TU Delft

Tensions in Business Model Design

for digital wallet providers

EIC 2026, Berlin | Henk Marsman

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Introduction

- Henk Marsman

- PhD, Delft University, 2025
- Principal Consultant, SonicBee, 2022

- Pre-PhD, Leiden University, 2022
- Global Service Owner IAM, Rabobank, 2017
- Senior Manager IAM, Deloitte, 2011

sonicbee

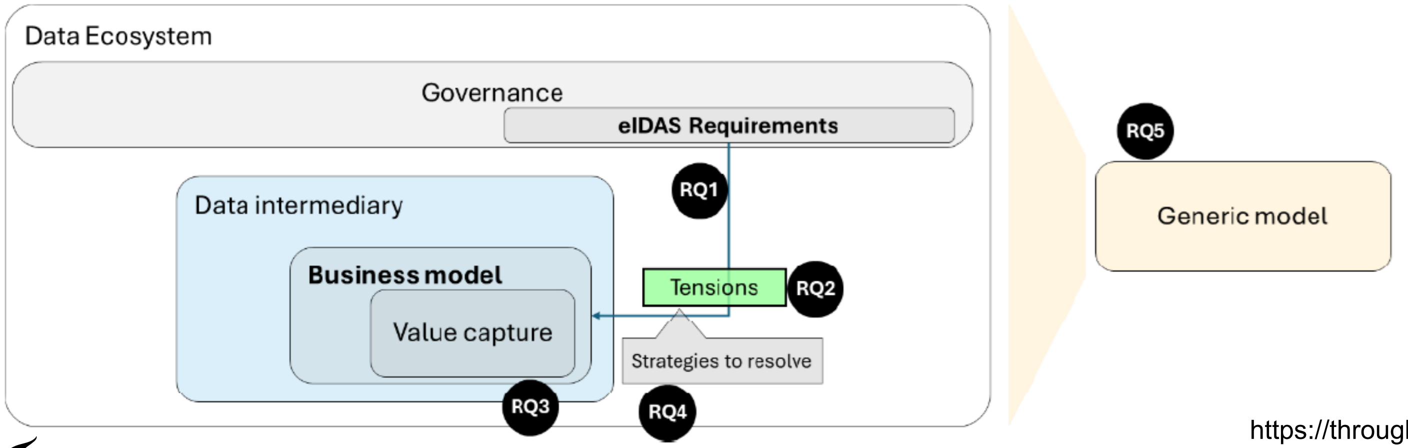
Why is this important?

- EUDI goals: autonomy, access, privacy, protection
- Digital wallet providers want to contribute to these values
- But will not participate if they can’t design some kind of business model

- The risk of dominance by a few players

Tensions in value capture design

How do data intermediaries address tensions in designing business model value capture mechanisms, resulting from ecosystem governance requirements?



4 Research Question

4.1 Research objective

The objective of the proposed study is to identify how digital wallet providers identify and resolve tensions, that arise due to regulatory ecosystem governance requirements, when designing value capture mechanisms in their business model. Understanding how tensions are resolved explains the relation between requirements from ecosystem governance and resulting business model value capture mechanisms that are designed.

4.2 Conceptual framework

The research objective fits in a conceptual framework where a) governance requirements include constraints, and b) these constraints create tensions, which c) need to be resolved through strategies, and in turn d) shape the value capture mechanisms.

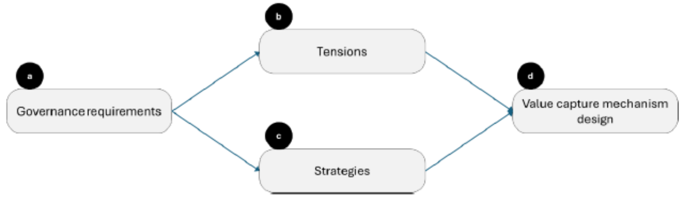


Figure 3 Conceptual framework for this research

4.3 Main research question

In order to reach the research objective the main research question my study will try to answer is:

How do data intermediaries address tensions in designing business model value capture mechanisms, resulting from ecosystem governance requirements?

To focus the research the following specifications apply to this research question:

- For data intermediaries I consider commercial organizations (with a for-profit business model) that consider to fulfil the role of wallet provider in an ecosystem
- For business models I focus on their value capture mechanisms of the (typical) value creation, value delivery and value capture elements
- For the ecosystem governance requirements, I consider those for data ecosystems, which can include external stakeholder- and regulatory requirements

This specifies the research question into *'How do commercial organizations that consider fulfilling a role as wallet provider (data intermediaries) address tensions in designing the value capture mechanisms (business model design) resulting from data ecosystem governance requirements?'*.

https://throughidentity.com/2026/04/27/how-to-work-through-tensions-for-digital-identity/

Agenda

- What is the ‘problem’ with eIDAS
- Where are the tensions for business model design
- How to move forward

Free of charge to natural persons

1

- eIDAS article 5(a)13

13. The issuance, use and revocation of the European Digital Identity Wallets shall be free of charge to all natural persons.

Cannot collect or combine data (unobservability)

2

- eIDAS article 5(a)14

14. Users shall have full control of the use of and of the data in their European Digital Identity Wallet. The provider of the European Digital Identity Wallet shall neither collect information about the use of the European Digital Identity Wallet which is not necessary for the provision of European Digital Identity Wallet services, nor combine person identification data or any other personal data stored or relating to the use of the European Digital Identity Wallet with personal data from any other services offered by that provider or from third-party services which are not necessary for the provision of European Digital Identity Wallet services, unless the user has expressly requested otherwise. Personal data relating to the provision of the European Digital Identity Wallet shall be kept logically separate from any other

- eIDAS recital 32

(32) The use, free of charge, of European Digital Identity Wallets should not result in the processing of data beyond data that is necessary for the provision of European Digital Identity Wallet services. This Regulation should not allow the processing of personal data stored in or resulting from the use of the European Digital Identity Wallet by the provider of the European Digital Identity Wallet for purposes other than the provision of European Digital Identity Wallet services. To ensure privacy, European Digital Identity Wallet providers should ensure unobservability by not collecting data and not having insight into the transactions of the users of the European Digital Identity Wallet. Such unobservability means that the providers are not able to see the details of the transactions made by the user. However, in specific cases, on the basis of explicit prior consent by the user in each of those specific cases, and fully in accordance with Regulation (EU) 2016/679, providers of European Digital Identity Wallets could be granted

… on case by case consent

No subscription fees or pay-per-use models or direct monetization

from end-users

No data-driven revenue models

(e.g. targeted advertising, selling user/use data)

Yet with high compliance costs and regulatory risk

Reduced differentiation

3

- eIDAS article 5(a)3

3. The source code of the application software components of European Digital Identity Wallets shall be open-source licensed. Member States may provide that, for duly justified reasons, the source code of specific components other than those installed on user devices shall not be disclosed.

5. European Digital Identity Wallets shall, in particular:

(a) support common protocols and interfaces:

- eIDAS recital 48

(48) This Regulation should foster choice and the possibility of switching between European Digital Identity Wallets where a Member State has endorsed more than one European Digital Identity Wallet solution on its territory. In order to avoid lock-in effects in such situations, where technically feasible, the providers of European Digital Identity Wallets should ensure the effective portability of data at the request of European Digital Identity Wallet users, and should not be allowed to use contractual, economic or technical barriers to prevent or to discourage effective switching between different European Digital Identity Wallets.

No leverage or mandatory adoption (1/2)

4

- eIDAS article 5(b)

> 9. Relying parties shall be responsible for carrying out the procedure for authenticating and validating person identification data and electronic attestation of attributes requested from European Digital Identity Wallets. Relying parties shall not refuse the use of pseudonyms, where the identification of the user is not required by Union or national law.

- eIDAS article 5(f)2

> 2. Where private relying parties that provide services, with the exception of microenterprises and small enterprises as defined in Article 2 of the Annex to Commission Recommendation 2003/361/EC (***), are required by Union or national law to use strong user authentication for online identification or where strong user authentication for online identification is required by contractual obligation, including in the areas of transport, energy, banking, financial services, social security, health, drinking water, postal services, digital infrastructure, education or telecommunications, those private relying parties shall, no later than 36 months from the date of entry into force of the implementing acts referred to in Article 5a(23) and Article 5c(6) and only upon the voluntary request of the user, also accept European Digital Identity Wallets that are provided in accordance with this Regulation.

See article 5(a)4(g)

No leverage or mandatory adoption (2/2)

4

- eIDAS article 5(a)

> 15. The use of European Digital Identity Wallets shall be voluntary. Access to public and private services, access to the labour market and freedom to conduct business shall not in any way be restricted or made disadvantageous to natural or legal persons that do not use European Digital Identity Wallets. It shall remain possible to access public and private services by other existing identification and authentication means.

- eIDAS article 12(b)

> Where providers of European Digital Identity Wallets and issuers of notified electronic identification means that act in a commercial or professional capacity and use core platform services as defined in Article 2, point (2), of Regulation (EU) 2022/1925 of the European Parliament and of the Council (*) for the purpose or in the course of providing European Digital Identity Wallet services and electronic identification means to end-users are business users as defined in Article 2, point (21), of that Regulation, gatekeepers shall in particular allow them effective interoperability with, and, for the purposes of interoperability, access to, the same operating system, hardware or software features. Such effective interoperability and access shall be allowed free of charge and regardless of whether the hardware or software features are part of the operating system, are available to, or are used by, that gatekeeper when providing such services, within the meaning of Article 6(7) of Regulation (EU) 2022/1925. This Article is without prejudice to Article 5a(14) of this Regulation.

Limited value added services

5

- eIDAS article 45(h)1-3

Article 45h

Additional rules for the provision of electronic attestation of attributes services

1. Providers of qualified and non-qualified electronic attestation of attributes services shall not combine personal data relating to the provision of those services with personal data from any other services offered by them or their commercial partners.

2. Personal data relating to the provision of electronic attestation of attributes services shall be kept logically separate from other data held by the provider of electronic attestation of attributes.

3. Providers of qualified electronic attestation of attributes' services shall implement the provision of such qualified trust services in a manner that is functionally separate from other services provided by them.

Summary

	Restriction	Impact on Business Model	Reference
1	No user fees	No direct revenue streams from customers (B2C)	Art. 5(a)13
2	No tracking / data monetization	Blocks ad-based or data-driven models	Art. 5a(14), 5a(16), 32
3	Open-source and interoperability	Limits proprietary control, reduces differentiation, prevents lock-in	Art. 5a(3), recital 48
4	No leverage or mandatory adoption	Limits B2B revenue from partnerships	Art. 5(b), 5(f)2, 5(a)15, 12(b)
5	Limited value added services	No cross-subsidization between services	Art. 45(h)1–3
	Certification/compliance costs	High operational costs; risk of non-compliance	Art. 5(c), 46
	Liability for damages	Increased financial/legal risks	Art. 13

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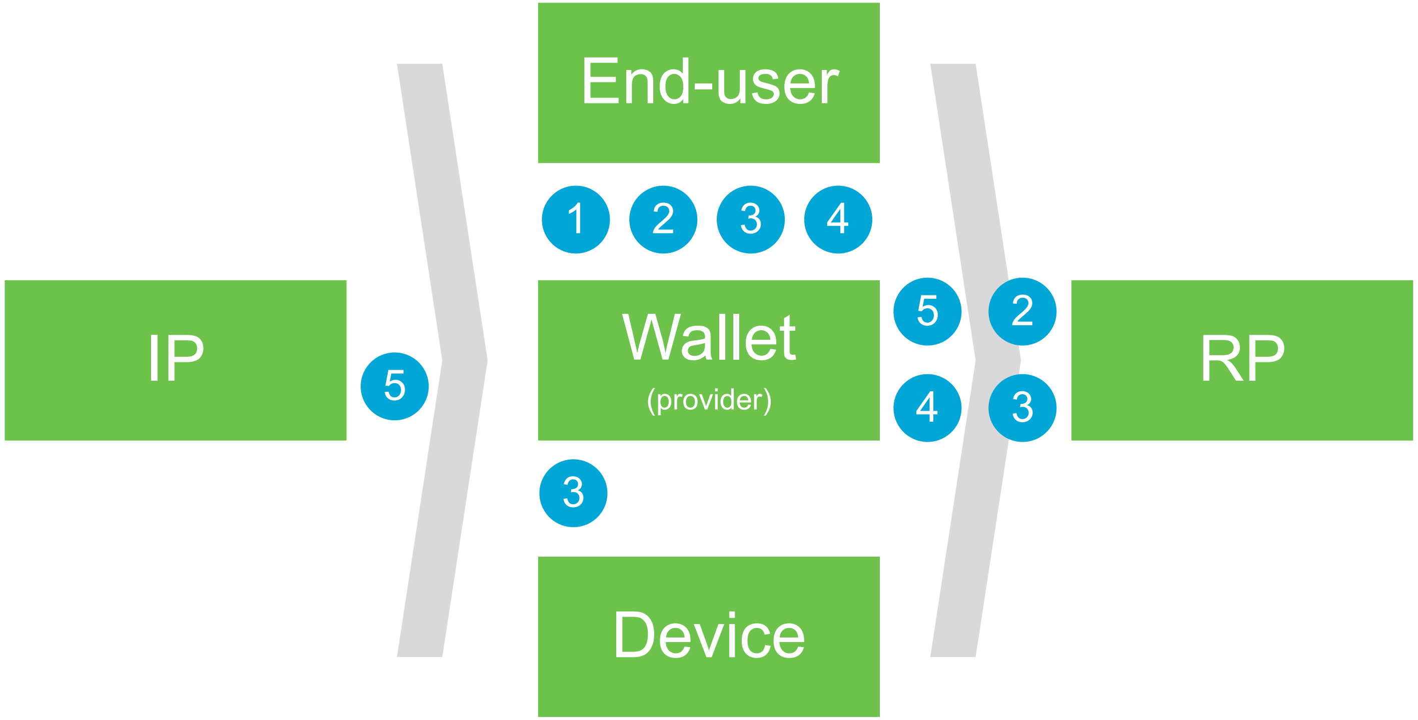
- Where are the tensions for business model design
- How to move forward

Disclaimer: this presentation builds on ongoing research. It is for general informational and discussion purposes only. It does not constitute any kind of advice. I disclaim all liability for any actions taken or not taken based on the content of this presentation.

Overview of tension areas

1. No direct revenue streams from customers (B2C)
2. Blocks ad-based or data-driven models
3. Limits proprietary control, reduces differentiation, prevents lock-in
4. Limits B2B revenue from partnerships
5. No cross-subsidization between services



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Aspects in business model design

Ecosystem

- Developments will come, even though strongly regulated
- Global perspective and impact
- Supra-ecosystem perspective

Value

- Direct (revenue model, pricing model)
- Indirect (efficiency gain, cost reduction, improved decision making)
- Intangible (reputation, positioning, innovation)

Who

- End-user
- Issuing Party, Relying Party
- Orchestrator, Oversight, Member State Government
- Device providers

How (direct revenue model)

- Transaction-based
- Subscription-based
- Usage-based
- Fixed or dynamic pricing

Call to action

- Collaboratively address the tensions in business model design in this regulated data ecosystem
- Share examples and best practices of business model adaptation and digital wallet provider market dynamics
- Transparency how individual participants' evaluation impact ecosystem overall value

In the end identity is

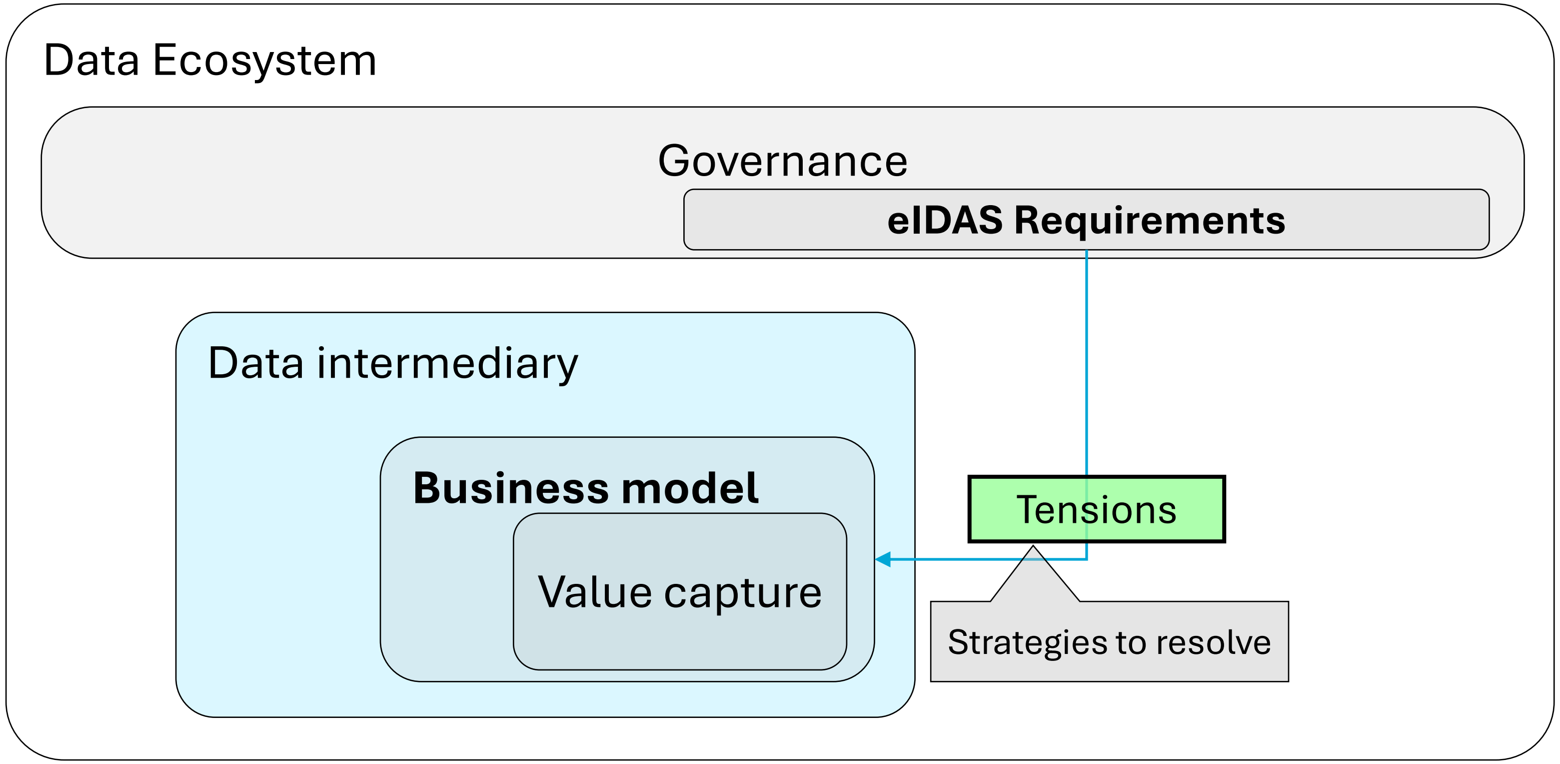
a discussion of values and society

and digitization is not neutral

Thank you!

Research Question

- How do data intermediaries address tensions in designing business model value capture mechanisms, resulting from ecosystem governance requirements?



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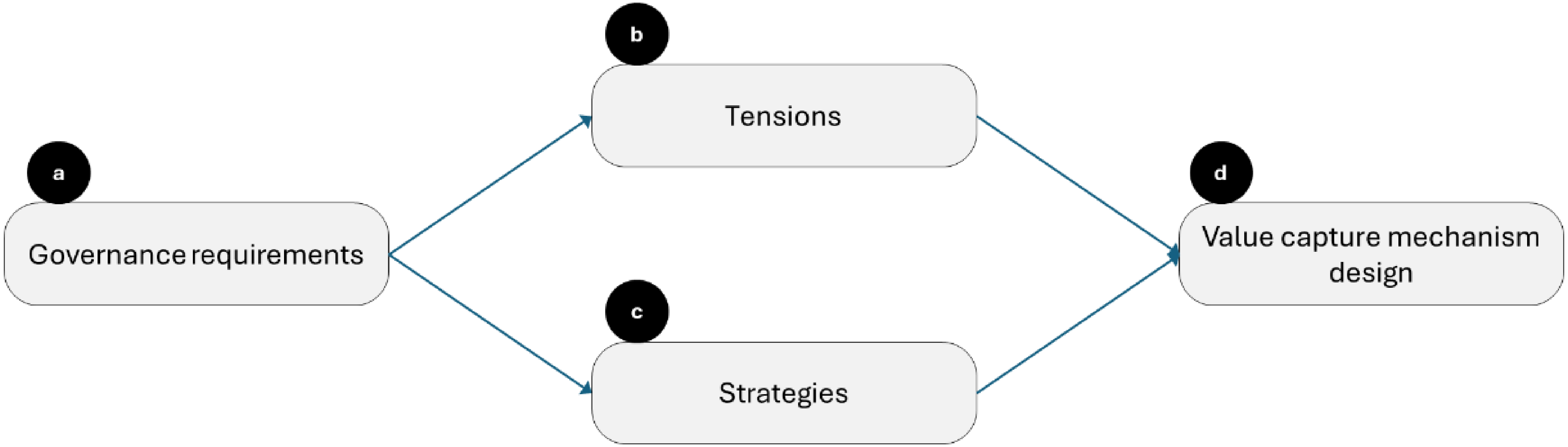
Conceptual framework

a) Governance requirements include constraints, and
b) these constraints create tensions, which
c) need to be resolved through strategies, and in turn
d) shape the value capture mechanism design in business models.



Research Questions

	Research question (RQ)	Focus
1	What are ecosystem governance requirements in data ecosystems that impact value capture mechanism design options in business models for data intermediaries?	Governance and Tensions
2	What are tensions in business model design that arise or are changed by to ecosystem governance requirements?	
3	How do ecosystem governance requirements impact value capture mechanism design options in business models for digital wallet providers in data ecosystems?	Value Capture Mechanism Design and Resolution Strategies
4	How do digital wallet providers address tensions that they encounter when designing the value capture mechanisms in their business model?	
5	How can the relationship between ecosystem governance requirements and value capture mechanism design choices of digital wallet providers be explained in a generic model?	

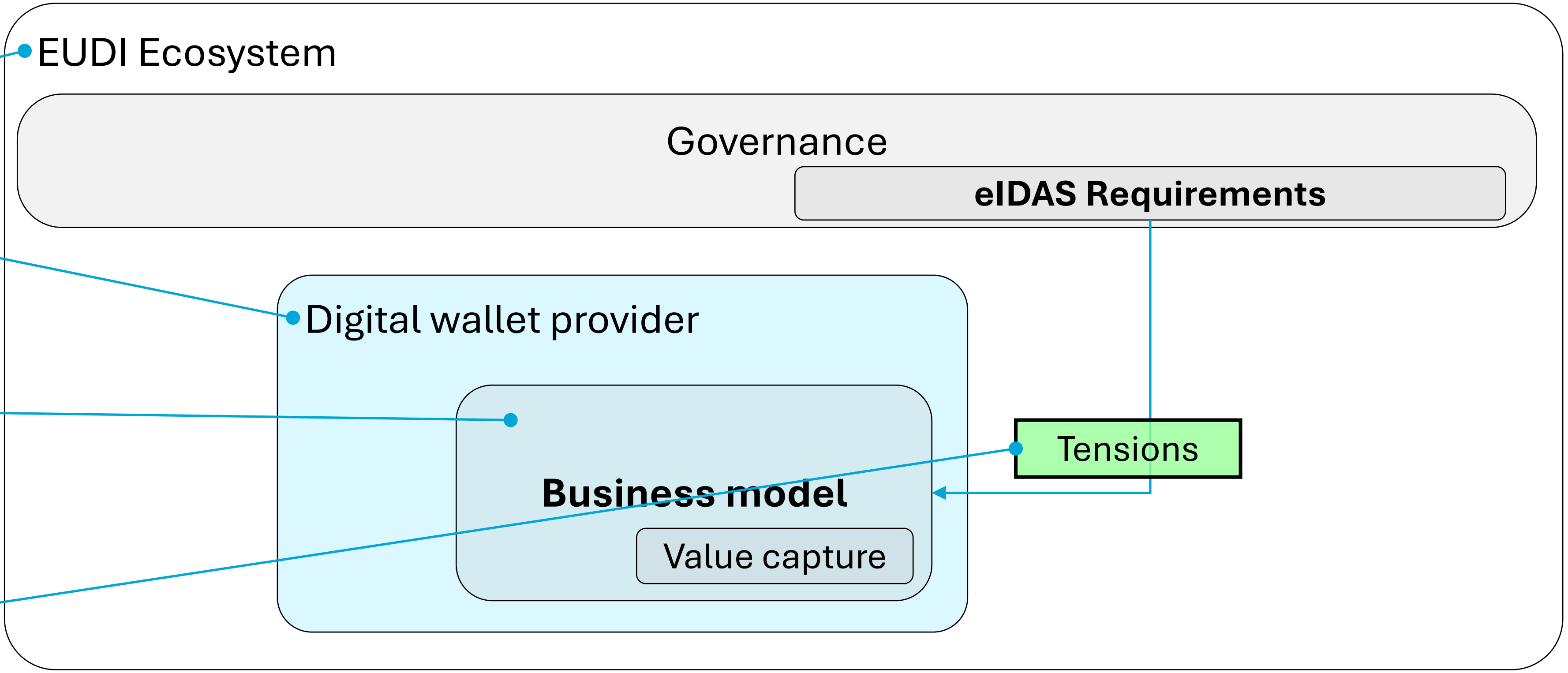
Research Overview

(Oliveira et al., 2019)
(Gelhaar & Otto, 2020)
(Kernstock, Harms, et al., 2025)
(Möller et al., 2025)

(Schweihoff et al., 2024)
(Powar et al., 2025)
(Carovano & Finck, 2023)
(Degen & Teubner, 2024)

(Ammann & Hess, 2025)
(D'Hauwers et al., 2022)
(Perscheid et al., 2020)
(Schweihoff et al., 2022)

(Dai et al., 2024)
(Jussen et al., 2023)
(Mini & Widjaja, 2019)
(Niesten & Stefan, 2019)
(Smith & Lewis, 2011)
(Van der Byl & Slawinski, 2015)



* Bibliography in Appendix

Adoption is not user driven

- Regulation shapes demand
- Users adopt through services, not wallets
- Adoption requires aligning multiple domains -> think ecosystem

- From MSc research by ir. M. Lamprinidou

WALLET ADOPTION FOR AV

MsC thesis by M. Lamprinidou
https://resolver.tudelft.nl/uuid:7abdef4a-8e64-48f8-be68-df7b97ee6adc