



EUROPEAN CENTRAL BANK

EUROSYSTEM

Potential use of new technologies for the settlement of wholesale financial transactions in central bank money

Eurosystem outreach

Joint AMI-Pay/AMI-SeCo meeting



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Background

The Eurosystem closely monitors market developments in the field of market infrastructures regarding the **use of innovative technologies**, such as DLT, for **wholesale payments and securities settlement**, to ensure that euro wholesale payments and settlement infrastructures continue to operate safely and efficiently and to meet the relevant existing policies of the Eurosystem.

To aid its further analysis, the Eurosystem sought market feedback on:

- **Market interest** in the Eurosystem potentially providing wholesale CBDC settlement via new technologies, such as DLT
- **Market needs/merits/use cases** that might justify the use of new technologies for wholesale CBDC settlement
- **Suitability of existing conventional technologies**, such as those used in current TARGET Services, to achieve the same results

The Eurosystem's analysis of the possible merits of a future use of new technologies for settling wholesale financial transactions in central bank money (CeBM) is separate from the digital euro project.

Eurosystem outreach activities

- Two dedicated outreach activities took place in 2022:
 1. **May 2022: Eurosystem questionnaire** sent to all pan-European financial market industry associations represented in the AMI-SeCo and AMI-Pay: a total of **63 submissions** were received.
 - National financial market industry associations, identified by NCBs, also took part in the exercise → 7 EU and 26 national associations responded (either by forwarding their members' replies and/or by providing a consolidated response via their secretariat).
 - Broad range of financial market stakeholders targeted (banks, CSDs, custodians, stock exchanges, CCPs, insurers, issuers).
 2. **September 2022: Interactive multilateral stakeholder meeting** with the respondents to the questionnaire and a selected number of fintech service providers, to collect additional and deeper feedback on the topics raised in the questionnaire. → **71 market stakeholders** took part in the multilateral meeting.

Methodological aspects and caveats

- Reported findings do not contain any expression of Eurosystem views or policy stance, nor any Eurosystem assessment of respondents' feedback.
- Figures presented must not be considered as votes or representative of the overall market, but just as an overview of the current prevalent sentiment among who replied/participated.
- No weighting applied or corrections were made to balance the constituencies of the respondents (all replies treated equally).
- Participation was voluntary.
- DLT is a relative young field and, to the best of our knowledge, no participant have experience with all possible approaches with CeBM settlement via DLT.
- Some answers reflect implicit assumptions that might differ among market respondents.

Key takeaways of market feedback from survey (1/2)

- Majority (70%) of the interviewed market stakeholders active in wholesale payments and securities settlement **expect a significant uptake** of use of new technology, such as DLT.
 - Significant **DLT uptake** expected within **5-10 years**, with several DLT platforms becoming relevant for wholesale financial transactions.
 - **Uncertainties on the DLT uptake** raised by a minority: (e.g. feasibility of transition from existing to new settlement, potential of new technologies, security and confidentiality, scalability and interoperability).
- Considerable amount of experimentation is ongoing related to the use of DLT for wholesale transactions, with the following **expected benefits enabled by DLT**:
 - **Atomicity**: automation of DvP/PvP without reliance on intermediaries,
 - **Decentralised programmability**: participants can program transactions, information flows etc. themselves, without reliance on a central party,
 - **Ease of reconciliation**: everyone has access to a 'single source of truth',
 - What of this is really requiring DLT? At least some features not specific to DLT: **24/7 instant settlement**, **wider** direct or indirect **access** to CeBM settlement.

Key takeaways of market feedback from survey (2/2)

- Market stakeholders who expect DLT uptake generally believe this will take place across the board in **all forms of settlements of assets**:
 - In particular, they mentioned **segments they deem as characterised by clear inefficiencies, high number of intermediaries and constraints** that could be solved by the new technology (e.g. cross-border/cross-currency payments, settlement of illiquid/non-listed instruments).
 - **DvP** and **PvP** transactions were the most mentioned use cases when using new technologies.
- **Close cooperation between the market and the Eurosystem** regarding experiments, proof of concepts, and further explorations (incl. DLT Pilot Regime) is regarded as valuable.
 - In the absence of a suitable CeBM settlement solution, participants expect that the **private sector would provide alternative solutions** (e.g. tokenised Commercial Bank Money, stablecoins), but they consider this as suboptimal and with higher risks.
 - **CeBM** regarded as the **safest asset** for the payment of wholesale transactions.
 - For the **DLT Pilot Regime**, outreach participants expect that the availability of CeBM could create additional convenience (e.g. improved settlement efficiency, optimisation of liquidity management).

Technological approaches

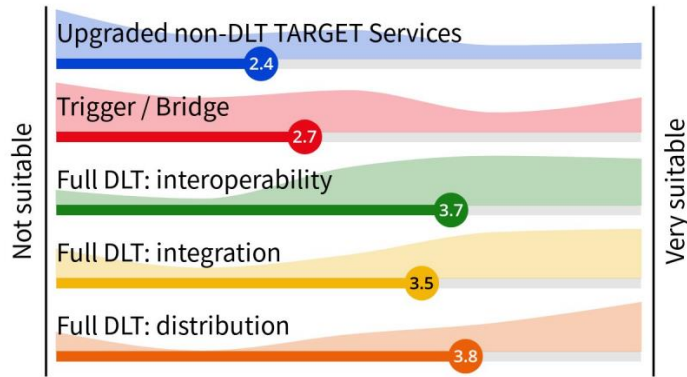
- Based on the literature review, two theoretical approaches have been identified, and were discussed in the September multilateral stakeholder meeting, for potentially providing wholesale central bank money settlement using new technologies:
 - 1) **Trigger/bridge approaches**
CeBM settlement of the cash leg of DLT-based wholesale transactions in existing – non-DLT – infrastructures
 - 2) **Full DLT approaches (DLT-based wholesale CBDC)**
Central bank money settlement of wholesale transactions on DLT platforms with DLT-based central bank money



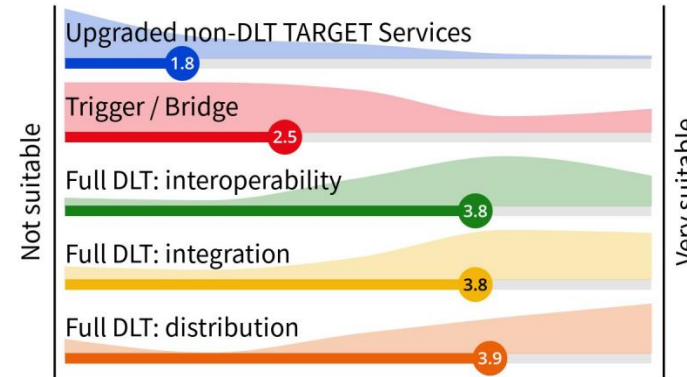
	Euro cash leg	Asset/foreign currency leg
Interoperability	On Eurosystem DLT	On external DLT
Integration	On Eurosystem DLT	On Eurosystem DLT
Distribution	On external DLT	On external DLT

Key takeaways from multilateral meeting with market stakeholders (1/2)

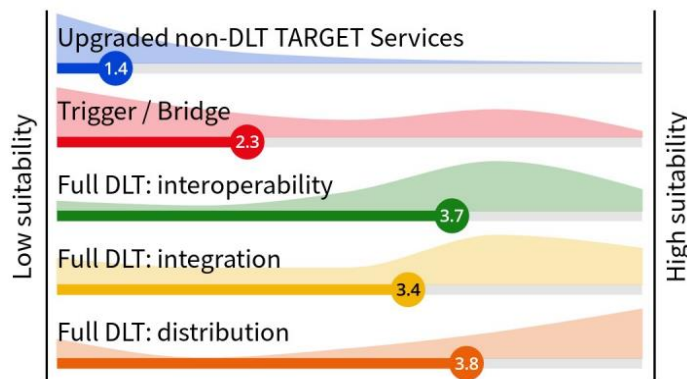
How suitable would the following approaches be for implementing 24/7 instant settlement?



How suitable would the following approaches be for implementing programmability?



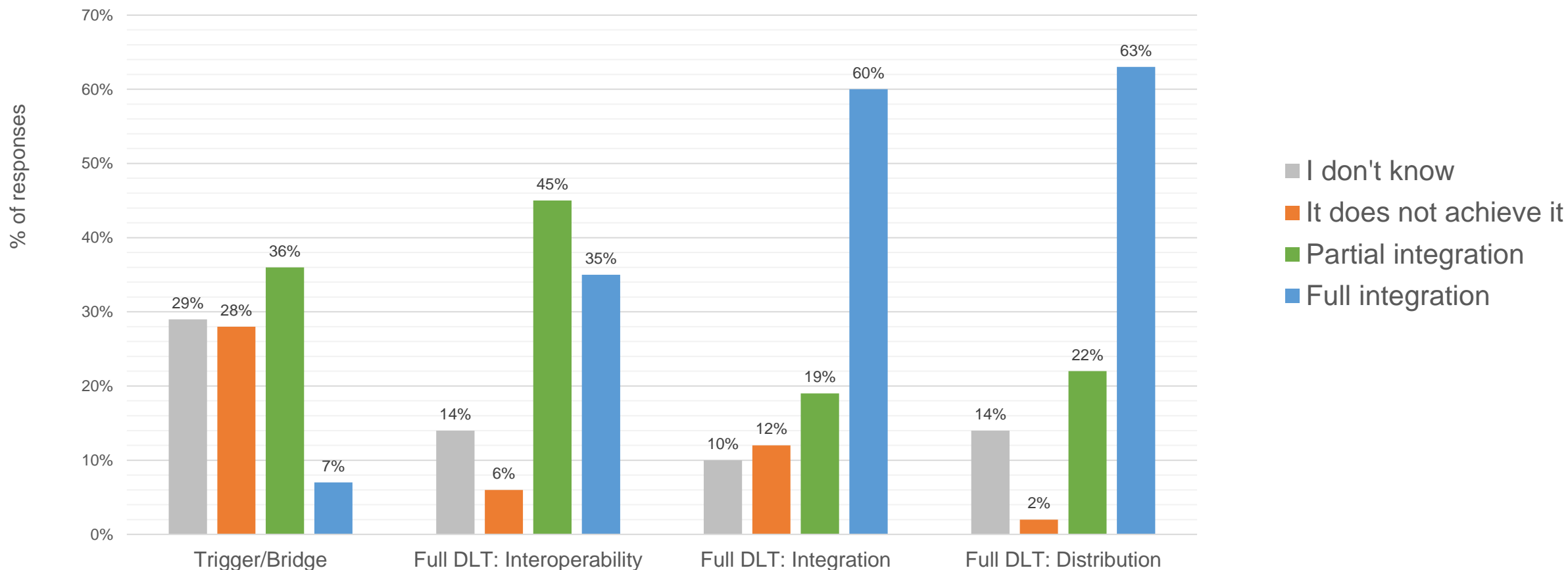
DvP settlement of security tokens and PvP: score the suitability of different approaches for these use cases.



- Full-DLT approaches are generally perceived more capable to deliver benefits/ realise use cases.
- The current TARGET Services, without the implementation of a trigger/bridge solution, are perceived as less suitable.
- Trigger/bridge approaches expected to be more feasible as a short-term solution.
- Whatever the solution, key requirements to avoid market fragmentations put forward are: interoperability and technological neutrality → Eurosystem expected to contribute to harmonisation of DLT environment.

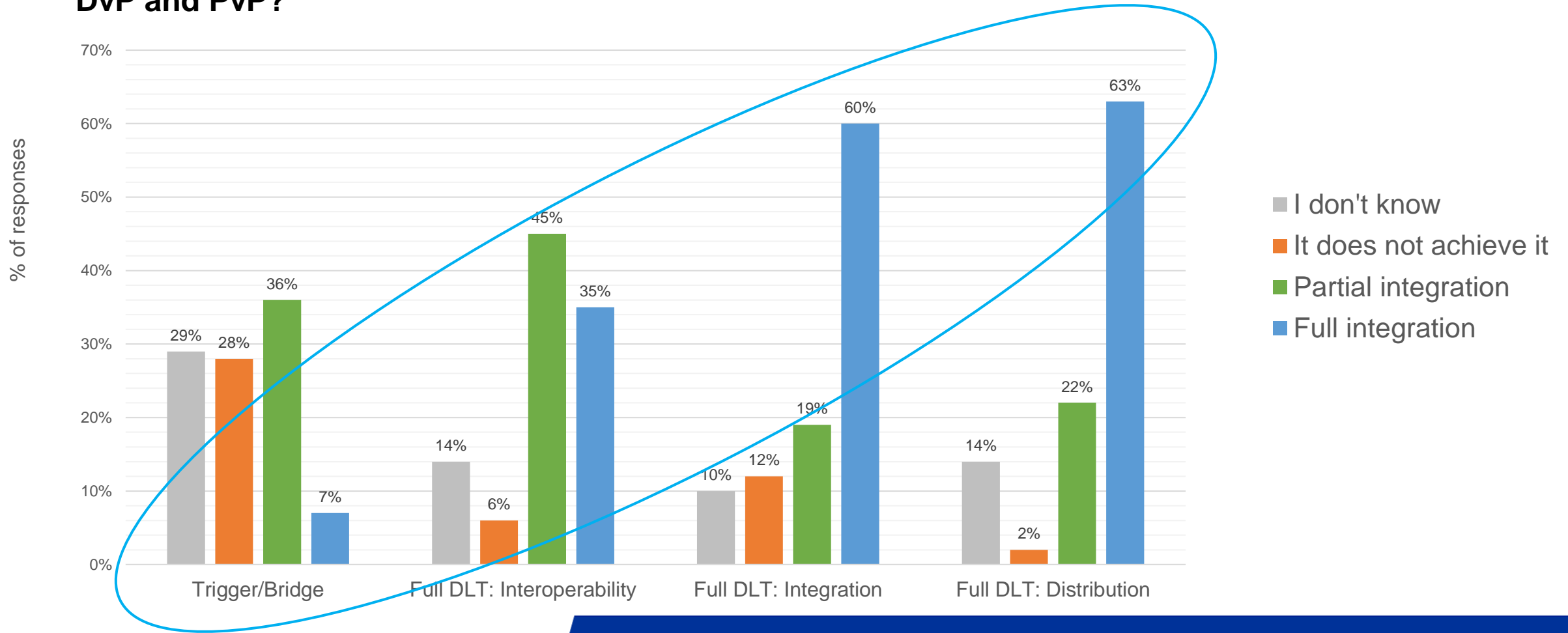
Key takeaways from multilateral meeting with market stakeholders(2/2)

To what extent does each technological approach achieve integrated settlement for DvP and PvP?



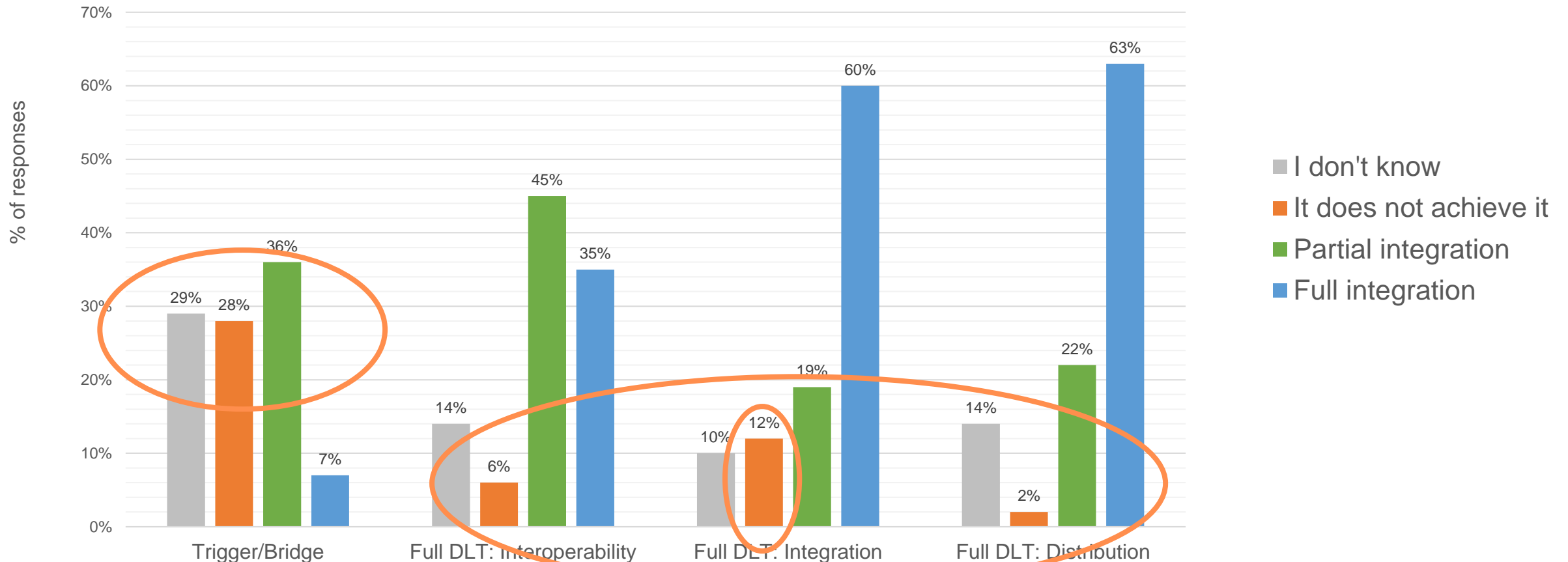
Key takeaways from multilateral meeting with market stakeholders(2/2)

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Summary and outlook

- Market feedback suggests that an **uptake of new technology**, such as DLT, for the settlement of wholesale financial transaction **will likely occur** with several DLT platforms becoming relevant for wholesale financial transactions.
- Industry experiments/analysis are currently focusing on **DvP** and **PvP transactions**.
- **Extracting a broadly shared conclusive assessment** on the merits of DLT, on the market outlook, on which new technology approach for the settlement of such transactions in CeBM would be preferable in which circumstances and what would be the consequences on market functioning **proved difficult to obtain** at the current moment. In particular because none of the stakeholders has first-hand experience with all approaches.
- **Market stakeholders see value in a close cooperation between the market and the Eurosystem regarding experiments, proof of concepts, and further exploration by the Eurosystem of new technologies for settling CeBM.**
- **Question to AMI members: how could the Eurosystem potentially contribute to and/or help financial market stakeholders' future efforts and deliberations in this field and vice-versa?**