

Markets Workshop 2.1

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The presentation aims at giving a **high-level overview of the mechanism of intraday trading including intraday Cross-Border trading.**

The presentation is structured as follows:

- Continuous market and order types in intraday markets
- Intraday coupling mechanism
- Generic model of data flows and sequence of operations

Intraday power markets in Northern Europe are primarily **continuous markets**.

- **Intraday** is the term of delivery: products are traded within a day for delivery in the same day.
- **Continuous** is the modality of the market, which has several implications:
 - ▶ Each execution price applies to one trade: **no common clearing price** is defined.
E.g. The statement “The price of h14 in IRL is 30€/MWh” is meaningless.
 - ▶ Orders are sent into Order Books (OBKs) **continuously**, whereas other trades are executed; trades are executed although all orders have not been sent to OBKs.
 - ▶ When determining offered quantity and limit prices and sending orders in OBKs, **traders can see the quantity and price of orders** which are already in OBKs.

- **Continuous** is the modality of the market, which has several implications:
 - ▶ Orders are matched in a sequence governed by the **First-Come First-Served** rule: **no welfare optimization** process is performed. The matching sequence is determined by price priority and timestamp priority rules.
E.g. B1 10MW@50€ sent at 16:00:00 / B2 5MW@60€ sent at 16:00:01
→ B2 is executed first.
E.g. B1 10MW@50€ sent at 16:00:00 / B2 5MW@50€ sent at 16:00:01
→ B1 is executed first.
 - ▶ Execution price is the price of the aggressed order i.e. the price which is already displayed in OBKs.
E.g. S 10MW@50€ already in OBK / Then B 20MW@80€ is sent into OBK
→ Execution price is 50€.

Intraday market rules include

- Limit prices
E.g. -9 999€/MWh - +9 999€/MWh
- **Negative prices**

Order types are defined by PXs. Order types below are only examples, subject to changes in the future.

- **Product** refers to the delivery period:
 - Hourly orders;
 - Quarterly orders;
 - Block orders;
- Different products are aggregated in different OBKs and therefore cannot match each other.
E.g. hourly orders and block orders are in separate OBKs with no automatic matching of block orders against hourly orders.
Different products can also match each other depending on the implementation of OBKs, as in the day-ahead fixing.

Examples of execution restrictions on orders.

- **Sweep order**
The order has several periods : it can be matched against several hourly products.
- **Immediate or Cancel hourly order**
The order does not enter into OBK: if not executed when sent, the order is removed from OBK.
- **Fill-or-Kill hourly order**
Partial execution is not allowed: if not fully executed when sent, the order is removed from OBK.
- **All-or-none block order**
Partial execution is not allowed: the order remains in OBK, though possibly in-the-money, until full execution is possible.

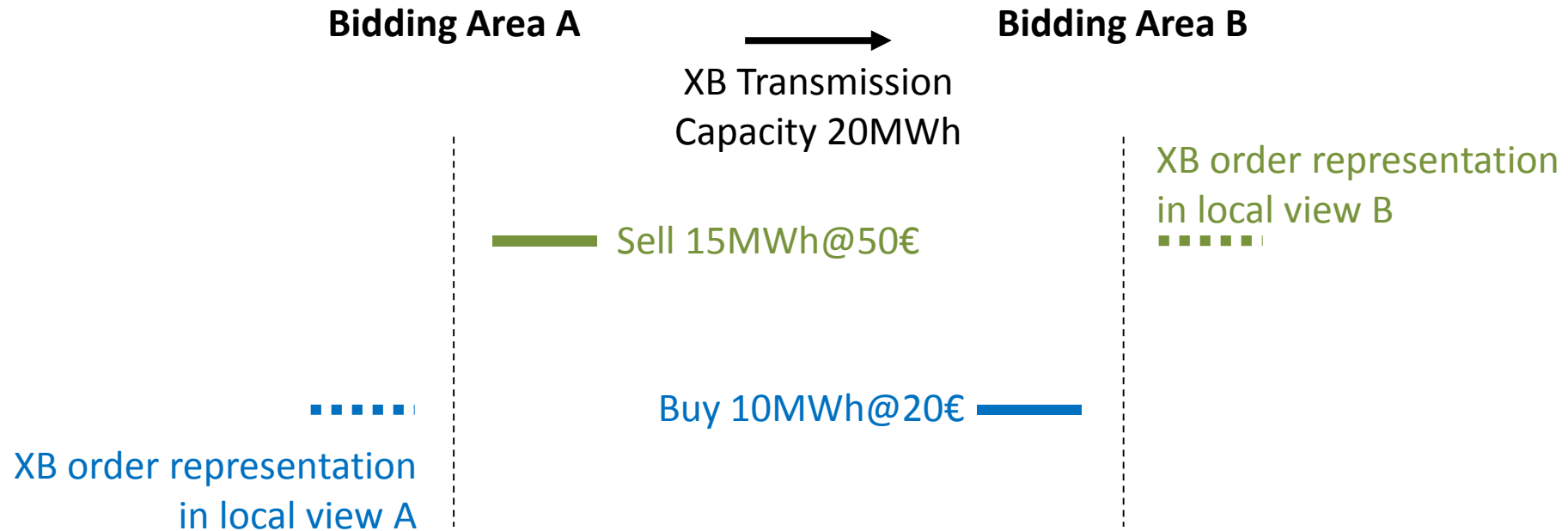
Examples of execution restrictions on orders.

- **Linked Fill-or-Kill hourly orders**

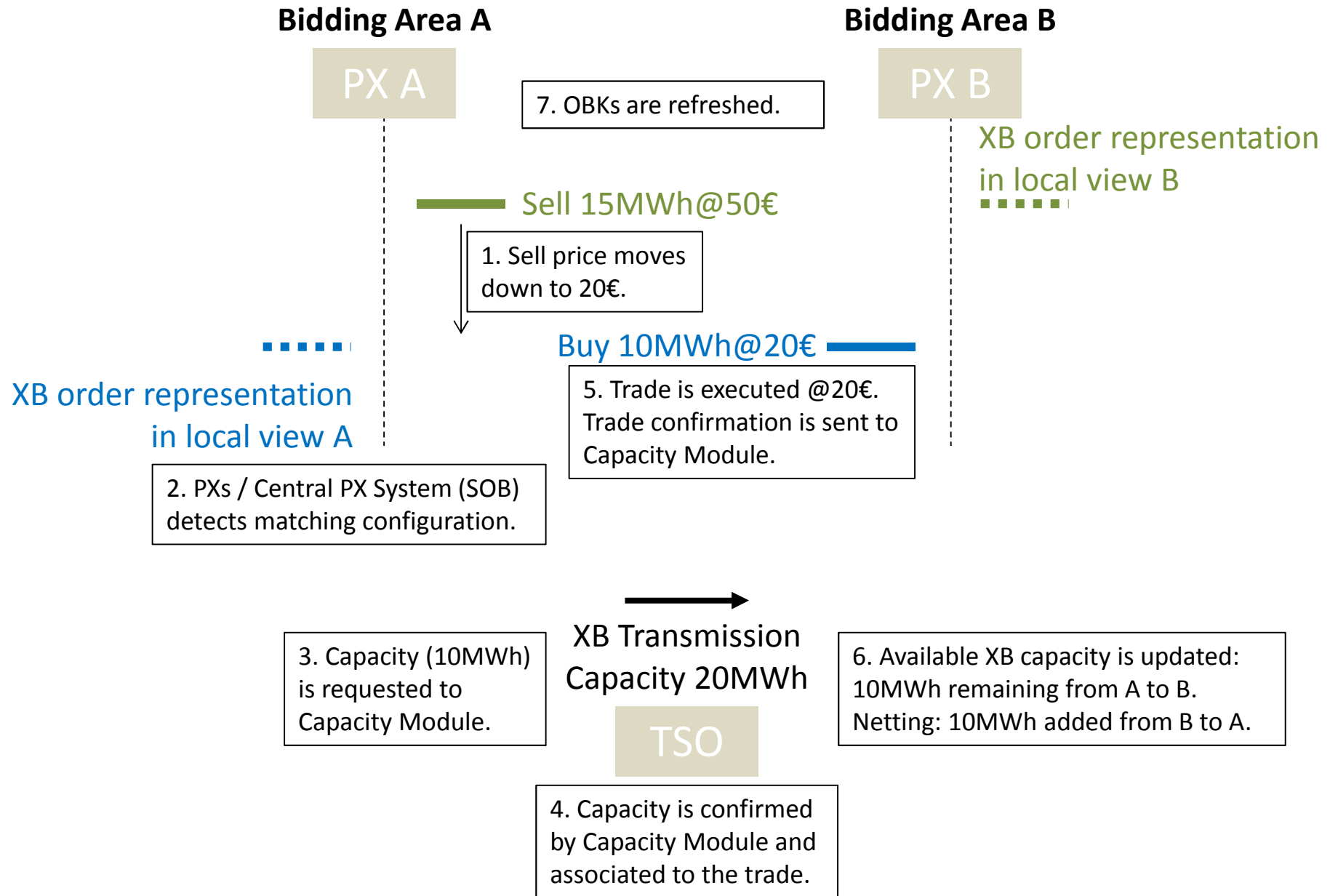
The fill-or-kill restriction applies to a set of FOK orders which must be either all executed or all removed.

- **Iceberg hourly order**

The order is sliced and only the upper slice is displayed in OBK: the other slices remain hidden. After execution of the displayed slice, next slice enters into OBK.



- Local orders are displayed in other local views; nothing differentiates XB orders from local orders.
In the drawing, XB capacity from A to B allows sell orders in A to be displayed in B; and buy orders in B to be displayed in A.
XB display is performed **up to the available capacity**.
- Matching is locally possible against each order in the local view like in an isolated market: **from traders' point of view, XB matching and local matching are identical**.



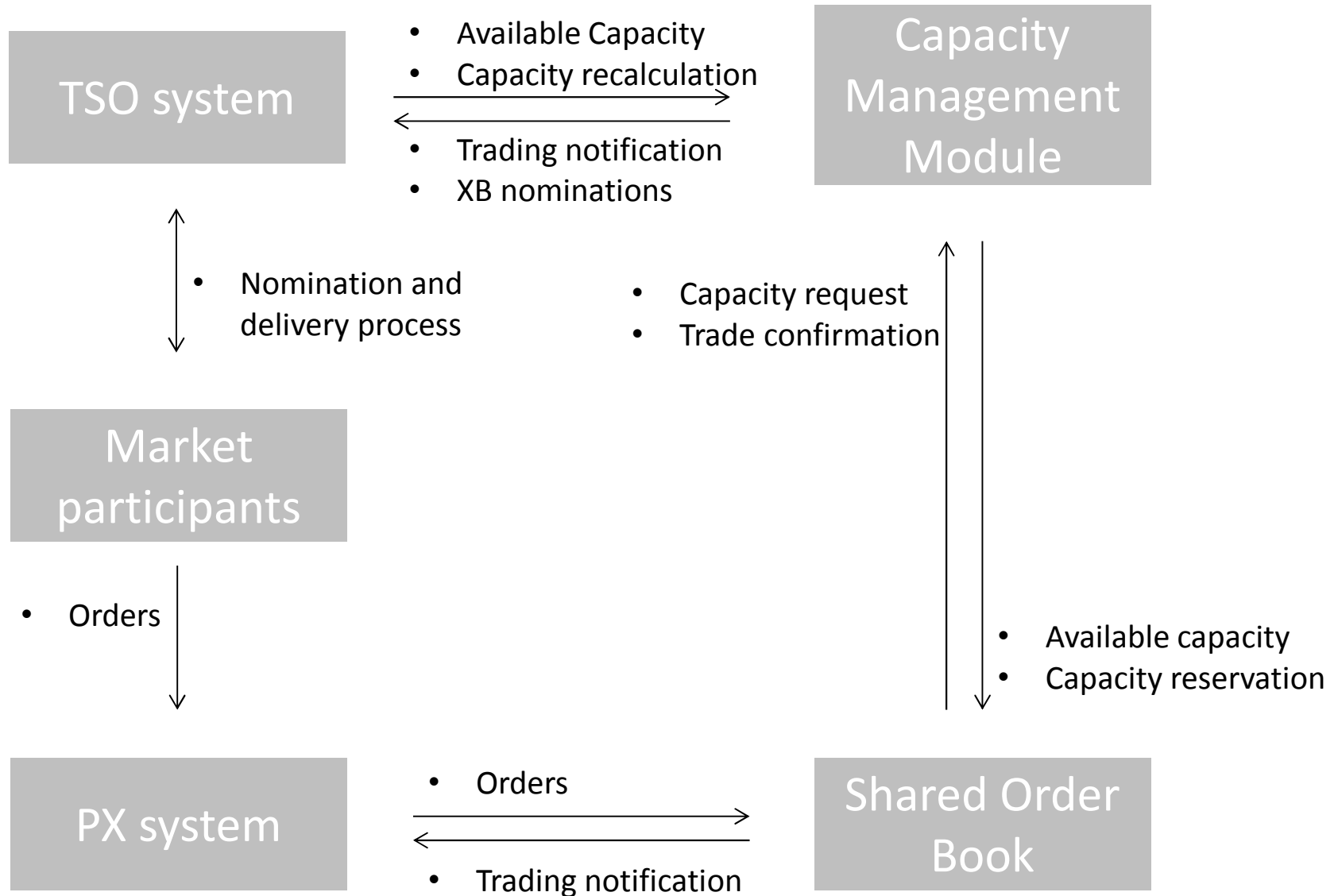
Role of capacity module

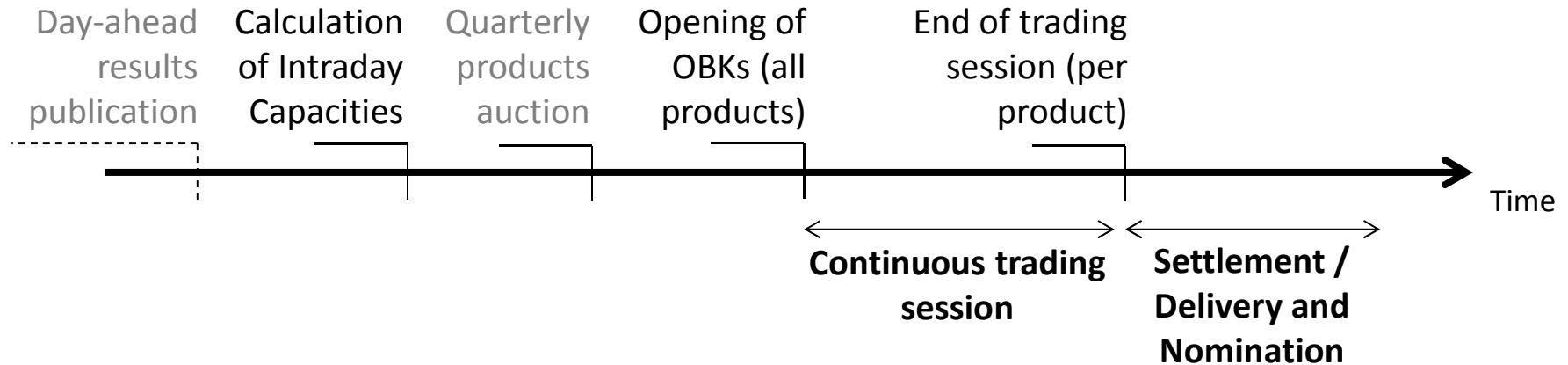
- Interface to TSOs systems.
- Interface to SOB / PXs systems.
- Perform implicit capacity allocation related to each XB trade (including the calculation of flow route when XB trade occurs between non directly interconnected bidding zones).
- Perform explicit capacity allocation when / if required.

Network features

- ATC modelling is a first step.
- FB might be implemented in a second step.
- Other network features might be subject to discussions during the project (e.g. the implementation of losses should be discussed in details in order to avoid side-effects).

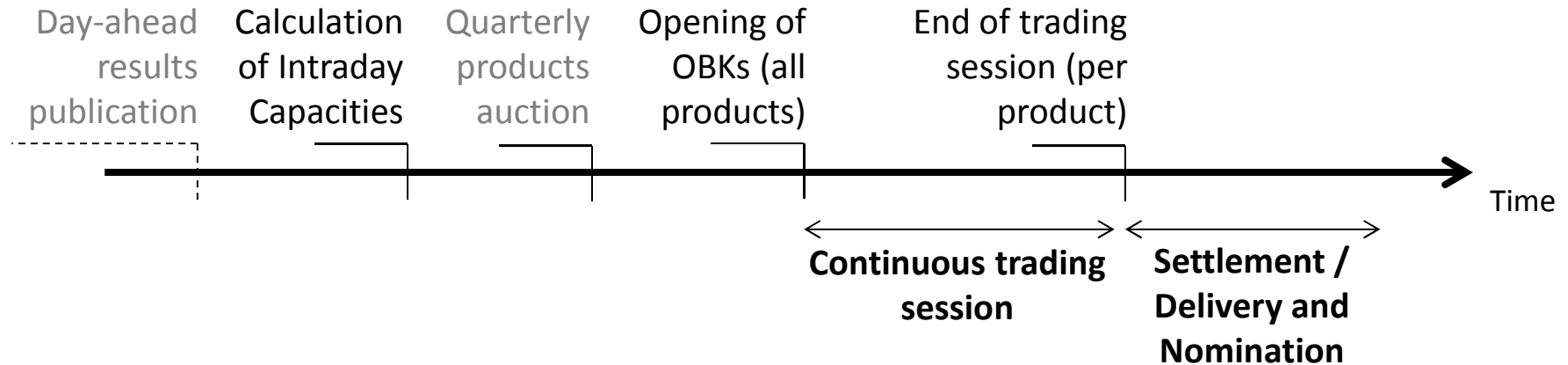
Data flows in this slide are conceptual: XBID project implementation might differ.





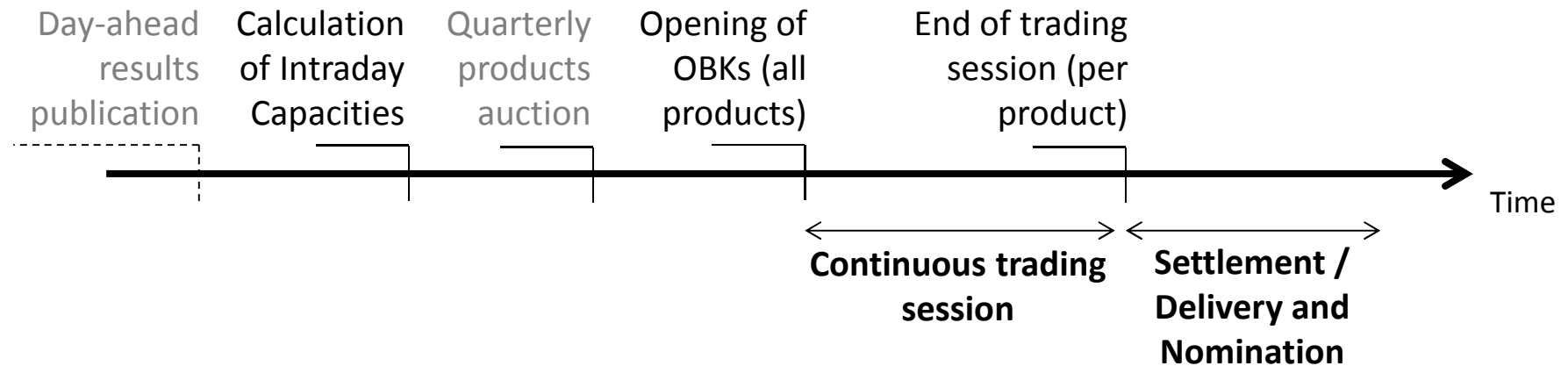
Intraday auctions

- Currently performed for some products before the opening of continuous trading session.
- Intraday markets can be operated through a sequence of auctions.
- The compatibility of **continuous trading simultaneously with intraday auctions** is subject to **many questions**:
 - ▶ Blind auctions may satisfy the interests of small market participants.
 - ▶ Theoretically, prices from blind auctions correspond to the fundamentals of the market.



Intraday auctions

- ▶ One important issue for the development of intraday markets is the **aggregation of liquidity**.
- ▶ Auctions combined with continuous trading would split liquidity.
- ▶ Auctions with only small market participants might have too few volumes, so that prices would give wrong signals.
- ▶ Other technical issues, e.g.: How many auctions ? Freeze continuous trading during auctions ? Etc.



Other issues related to XBID implementation

- ▶ Performance of the system (trading system, capacity module, interfaces between systems).
- ▶ Concentration of trade executions in short time intervals: the system should be robust to peak in trade execution.

Annex

- <http://www.epexspot.com/fr/produits/intradaycontinuous>
- [http://static.epexspot.com/document/29910/User Group meeting - 25.11.2014 – presentation](http://static.epexspot.com/document/29910/User%20Group%20meeting%20-%2025.11.2014%20-%20presentation)
- <http://www.epexspot.com/fr/extras/telechargement>
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