear to be indispensable qualities for overcoming crises and institutionalising learning processes.

Keywords Digital Public-Private Partnerships · Governance · Platform Infrastructures · Policy Alignment · Shared Value Logic

1 Introduction

Digitale Public-Private Partnerships (DPPPs) have recently emerged as a new form of cooperation between government institutions and private actors that goes far beyond the logic of traditional project models. While the first discussions on DPPPs (Maurer, 2025) focused on the conceptual foundations and the identification of possible sectoral archetypes, the focus is now shifting to the question of how these arrangements can be consolidated in the long term and institutionally anchored. The central focus of this paper is therefore on examining the governance and policy structures that transform temporary projects into permanent infrastructures and establish DPPPs as viable building blocks of a digital and public-interest-oriented innovation architecture that is mutually beneficial to both the state and the private sector.

The main challenge here is that digital collaborations are not limited to completed projects, but rather unfold their full potential in continuously evolving platforms and ecosystems (Maurer, 2025). What is needed, therefore, is a look at the mechanisms that enable standardisation, scaling and reuse while ensuring that public interests, private innovation and regulatory legitimacy remain permanently linked.

With regard to the methodological approach of this paper, it should be clarified that, in line with the nature of a working paper, the following remarks do not claim to fully reflect empirically verified findings from existing DPPP research. Rather, this paper is intended to serve as inspiration, supported by empirical evidence where possible, and to address aspects relevant to innovation policy that could be important in the implementation of DPPPs. These would, of course, need to be examined in greater depth empirically in further steps.

DPPP research is currently still in its early stages, which is why creative, innovation-centred conceptual work is particularly important today in order to create space for more in-depth scientific and practical debates. This paper therefore is structured in several steps. First, it traces the transition from short- and medium-term project structures to long-term infrastructure arrangements, before discussing different governance models for sustainable DPPPs. This is followed by an overview analysis of the policy alignment of

this novel concept with national and supranational strategies and frameworks, before discussing issues of resilience, reflexivity and the role of ethics, inclusion and democratic legitimacy. The paper finally concludes with a reflection on the long-term institutionalisation of DPPP and the resulting implications for research and practice.

2 From Projects to Infrastructures

Traditional public-private partnerships (PPPs) were mostly project-based and primarily related to the construction and creation of infrastructure, such as bridges, schools or hospitals (Ke et al., 2024; Maurer, 2025). The objectives were usually time-limited, clearly defined and contractually fixed. However, with increasing digitalisation, this paradigm is reaching its limits and calls for new approaches to solutions and structuring. Digital collaborations no longer unfold their effects only in completed individual projects, but in permanent structures that can be continuously developed, scaled and reused.

DPPPs therefore mark a transition away from temporary projects towards digitised platform infrastructures and also a digitisation-appropriate handling of digitisation projects. After all, what would be the point of planning and implementing digitisation projects according to the outdated rules of classic PPPs? Platform solutions differ fundamentally from this because, in particular, they do not remain static after the project is completed, but are dynamically continued as open systems, and their viability can be measured in terms of scalability, interoperability and standardisation, among other things. Only when interfaces, protocols and data formats are harmonised can an environment be created that enables growing infrastructures while remaining open to new partners. In this context, standardisation is not only a technical necessity, but also an expression of institutional continuity that accelerates innovation cycles without jeopardising their legitimacy.

The dynamics of such infrastructures also require a change in governance. While traditional PPPs often can be managed with fixed terms and clearly defined responsibilities (Krumm, 2016), DPPPs require mechanisms that ensure institutionalised further development. The reuse and transfer of modules,

data models and governance mechanisms across different sectors is a central theme here. This not only creates efficiency, but also lays the foundation for cross-sector innovation ecosystems.

In this context, what we would like to call “*public-private shared value logic*” is of particular importance. This approach builds on the concept of shared value developed by *Porter and Kramer* (2011), who formulated the connection between economic value creation and social benefit under the guiding principle of “creating economic value by creating societal value” (Porter & Kramer, 2011). While shared value primarily referred to the renewal of capitalist dynamics and the opening up of new markets through social innovation, its application to DPPP’s goes much further. It is not only about economic and social benefits, but also about institutional and existential considerations. The latter point in particular refers to the state’s necessary ability to secure its future viability and maintain its capacity to act in an increasingly digitalised world. These additional dimensions do not exist in isolation, but in a dynamic interrelationship: institutional stability supports economic efficiency, while social benefits in turn create legitimacy for further innovation (see **def. 1**).

Public-Private Shared Value Logic refers to a cooperation and management concept that integrates *economic value creation, social benefits and institutional and governmental sustainability* as interconnected dimensions in order to promote *legitimacy, efficiency and innovation across sectors*.

Def. 1 Definition of public-private shared value logic

For the public sector, this logic means that services can be digitised more quickly and innovations made available at an early stage, opening up new forms of public services. Companies, in turn, are given the opportunity to test their technologies in a regulated environment, build trust among citizens and supervisory authorities, and develop long-term markets at the same time.

A key element of this shared value logic is, above all, the joint management of risks. Traditional public procurement models either shift risks entirely to the state or allow companies to integrate them into their price calculations, sometimes even in an exaggerated manner. DPPP’s, on the other

hand, create structures in which risks are shared and distributed, particularly because the focus is no longer solely on capital investment but rather on the integration of data and digital expertise, which automatically shifts the risks. This not only increases the willingness to test innovative technologies relevant to the public sector, but also enables a fair distribution of burdens and promotes the building of trust.

This logic ultimately forms the basis for the institutional consolidation of DPPP. It not only generates short-term efficiency gains, but also creates the basis for long-term ecosystems based on stability, legitimacy and collective value creation. By integrating economic, social, institutional and existential dimensions, the public-private shared value logic opens up the possibility of establishing DPPP as sustainable infrastructures of the digital age. Regardless of DPPP, this logic can and should, of course, also be applied to traditional PPPs for reasons of expediency alone.

3 Possible Governance Models for Sustainable DPPP

As described at the outset and as should have become clear in the course of the above discussion, the institutionalisation of DPPP requires governance models that not only structure short-term cooperation but are also designed for durability, adaptability and legitimacy. Sustainable DPPP therefore need frameworks that accommodate technological dynamics, integrate social requirements and translate regulatory requirements into productive control. Such models differ from traditional PPP arrangements in particular, but not only, in their stronger anchoring in platform logic, their focus on data flows and data literacy, and their openness to multiple actors that go far beyond the binary relationship between the state and companies.

Federated platforms appear particularly promising in this regard as they allow decentralised infrastructures to be connected without relinquishing sovereignty, as interfaces, standards and protocols ensure interoperability, which is essential for digital services in a cross-border context. Such structures reduce dependence on individual providers, promote competition and open up the possibility of scaling innovations gradually. Federated platforms are thus

a governance model that strengthens collective resilience while creating space for entrepreneurial dynamism.

Another interesting approach could be the institutionalisation of *public data trusts*. These anchor data as a (collective) resource that is shared, used and further developed under defined rules (Lau et al., 2020). The key difference to purely private-sector platforms is that a trust framework institutionally ensures transparency, accountability and a focus on the common good. DPPP's allow such trusts to be combined with technological expertise, legal legitimacy and public governance. This creates a space in which data is not only protected, but can also be used in a way that ensures social acceptance and regulatory stability.

Beyond both approaches, multi-layered governance structures are needed to accommodate the complexity of digital ecosystems. DPPP's do not operate in homogeneous contexts, but at the interface of different sectors, legal jurisdictions and technological standards. *Multi-layered governance* opens up the possibility of anchoring decisions at different levels depending on their scope and relevance: locally for operational services, nationally for sectoral regulation and supranationally for common standards. This linking of different levels not only creates flexibility, but also an institutional depth of focus that can protect DPPP's against political, economic and technological upheavals.

Specific case studies show how such governance models are already beginning to take shape. The *European Digital Identity Wallet* demonstrates the potential of federated platforms, as it does not replace national systems but connects them via uniform interfaces (Kudra et al., 2025). Trust is created here through the combination of national sovereignty and European standardisation. Smart energy infrastructures, in turn, also illustrate how multi-layered governance works: local grids, national energy markets and European climate targets are intertwined and require hybrid structures that ensure both flexibility and long-term commitment.

Overall, it is clear that governance for sustainable DPPP's must be more than the sum of contractual rules. It is evolving into an architecture based on openness, shared resources and institutional continuity. The integration of federated platforms, data trusts and multi-layered governance structures is creating a vision in which DPPP's can be established as permanent forms

of infrastructure that not only incorporate technical innovations but also ensure social and political stability in the digital age.

4 Policy Alignment with National and Supranational Strategies

The long-term institutionalisation of DPPPs requires close integration with political strategies at both national and supranational level. Digital ecosystems are usually deeply embedded in the normative, regulatory and economic orientations of national and supranational programmes. Especially in an environment characterised by high technological dynamism, consistent alignment with political guidelines can create the necessary stability and legitimacy without curtailing the innovative power of the actors involved.

With its *Digital Decade* and *European Data Strategy*, the European Union has formulated its ambition not only to accompany digital change, but to actively shape it (Groza & Botero Arcila, 2024; Sandhu, 2024). For DPPPs, this means a clear orientation towards European values such as data protection, openness and interoperability, but also a commitment to making data usable as a strategic resource across borders. The interaction of federated platforms and common standards fits seamlessly into the logic of DPPPs: national autonomy is preserved, while supranational coordination sets the standard for scaling and connectivity. This creates a framework in which hybrid partnerships can have an impact beyond national borders.

Another point of reference comes from the logic of *mission-oriented innovation policy*, as formulated in particular by *Mariana Mazzucato* (Mazzucato, 2017, 2018). Instead of relying on piecemeal regulation or short-term support programmes, states define overarching missions designed to drive social transformation in areas such as climate protection, health or mobility. In this context, DPPPs can be understood as operational vehicles that concretise such missions and translate them into institutionalised practice. By pooling their resources, public and private actors can not only accelerate innovation processes, but also focus them more strongly on collective problems. The key point is that missions set the normative framework within which DPPPs can have a formative effect without getting lost in particular interests.

The combination of supranational guidelines, national strategies and mission-oriented models opens up the possibility for DPPPs to develop sustainable structures in the long term. It makes it conceivable that hybrid cooperation models will not remain isolated projects, but will become integral components of a digital governance architecture that combines innovative strength with political goal orientation.

5 Resilience and Reflexivity in DPPPs

The ability to adapt to changing conditions and not only survive crises but also learn from them productively is becoming a key success factor for DPPPs. In a world characterised by accelerated technology cycles, geopolitical tensions and disruptive events, it is no longer enough to establish rigid structures. Instead, DPPPs must be designed in such a way that they can adapt flexibly, question their own processes and develop new ways of working.

One starting point is the establishment of adaptive mechanisms that respond to technological and social changes at an early stage. This includes not only the integration of monitoring and evaluation systems, but also the institutional willingness to translate the insights gained into concrete adjustments. In a digital health DPPP, for example, data on user behaviour, gaps in care or technological functioning could be evaluated in real time in order to dynamically develop treatment models. Comparable mechanisms can also be envisaged in other sectors, such as energy supply, where smart grids continuously respond to fluctuations in demand and production, thereby securing the transition to renewable energies.

The importance of resilience is particularly evident in crisis situations. The COVID-19 pandemic has shown that (new) forms of cooperation and decision-making must be operational in a very short time in order to bundle data flows, logistical processes and regulatory adjustments (Elia et al., 2022; Kuhlmann et al., 2022; Staniuk et al., 2022). Similar requirements likely arise from the most recent energy crisis, which has been exacerbated by geopolitical dependencies and at the same time underscored the urgency of the

transformation towards decentralised and climate-neutral energy systems. DPPPs that rely on flexible infrastructures, digital platforms and shared responsibilities could certainly act as a buffer here because they not only expand government control capacities but also mobilise private-sector dynamics. In this context, *crisis resilience* does not mean stability at any price, but rather the ability to derive innovation impulses from disruptions.

The reflexivity of such partnerships also plays a decisive role. This refers to the ability to regularly question and, if necessary, readjust one's own structures, role distributions and patterns of legitimacy. This reflexivity can be institutionally anchored, for example through feedback loops between citizens, authorities and companies that accompany the course of projects and continuously provide feedback. However, it can also be implemented in the form of learning systems that not only use algorithmic predictions, but also systematically evaluate their errors and distortions and translate them into improved models. Reflexive DPPPs are thus not only technical arrangements, but also social learning spaces in which trust, legitimacy and innovative capacity are continuously rebalanced.

By combining resilience and reflexivity, a vision emerges of a form of partnership that is not limited to short-term goal achievement but sees itself as a dynamic ecosystem. Such DPPPs combine the ability to respond to acute crises with the potential to accompany long-term transformations. This enables an institutional design that interprets the volatility of the digital age not as a threat, but as a source of continuous renewal and collective learning.

6 Ethics, Inclusion, and Democratic Legitimacy

DPPPs can only reach their full potential if they are not viewed solely as technical or economic arrangements, but rather as institutional frameworks that translate social values into concrete structures. Ethics and inclusion are not mere accessories, but rather constitutive components of the legitimacy of such collaborations. The aspiration to design digital infrastructures in the public interest also requires that questions of access, participation and the equitable distribution of opportunities be incorporated into the architecture

of DPPPs at an early stage. In areas such as digital identity and healthcare, it is clear that the exclusion of certain population groups can have serious consequences that go far beyond the technical dimension (see, e.g., Beduschi, 2021; Kaihlanen et al., 2022; Masiero & Bailur, 2021). It is therefore necessary to understand equity as a design principle that takes into account both social and territorial differences and thus avoids digital divides.

In addition, particular attention should also be paid to the risk of innovation capture. While private actors bring innovative strength and speed to the partnerships, there is also a risk that public interests will be displaced by dominant platform providers. Structures that prevent power asymmetries from leading to a unilateral appropriation of public values are therefore at the core of democratically legitimised governance. These include clear accountability, institutionalised transparency and mechanisms that ensure a continuous link to the common good. Innovation potential should therefore not be monopolised through isolation, but rather placed at the service of collective development through shared responsibility.

It is also essential that DPPPs are not reduced to a narrow constellation between the state and global technology companies. They must also be viable on a smaller scale, for example in municipal contexts, where cooperation between cities, regions and small and medium-sized enterprises can provide valuable innovation impulses. It is precisely there that practical solutions can be developed that have an immediate social impact and strengthen trust at the local level. For this to succeed, large, state-supported DPPP arrangements should be deliberately designed in such a way that smaller companies can also act as partners. An open architecture that promotes interoperability and participation is likely to be a prerequisite for digital sovereignty to be not only proclaimed but actually realised.

This digital sovereignty can only be secured in the long term if DPPPs both produce (European) solutions that institutionalise common values and strengthen regional cooperation that operates close to the specific needs of the population. The ability to combine transnational flagship projects with decentralised, small-scale partnerships could prove to be the key to democratically anchoring innovation and thereby intertwining economic viability with social legitimacy.

Integrating ethical principles, inclusive mechanisms and democratic legitimacy into the logic of DPPPs opens up the opportunity to anchor hybrid partnerships as a sustainable cornerstone of digital public welfare architectures to build long-term trust while maintaining the capacity for innovation necessary to meet the social challenges of the digital age.

7 Conclusions

The considerations presented here illustrate that digital public-private partnerships represent a distinct institutional type that differs fundamentally from traditional PPP arrangements. While the first working paper (Maurer, 2025) outlined the definitional framework and first sectoral archetypes, this paper focused on the question of their long-term institutionalisation. It is crucial to recognise that the future viability of DPPPs lies not only in temporary projects, but in their transformation into stable, open and adaptive infrastructures that can be continuously developed.

The key to this is a governance architecture that not only integrates technological innovation cycles, but also aims for permanence, legitimacy and collaborative value creation. Standardisation, reuse and scalability emerge as central themes. Only if interfaces, protocols and organisational mechanisms are designed in such a way that they remain continuously connectable can DPPPs survive beyond project-based boundaries. This also shifts the focus from the selective provision of individual services to a strategic infrastructure policy in which digital resources are established as *collective factors of production*.

The introduction of a *public-private shared value logic* is particularly significant in this context. It emphasises that DPPPs not only create economic and social value, but also address institutional and existential dimensions that are essential for the state's ability to act in the digital age. By sharing risks and collectively exploiting opportunities, DPPPs open up the possibility of productively harnessing technological dynamics for public tasks while at the same time unleashing private-sector innovation in regulated environments.

However, the analysis also reveals unresolved challenges that require further research. It remains unclear how the institutional designs of DPPP can be systematically compared and evaluated. Although individual governance models such as federated platforms, data trusts and multi-layered control mechanisms have been discussed in this paper, there is still no coherent conceptual framework that clearly captures the strategic design principles of DPPP. Such a structure would be necessary in order to develop criteria that are transferable between different sectors while also taking their specific characteristics into account.

Furthermore, the question remains as to what rational motives and incentive systems can keep public and private actors in hybrid arrangements in the long term. Not only does trust play a role here, but also the ability to dynamically adapt regulatory frameworks and to perpetuate incentives for innovation. Finally, there is the challenge of how DPPP can enable innovation in highly regulated environments without undermining legitimacy, transparency and democratic accountability.

The institutionalisation of DPPP thus marks not so much an end point as the beginning of a further examination of the conditions under which these partnerships can become viable pillars of digital governance. Establishing a consistent framework for the design, management and strategic embedding of hybrid partnerships could be a decisive step in permanently anchoring DPPP in regulated fields of innovation and fully exploiting their potential.

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