Data exchanges for tomorrow’s energy

Strengthening and refining EDA

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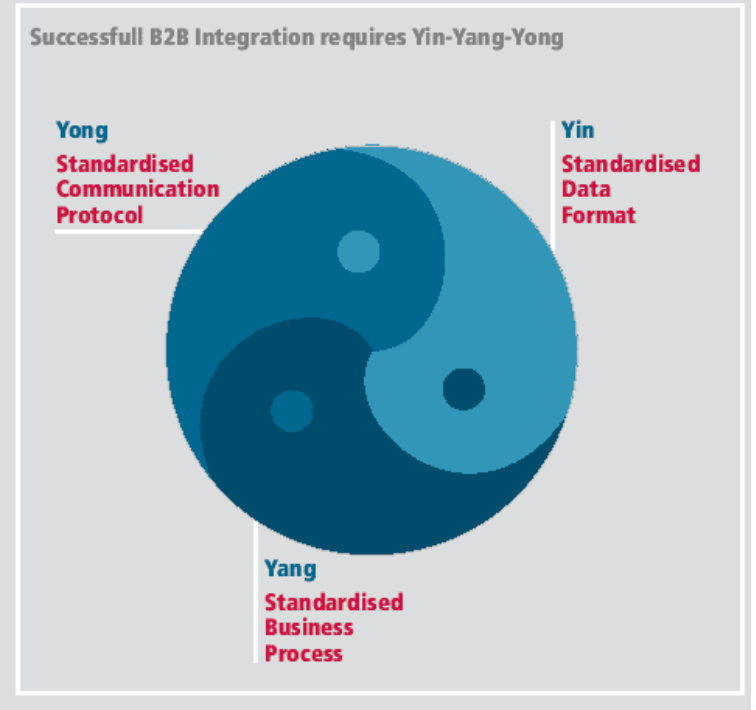
What is EDA?

- EDA stands for **Energiewirtschaftlicher Datenaustausch** (Energy Data Exchange). This is a platform for specialised software that supports data exchanges between **gas and electricity** market participants.
- **Reliable energy supplies** depend critically **on smooth communication between the IT systems of the market partners concerned**. For example, in the event of a supplier switching it must be possible to exchange meter, consumption and customer data reliably and securely.
- **The system operators are responsible for these data transfers.** They have joined forces in the EDA alliance, and use the technology to deliver these services. EDA is free of charge for market participants, and the costs are recouped by way of the system charges.



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Our philosophy

EDA is an independent and open information and service platform. It aims to provide all market participants with free access to the energy market, reliable, secure and efficient communication, and standardised information exchanges.

EDA is the cornerstone of barrier-free access to the Austrian energy market for all citizens and market participants, and for all existing and future energy services.

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How does EDA work?

- Energy data exchanges take place **via the Austrian electricity and gas distribution and transmission system operators** in their role as market facilitators.
- **Every Austrian energy company is entitled to take part.** As part of efforts to minimise barriers to participation, some market players (e.g. the operators of community power schemes) are provided with a process environment free of charge.
- The provision of data exchange software makes it **easier for market partners to operate in the marketplace**, allowing them to concentrate on their own business processes.
- EDA is an ideal match for the overall energy system architecture with its reliance on **distributed data storage and processes**.

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Principles of EDA: transparency and openness

- **EDA's standards** are formulated and adopted by working parties drawn from the energy sector.
- On the www.ebutilities.at **platform**, market partners can register for new market roles (e.g. community power schemes, e.g. collaborative photovoltaic units) and the related operator codes, and obtain additional information (e.g. sample contracts) **– as one-stop information source.**
- The service provider used by EDA for the data exchanges employs an open standard (ebXML) for the communication infrastructure, and offers **technical support for market participants** during ongoing data exchange operations.
- EDA has access to the source code for the data exchanges and is thus **independent from the infrastructure service provider**.
- In line with the low-threshold approach, the **EDA user portal** supports new market roles – www.eda-portal.at

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Advantages of EDA

- **EDA stems from an independent initiative:** To comply with legal requirements and meet the demands of day-to-day operations, the system operators developed a flexible and highly efficient solution.
- This has become a model for the entire energy sector.
- **EDA is open, non-exclusive and extendable:** New market participants will continue to be able to use EDA without any hurdles.
- **Maximum security thanks to multilevel encryption and signing**, and hence **guaranteed data protection**.
- **EDA is decentralised:** The data are not collected at a central location but stay with market participants (where data arise **–** system operators, suppliers, etc.)

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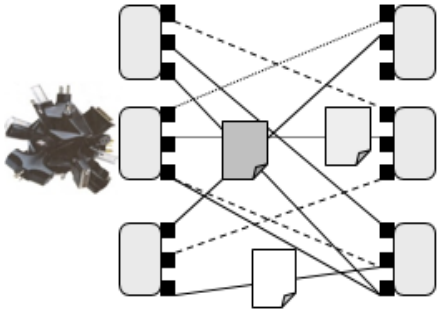
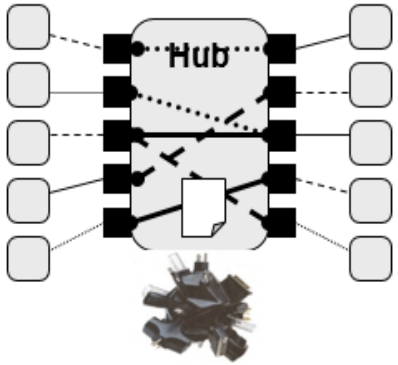
Comparison to other approaches



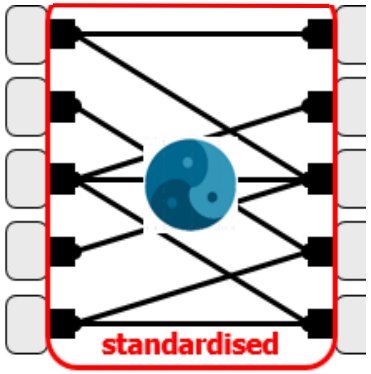
Model 1: „Spaghetti Communication“
- No Document Format Standard
- No Messaging Standard
- No Hub
- # Converters = # Participants x (#-1)

⊖⊖ Very high investment (many converters)
⊖⊖ Very high integration costs (no document standard, one adaptor only)
⊖⊕ Low transaction costs, but high maintenace effort



Model 2: „Central Hub“
- Document Format Standard
- No Messaging Standard
-Hub
- # Converters = # Participants

⊖ High central investment (central SW + converters)
⊕ Low integration costs (Hub operator takes care)
⊖ Hub operation does not prevent from standardisation effort



Model 3: „Full Standardisat “Yin/Yang/Yong”
- Document Standard
- Interoperable Software
- No Hub
- # Converters = # Participants

⊕ Low investment (shared SW costs)
⊕ Low integration costs (document standard, one adaptor only)
⊕ Low transaction costs (no Hub)

Lesson learned: If standardisation is well-done, there is no advantage in centralisation!

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Milestones in development

The secure and reliable online exchange of electronic documents now extends to a growing number of market processes:

- 2006: A standard format, ebUtilities/Invoice, is established for the **exchange of electronic invoices**.
- 2012: Standard formats are introduced for the **supplier switching process** and **renewables exemptions**.
- 2013: Standard format for **smart meter data**.
- 2019: Implementation of a solution for **community power schemes** (section 16a Electricity Act).
- October 2020: **Customer consent management** (data sharing).

continous development

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Backbone of tomorrow's energy system

- Tomorrow's energy system will be **data driven**. When EDA was set up, its main task was the electronic processing of supplier switching. Today, it must also **manage the interaction of a wide variety** of small generators, prosumers, storage operators, etc.
- These data exchanges are set to grow vastly in importance over the next few years. **System operators are becoming logistics hubs.** Interaction on the energy market of the future will call for data management by an independent body.
- EDA is the **basis of present and future services (not just for supplier switching)**.

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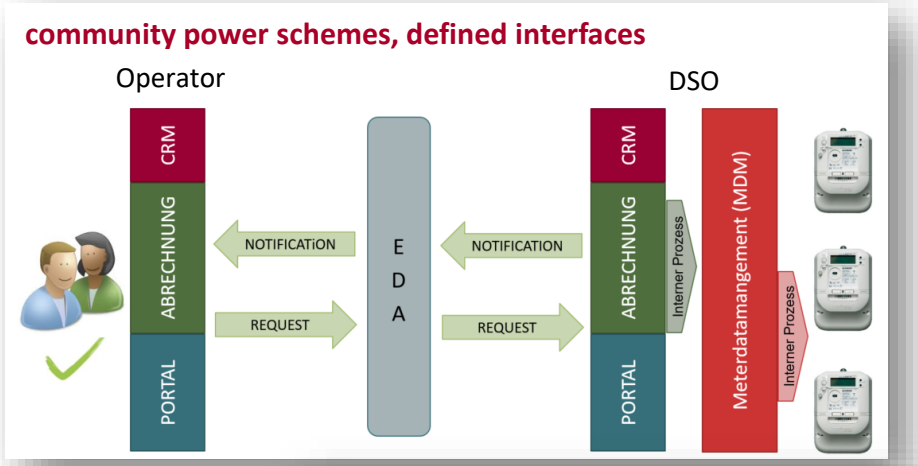
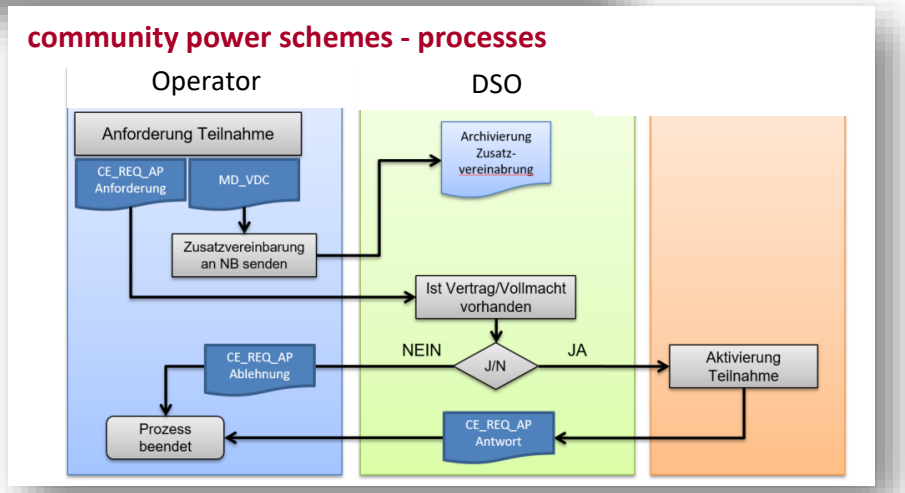
EDA is already working in Austria

- EDA is not a theoretical framework, it is an approved and reliable system which is used in practice on a daily basis (currently **250.000 messages per day**)
- In terms of the data exchange processes and integration in them, the operators of **community power schemes** have achieved the same high standards as **market communication between system operators and suppliers**.
- The operators of community power schemes receive strong support from the **EDA user portal** (www.eda-portal.at).





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EDA is future proof

- Other EU member states use a variety of systems for data exchanges between energy market participants. **EDA regularly comes out top** in EU-wide comparisons.
- One of its key advantages is the **trust** the system enjoys. In the years **since 2012**, EDA has demonstrated to market participants that it is **completely reliable and trustworthy**.
- With EDA, the **structure** of the data to be transmitted can be extended at any time and adapted to **future needs** (additional market roles and data formats) without EDA itself needing to be modified or extended.

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EDA is „CEP – ready“

- Some core elements within the CEP are:
  - **Active customers**
  - **Citizen energy communities**
  - **Independent aggregators**
  - **Rules regarding the management and exchange of data**
  - **Interoperabiliy requirements and procedures regarding access to data**
  - **Party responsible for the data management**
- These requirements are already met by EDA:
  - **Community power schemes**
  - **EDA user portal** (Friendly user tests)

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Challenges for DSOs

- **Smart Metering, Digitalization and Data hub**
  - Digitalization requires Smart Meter installation
  - Grid automation and observability at all voltage levels
  - Commercial data management and market enabler
- **RES and Flexibility**
  - RES are already connected to the distribution grid (DSO)
  - Incentivize local/regional flexibility (generation, heat pumps, batteries, e-vehicles, air conditions, etc.); services for new market players (CEP), prosumers
- **Active System Management (ASM)**
  - Ancillary services need to be provided on distribution grid level
  - Local problems must be solved locally – congestion management
  - Cooperation of TSO and DSO for the overall system stability

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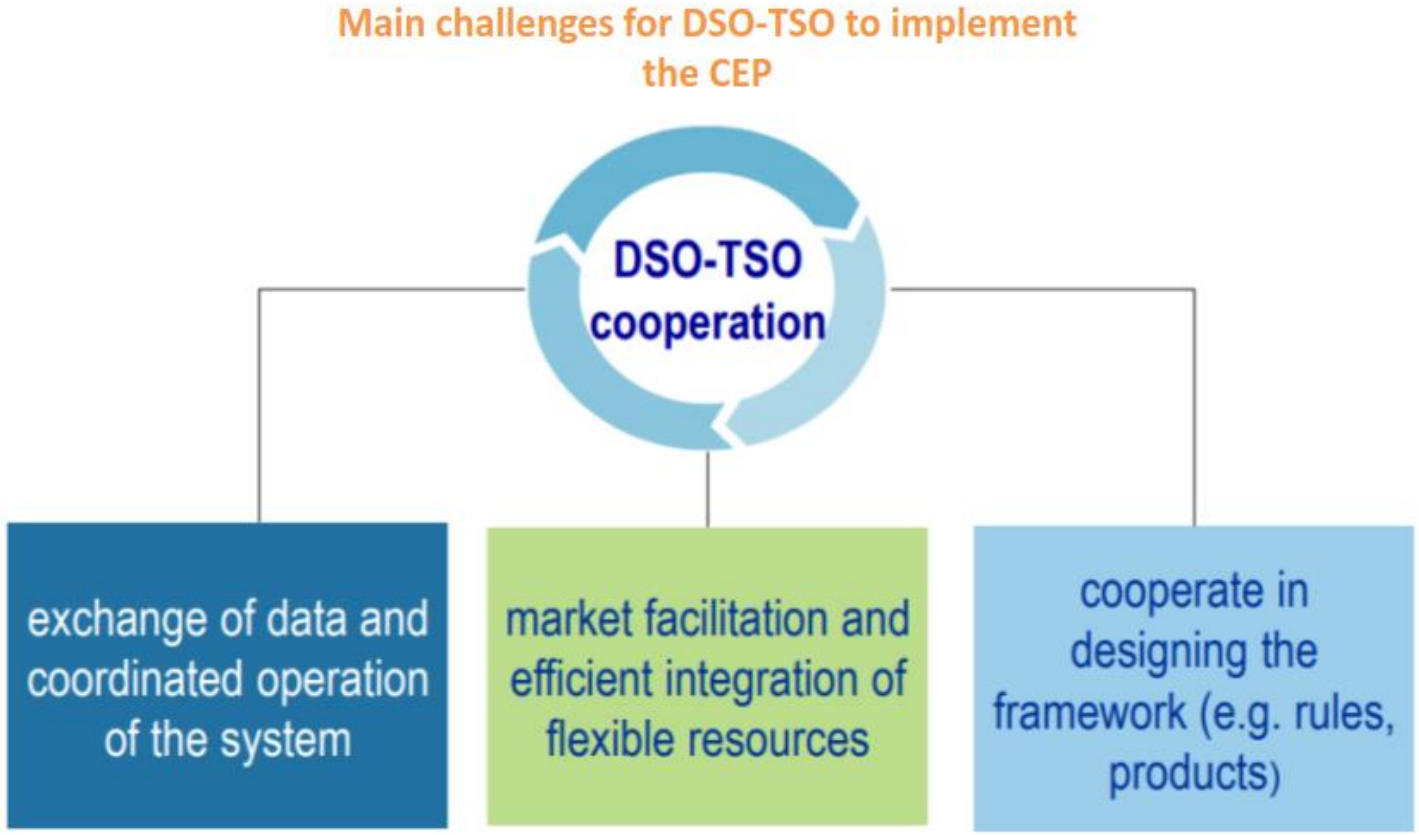
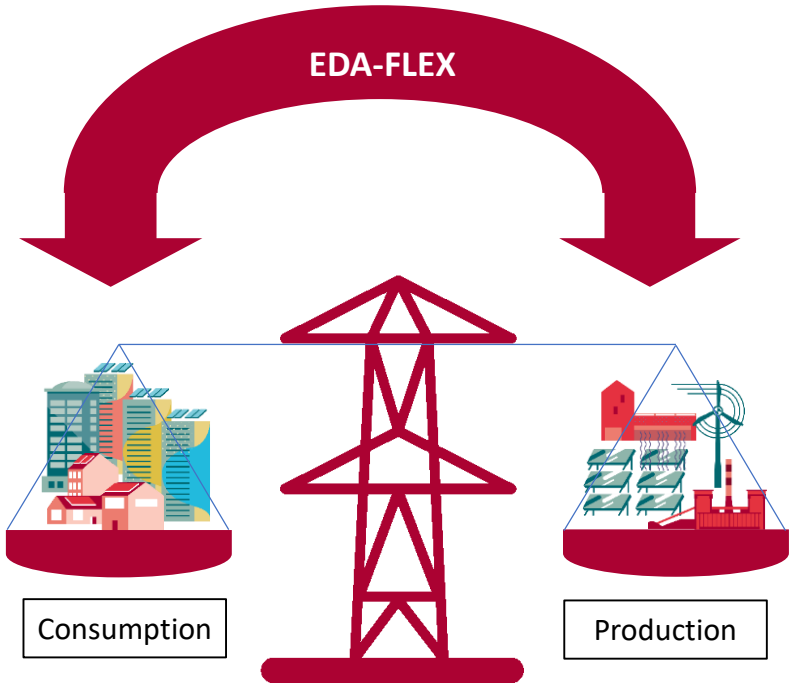
Challenges for TSOs - DSOs



Source: EC. 2018



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EDA - FEX

- The **DSO** acts as **market facilitator** in regard to **flexibility**
- Existing **governance**
- **Energy-transition** including new market requirements is enabled through standardized, reliable and proven data exchange processes
- Overall quality / additional value if implemented in law

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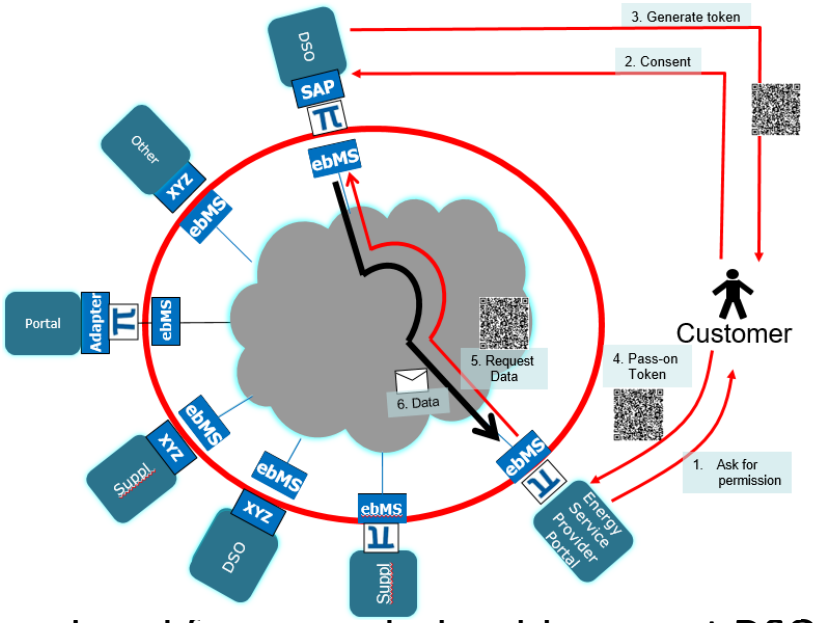
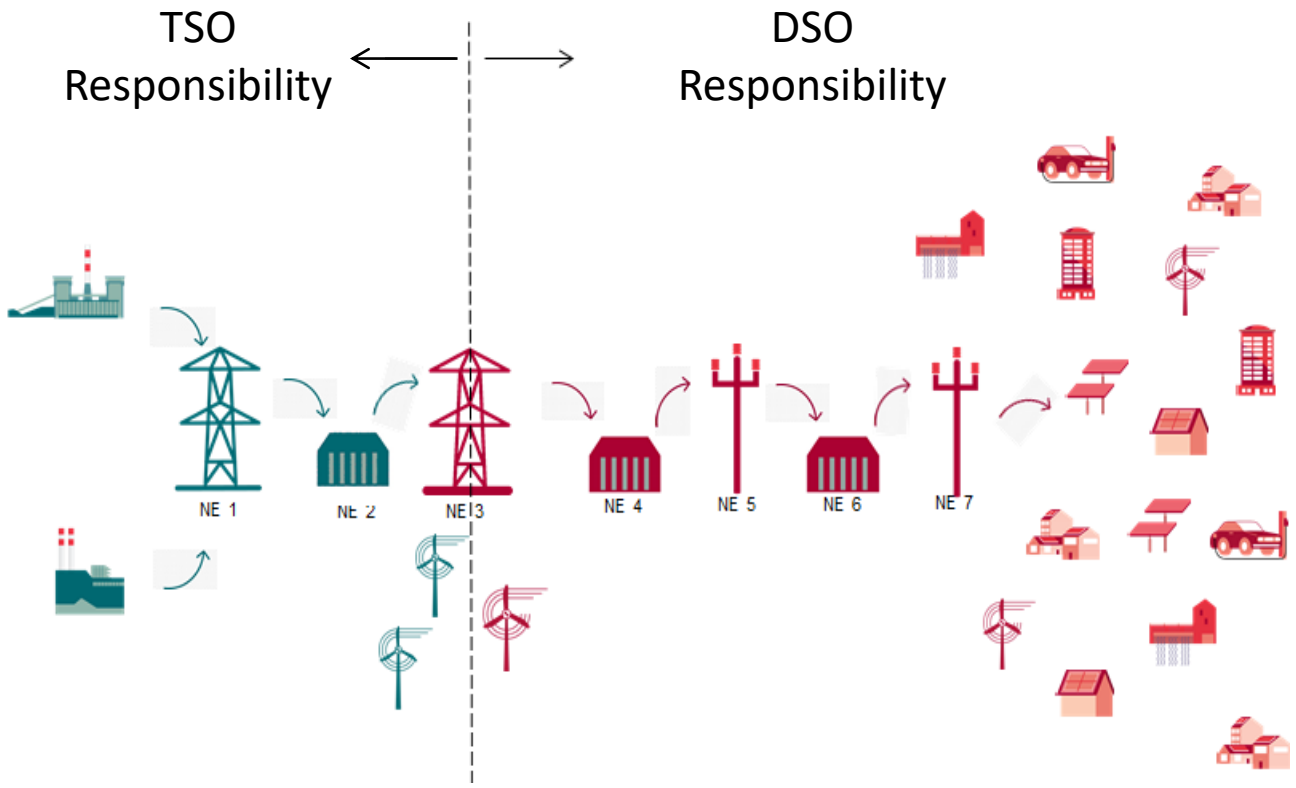
Existing governance

- Energy transition takes place on DSO level
- EDA Flex is providing the appropriate tools
- Data sharing
- „My Energy data“



- Legal framework should support DSOs in fulfilling these tasks



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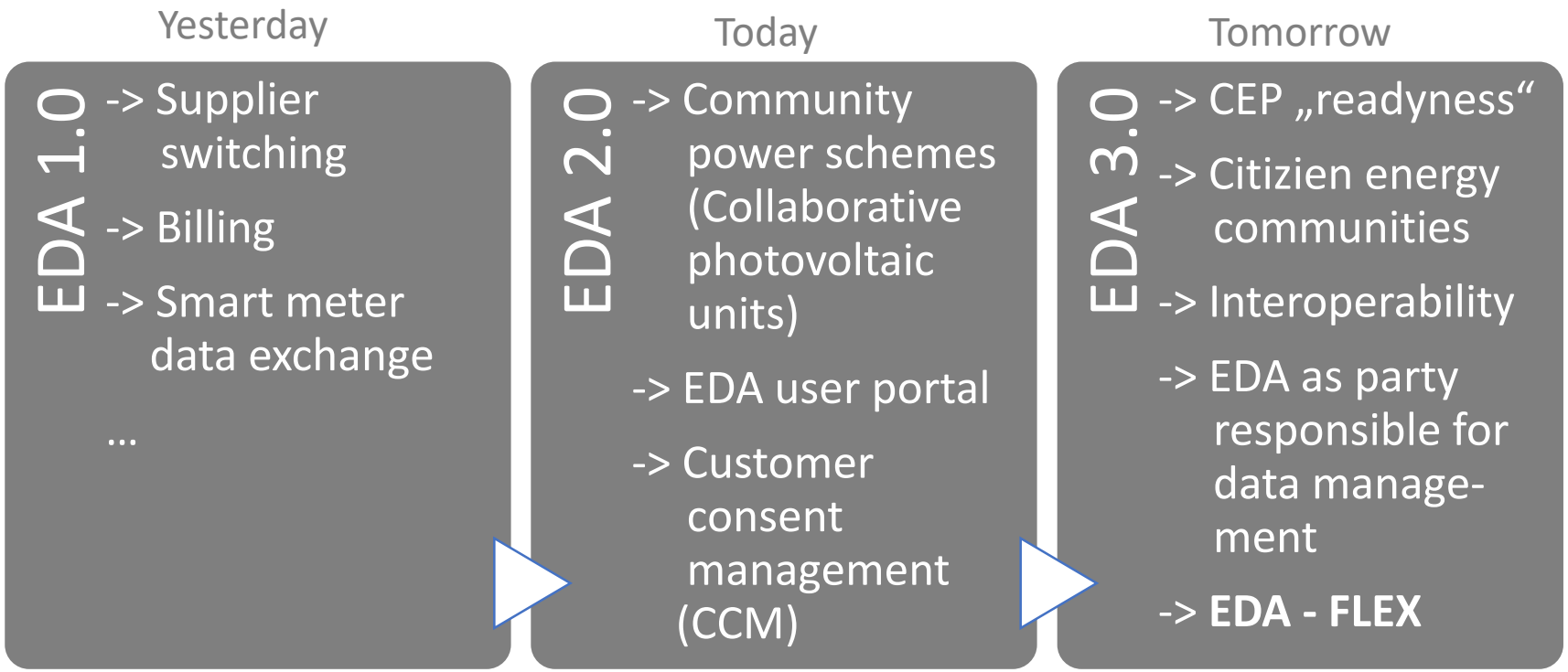
EDA is evolving into a comprehensive digital market platform



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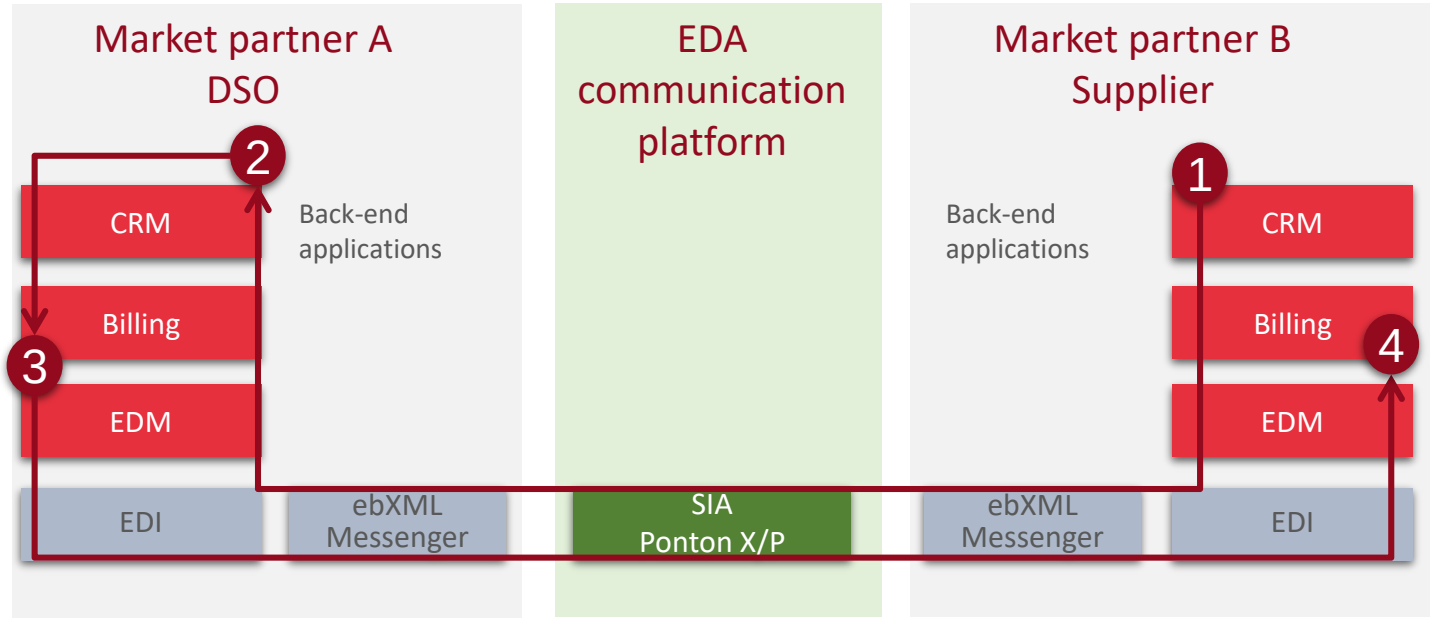
Backup

Example: supplier switching (highly schematic)

Data concentrator

Transaction server

MDM



1. **Request**: New supplier -> DSO
2. Request checked by DSO + search for POD (point of delivery)
3. **Response** result to new supplier
4. Start request for contract data (follow-up process)

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Data exchanges key to hitting the climate targets

- An **energy system that is both climate-neutral and reliable** will be considerably more **complex** than the one we are used to today, with its small number of electricity and gas suppliers.
- In future, there will be a **multiplicity** of small, medium and large-scale **suppliers**. Consumers are turning into **prosumers** who meet some of their needs themselves. Members of **energy communities** will trade among themselves and **exchange this energy**.
- Added to this, there will also be **sector coupling and integration**. Wind and solar power will have to be converted into hydrogen for storage. Transport, cooling and heating will have to convert to electricity or green gas.
- For all the players in this diverse landscape to interact properly, **standardised market processes**, **data formats and managed data streams** will be needed.

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