

Beyond Trial and Error: Strategic Assessment of Decentralized Identity in US Healthcare

W3C CCG – 11/21/2023

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Master in Strategy & International Management (SIM)

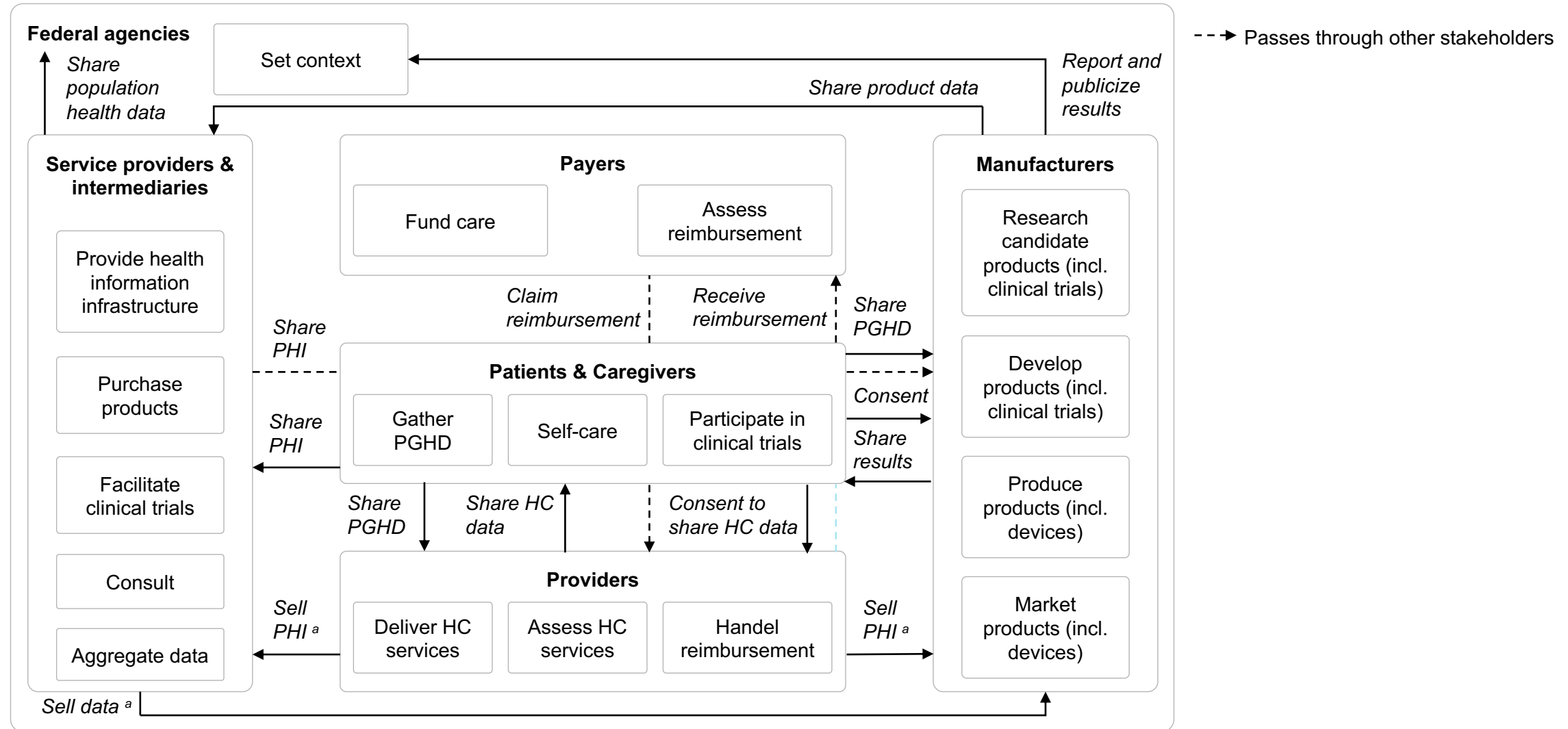
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HC is data-driven and the ability to access, edit, and trust the data emerging from its activities is crucial for the sector's operations

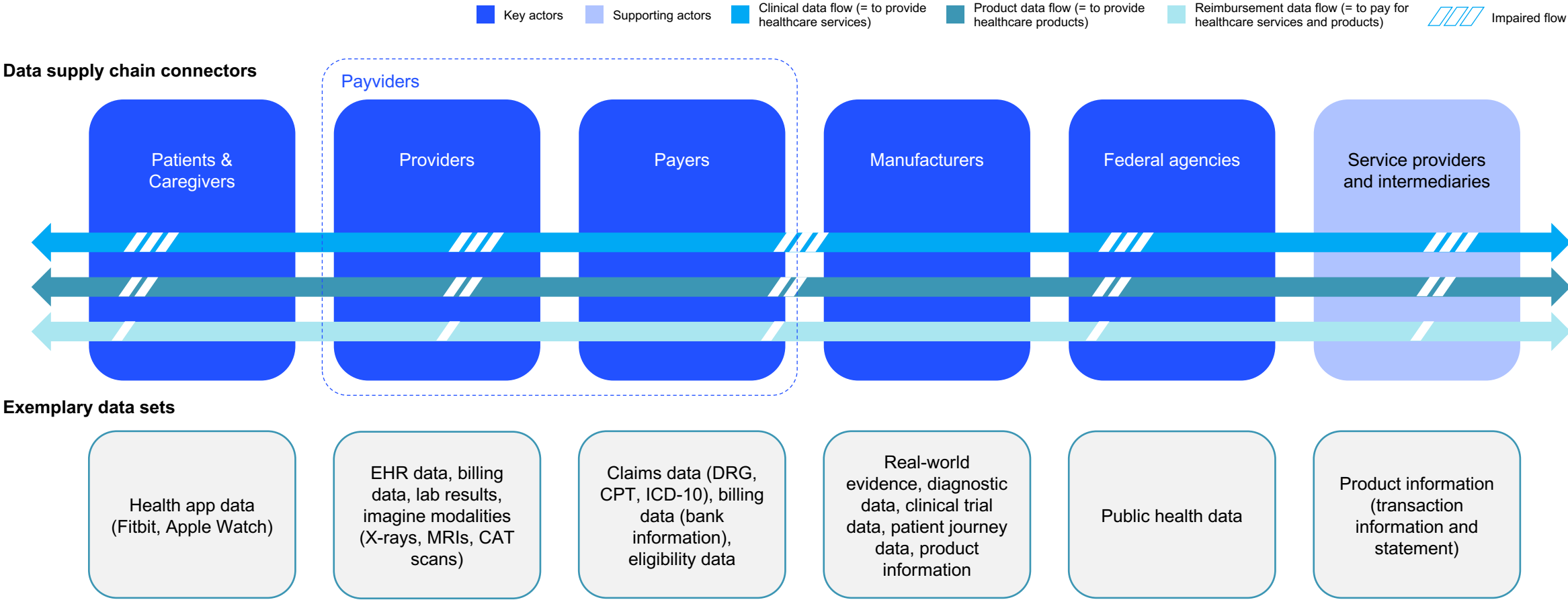
Map of the healthcare sector and an exemplary set of data flows



^a The sold data is always anonymized and aggregated

The flow of clinical data for healthcare treatment remains the US healthcare system's weakest link

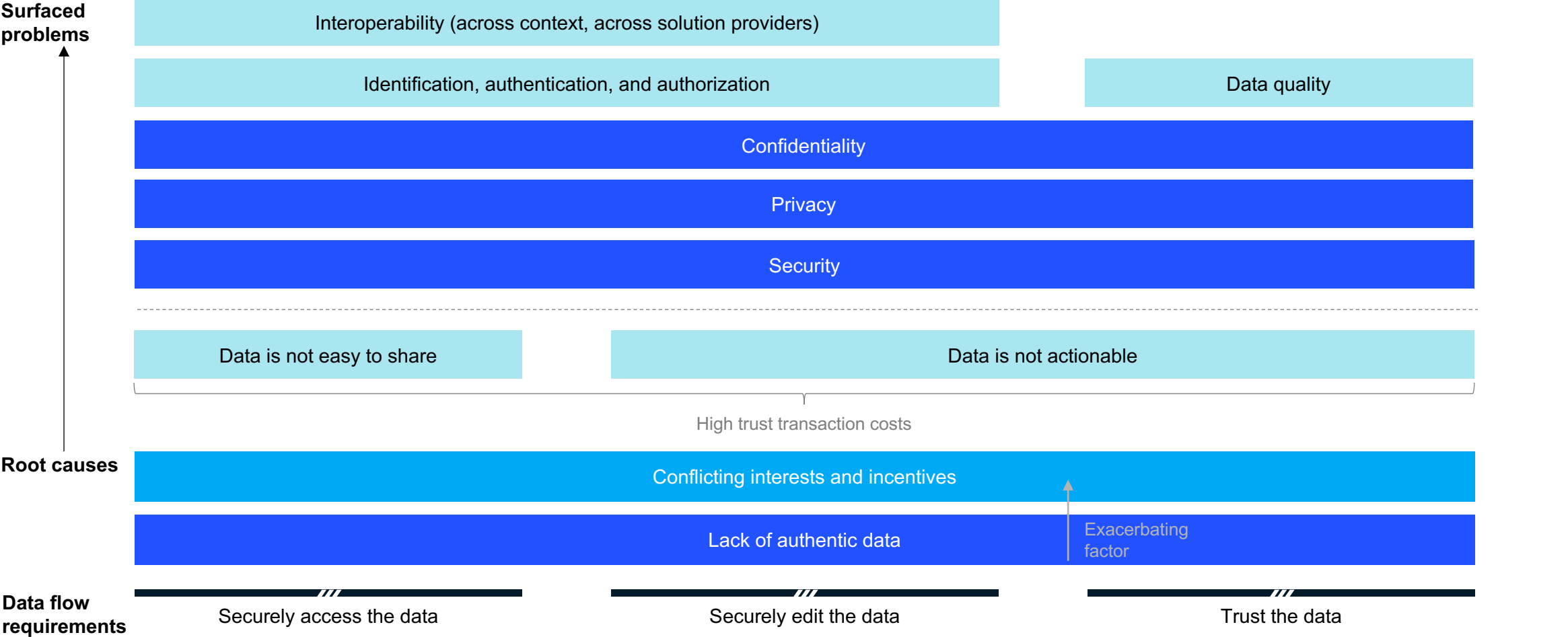
Data flows in US healthcare



Due to the nature of the data and the number of stakeholder groups involved, clinical data flow is the primary impaired flow

Data flow problem set

■ Social aspects
 ■ Technical aspects
 ■ Both social and technical aspects



Resolving current surface problems relies on successfully addressing the challenge of a lack of a trust-spanning layer

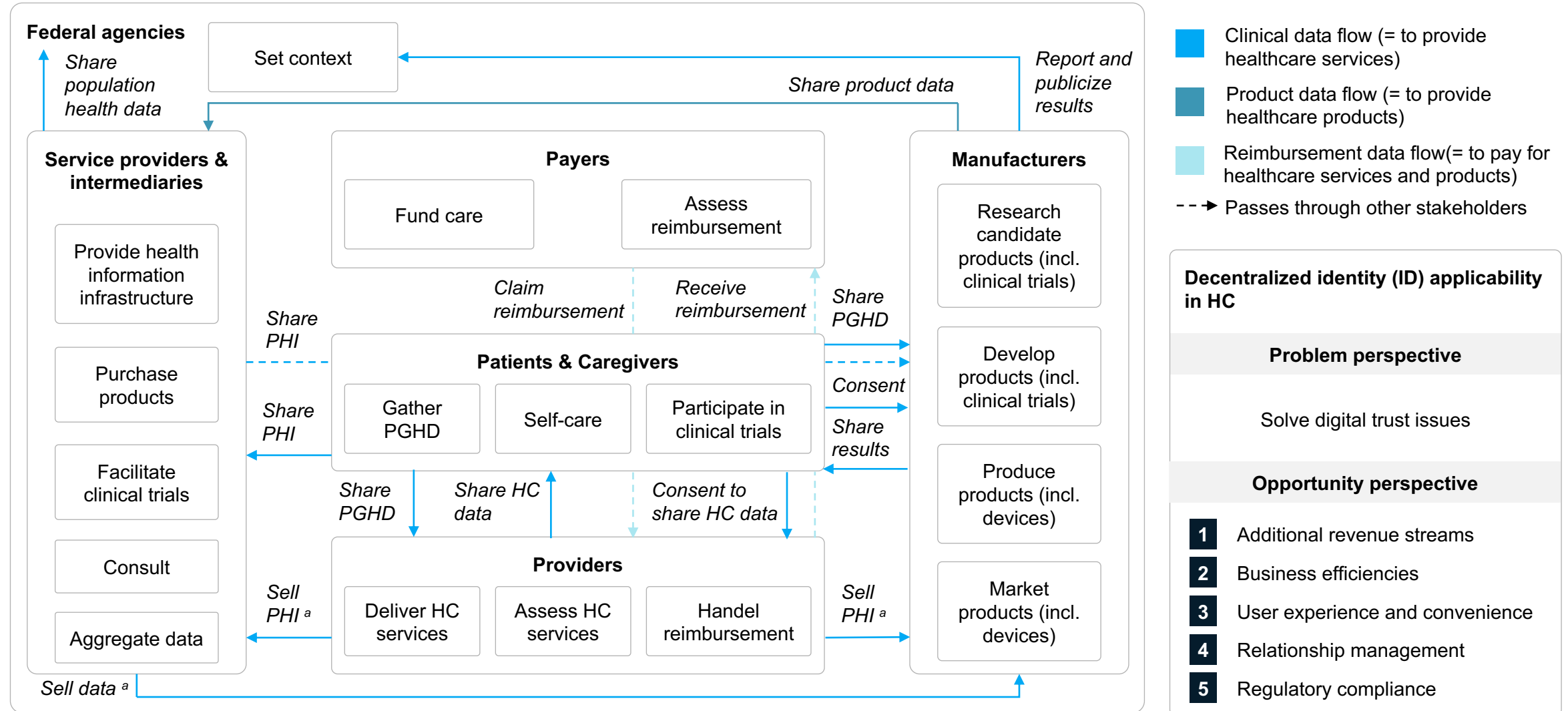
Mechanism of trustworthy digital relationships



Building such a trust-spanning layer is a task in and of itself. Creating a means to digitize and transmit trust across distances demands an **underlying digital ID system** that facilitates the verification of data.

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Map of the healthcare sector and an exemplary set of data flows

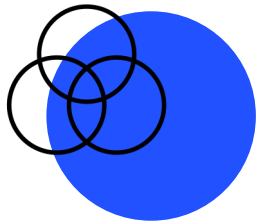


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Why is there a need for a healthcare-specific use case assessment framework?

A use case assessment model helps make informed decisions when selecting use cases for decentralized ID

Reasons for a decentralized ID use case assessment framework



Healthcare has a **track record of failures** in health IT deployments.



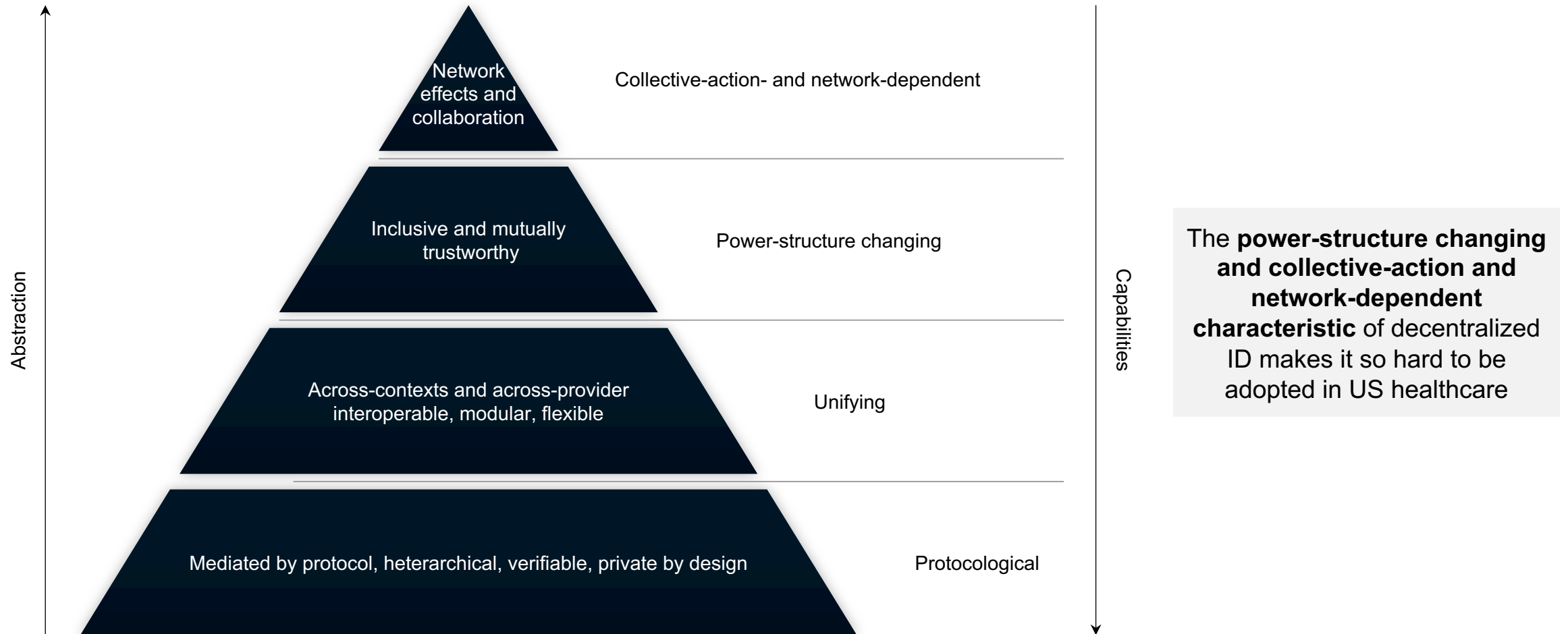
Avoiding blockchain's pitfalls: Many opportunists champion it as a cure-all, leading to numerous failed projects.



A promising use case on paper does not guarantee success. Many great concepts fail due to insurmountable contextual barriers.

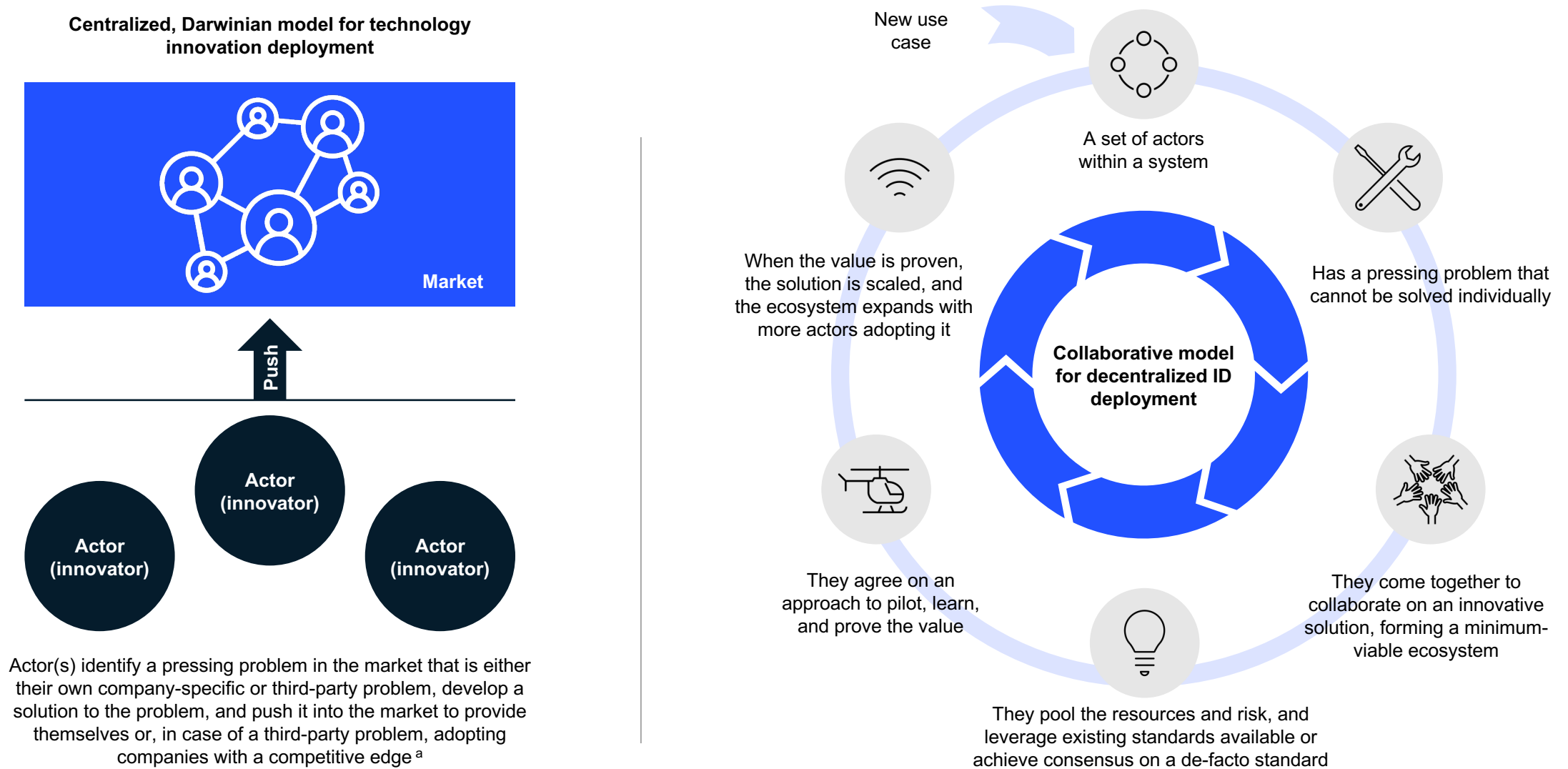
Decentralized ID is protocolological, unifying, power-structure changing, and collective-action- and network-dependent

Decentralized identity characteristics



Decentralized identity requires a collaborative approach toward innovation and adoption, in which the innovators are the adopters

Traditional product innovation and deployment vs. decentralized identity innovation and deployment



The framework is designed to help assess whether a certain healthcare use case is amenable to decentralized ID.

Methodology

Participatory action research study

Objective: Developing a framework for assessing the amenability of US healthcare system use cases to decentralized ID

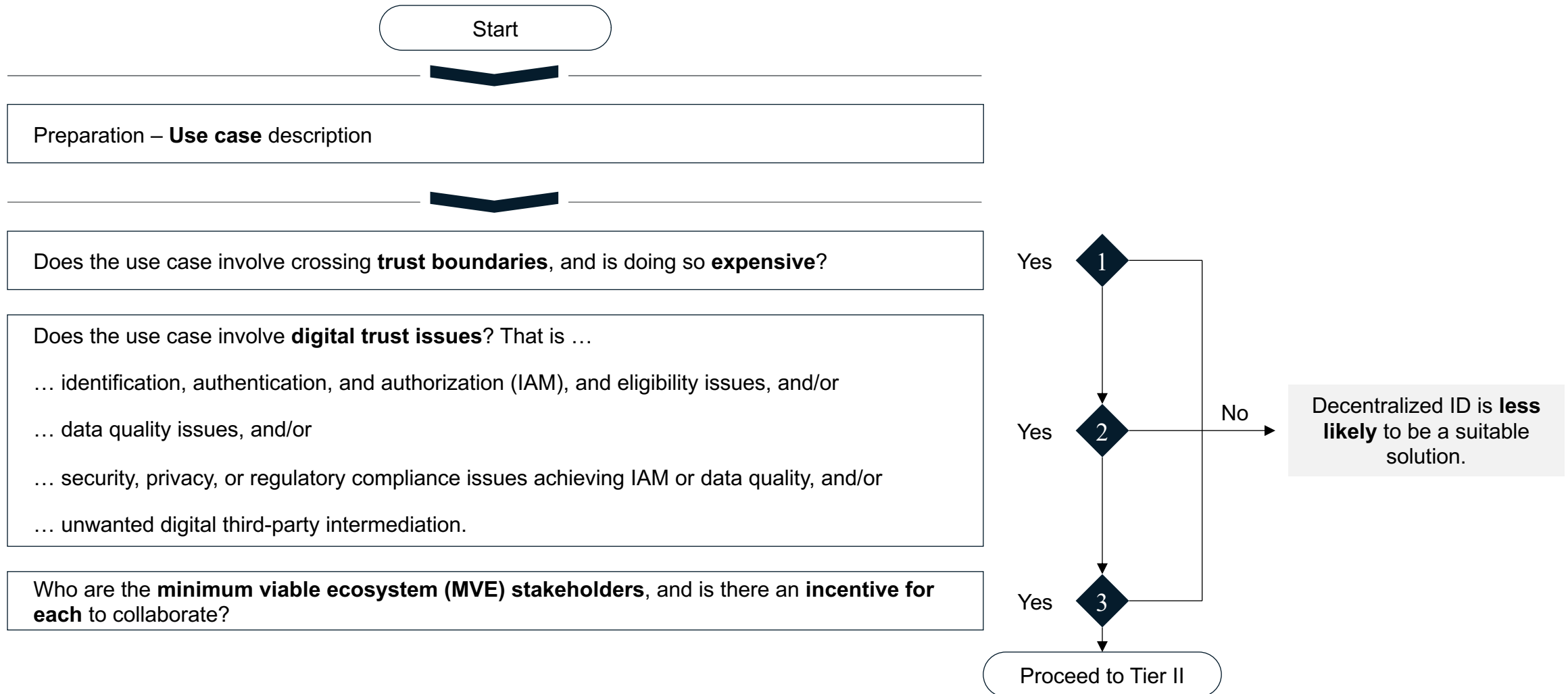
Units of analysis: (1) System, and (2) use cases

	Goals	Research steps
1 Diagnosing	<ul style="list-style-type: none"> (i) Identification and (ii) definition of primary problems to successful deployment, meaning adoption and value-adding use, of health IT that share one or more characteristics with decentralized ID to substantiate the need for a decentralized ID amenability use-case assessment (ii) Development of a theoretical problem statement based on theoretical foundations 	<ul style="list-style-type: none"> (i) Semi-structured expert interview study and coding (Gläser and Laudel, 2009) with healthcare stakeholders: Providers, payers, payviders, federal agencies, health IT vendors, clinical data exchanges, academia, manufacturers, emerging technology companies, and cross-stakeholders (n = 21) (ii) Qualitative patient survey (n = 25)
2 Action planning	<ul style="list-style-type: none"> (i) Development of amenability assessment framework dimensions and constructs (i.e., a method) based on theoretical foundations (ii) Operationalization of the decentralized ID assessment framework and making it qualitatively testable (iii) Initial evaluation of the assessment model 	<ul style="list-style-type: none"> (i) Workshop with eight (healthcare) decentralized ID experts (ii) Seven additional semi-structured decentralized ID expert interviews with (non-) workshop participants, including first feedback on the initial framework versions (iii) Written feedback on initial framework versions by healthcare decentralized ID experts (iv) IIW37 session on later framework version, including feedback (n = +40)
3 Action taking	Application of the assessment framework with healthcare stakeholders, evaluation of the main proposition(s), and recommendations for action	<ul style="list-style-type: none"> (i) Semi-structured briefing interviews with suitable healthcare stakeholders from the diagnosing stage: Payviders, federal agencies, health IT vendors, manufacturers, emerging technology companies, and patient organizations (ii) Application of the assessment framework use cases in the respective healthcare organizations
4 Evaluation	Evaluation of outcomes of the action research interventions: <ul style="list-style-type: none"> (i) All-encompassing feedback on the assessment framework (ii) Evaluation of assessment framework scoring outcomes (iii) Evaluation of the assessment framework's applicability to other sectors upon minor modifications 	<ul style="list-style-type: none"> (i) Semi-structured debriefing interviews with the healthcare stakeholders from the action-taking stage: Payviders, federal agencies, health IT vendors, manufacturers, emerging technology companies, and patient organizations (ii) Application of the assessment framework in the education sector
5 Specifying learnings	Knowledge documentation and communication to stakeholders from (i) research and (ii) practice (i.e., healthcare stakeholders and decentralized ID community)	<ul style="list-style-type: none"> (i) This thesis (ii) Action research documentation (iii) Final assessment framework analytical tool and supplementary material

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Decentralized ID Checklist (1/2)

Tier I: Critical amenability assessment

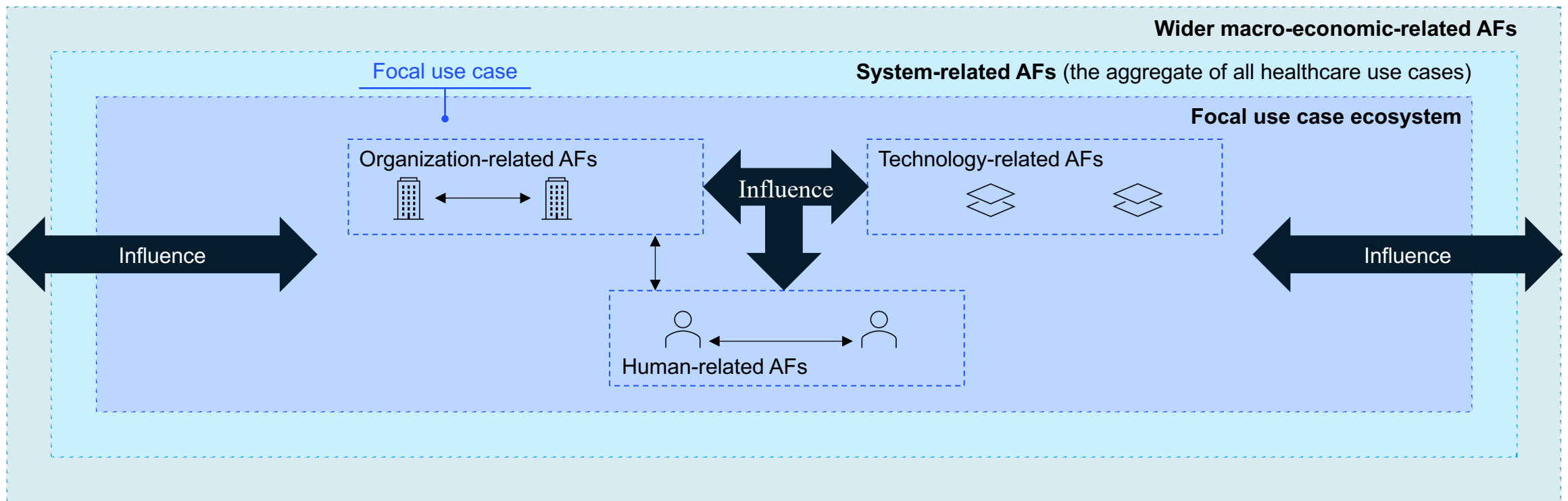


Decentralized ID Checklist (2/2)

Tier II: Comprehensive amenability assessment

With the identified stakeholders in mind, assess the use case for the six decentralized ID amenability dimensions using the enclosed Excel sheet.

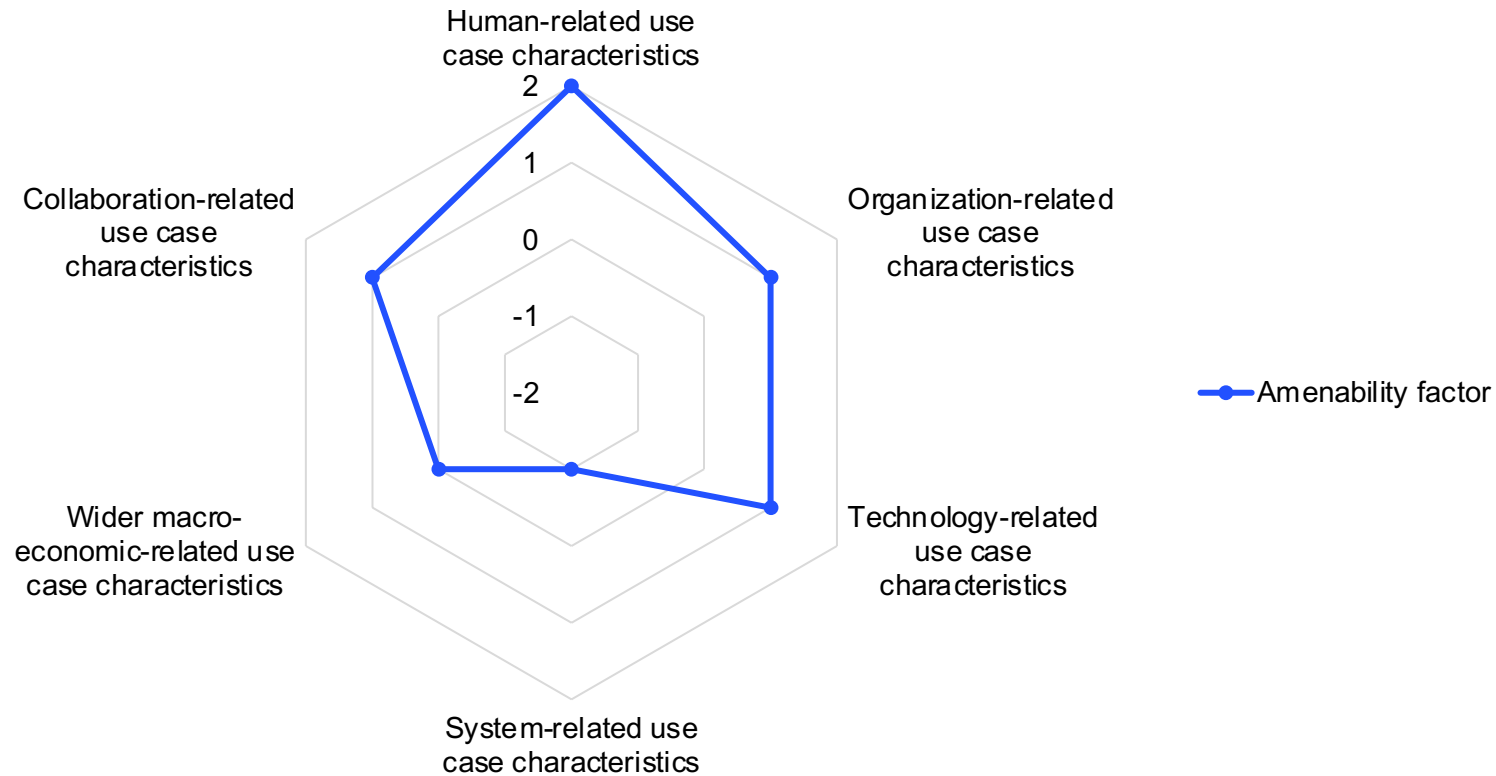
↔ Collaboration-related amenability factors (AFs) [dashed box] Dynamic amenability of use case dimensions



Theoretical proposition: The higher (lower) the degree of the six amenability dimensions for a use case, the more (less) amenable that use case is to decentralized ID.

A radar chart serves as a basis for further internal discussion of decentralized ID deployment

Exemplary radar chart of amenability dimensions and their factor



Theoretical proposition:

The higher (lower) the degree of the six use case amenability dimensions, the higher (lower) the amenability of that use case to decentralized ID.

If the final amenability score is > 1 , the use case's amenability is amplified.

If the final amenability score is < 1 , the use case's amenability is diminished.

The Decentralized ID Checklist comprises +60 amenability factors (AFs) across six use case dimensions

Exemplary AFs

Human-related amenability factors

The workload of the decentralized ID solution's end-users is not expected to increase.

Organization-related amenability factors

Our organization is willing to trust, rely on, and make use of externally generated data.

Technology-related amenability factors

The decentralized identity application will be a matter of a back-end implementation to an existing tunable front-end.

System-related amenability factors

Our business partner(s) require us to adopt decentralized identity infrastructure to be able to do business with them.

Wider macro-economic-related amenability factors

Federal and state efforts and laws relevant to the use case do not work in opposition to one another.

Collaboration-related amenability factors

The *MVE* stakeholders have compatible tech stacks.

Decentralized ID Checklist toolkit

1 Companion guide

2 Decentralized ID Checklist analytical tool

3 Live resource wiki

Decentralized Identity Use Case Assessment for Healthcare

Companion Guide

University of St. Gallen | Columbia Business School

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Requirement	Requirement description	Current	Future	Rank (1-5)	Priority/Notes
1.1	Professionals have sufficient experience with decentralized identity solutions to make a decision on whether to implement them.				
1.2	Expected workload increases.				
1.3	Required legislative requirements are met or will be met by the end of the year.				
1.4	Patients and providers are engaged in the process of implementing decentralized identity solutions.				
1.5	Subject matter experts are available to provide guidance on the implementation of decentralized identity solutions.				
1.6	Data subjects involved in the process are informed and consent to the implementation of decentralized identity solutions.				
1.7	Generational divide of the end-user population can be addressed.				
1.8	High priority use cases for implementation are identified and prioritized.				

Decentralized Identity 101: A Starter Library for Novices

A curated list of resources introducing decentralized identity and related concepts for beginners.

Starter library curators: Sophia Goeppinger and Matt Murray

Decentralized Identity (ID), as we perceive it today, is a novel concept, yet its foundational elements have roots stretching back decades, some even predating the advent of the modern internet. While this field is burgeoning with diverse resources, navigating through this digital maze can be overwhelming, especially for those just beginning their journey. That's where we step in. Our mission is to demystify decentralized ID for beginners by carefully curating a comprehensive starter library. We aim to bridge the gap between complex jargon and foundational understanding, ensuring that these resources are accessible, relevant, and engaging.

Before diving into our library, we encourage you to take a quick glance at our "Target Audience Checklist" below. This will help you gauge if these resources align perfectly with your learning stage and interests in decentralized ID.

How to get involved

1

Provide feedback

2

Connect me with potential candidates for applying the framework in their organization for interview purposes

3

Use the Decentralized ID as a Lego set, modeling attributes from this work to meet your specific needs and testing the applicability of the framework to non-healthcare use cases.

Contact information

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