Elia Group - Hackathon 2024

Pre-session 1

19/03/24 | The Hackathon Team

elia group

Welcome

About us

Valentina Annoscia

Product Lead
IDEA

Mathieu Antoine

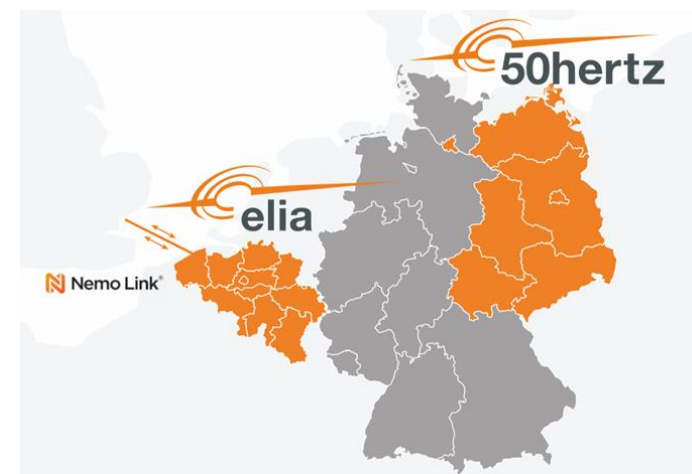Product Lead
Portals and Platform

Elodie Ciciriello

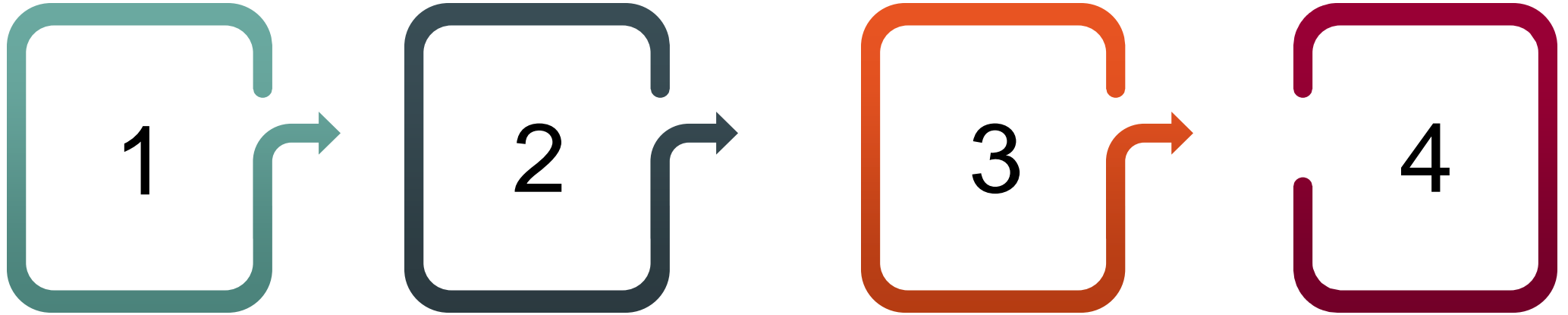Product Owner
CC Energy Solutions

Elia Group

Elia: Transmission system operator (TSO) for Belgium

50Hertz: One of four German TSOs responsible for eastern Germany, including Berlin, and in the Hamburg area

Agenda

1

Hackathon 2024

Short recap of Hackathon **(Valentina)** and explanation of the challenges **(Elodie)**

2

Technicalities

Explanation on:
- Datasets **(Elodie)**
- Platform **(Antoine)**
- Teams channels set up **(Antoine)**

3

Practicalities

Explanation on:
- Agenda
- Practicalities (teams' composition, badges)
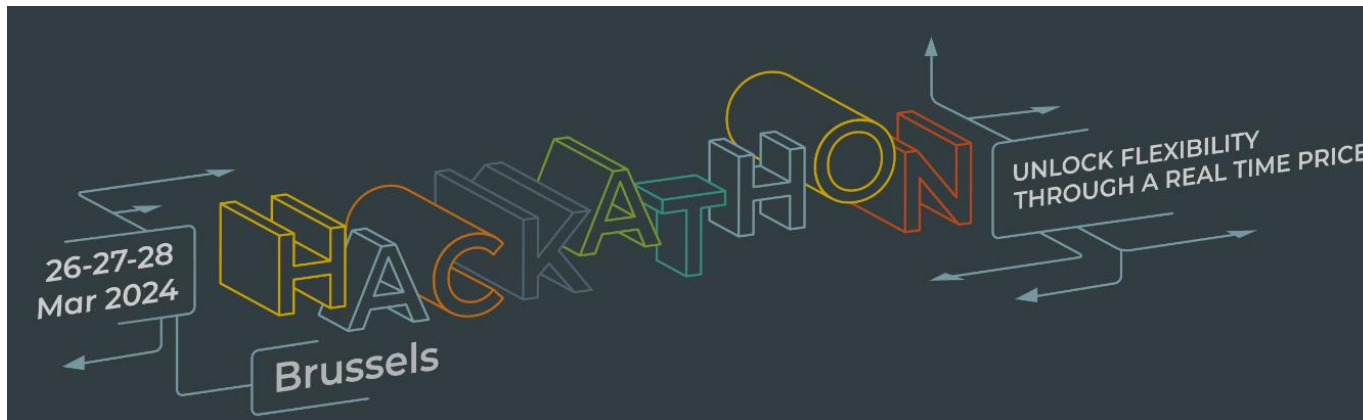- Jury evaluation criteria **(Valentina)**

4

Q&A

Session recording

1. We will be recording this session following this slide

2. This is a non-public recording for those who can't attend this pre-session or for you, if you want to rewatch this afterwards.

3. The release of the video, will only be shared with the registered & selected participants of this Hackathon.

4. The recordings will be deleted after the hackathon.

5. If you do not want to be recorded, please switch off the camera now.

Recap Hackathon 2024

- A 3-day Hackathon taking place on 26-27-28th of March

- Location: Brussels, Quartier Papier

- You'll work in teams of 6 people

- Theme: Unlock flexibility through a **real-time price**

- Be on time (8.00 AM)

- You'll receive your badge at the door

Don't forget to provide your consent, food & travel preferences

Thank you for participating in Elia Group's Hackathon 2024!

Please take a moment to provide us with some additional information to help us better accommodate your needs during the event.
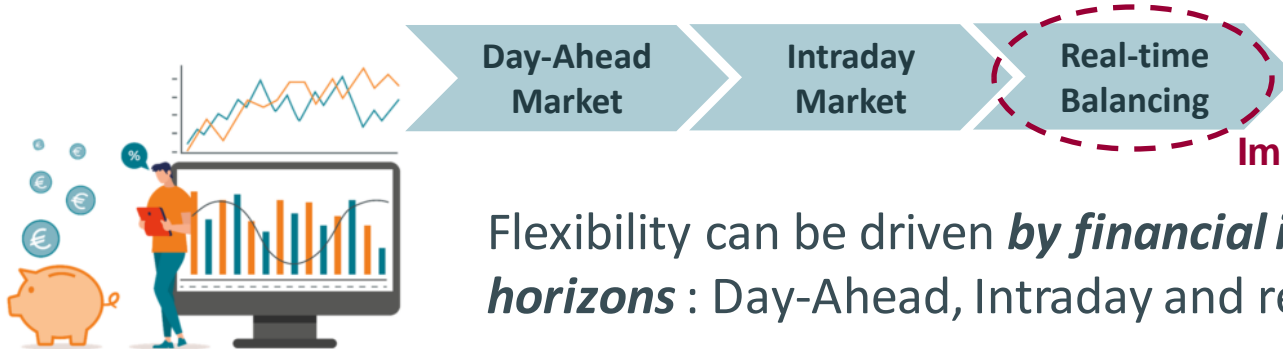
Name *

First Name

Last Name

Next

SCAN ME

Deadline is tonight!

① Hackathon 2024 – Real-Time Price

Flexibility "price based"

Financial incentive ("implicit flexibility")

BRPs are **incentivized by the imbalance price** to be balanced or even to **deviate from a balanced position** in real-time **to help the system** and are **remunerated @imbalance price**

Day-Ahead Market → Intraday Market → Real-time Balancing

Imbalance price as incentive

Flexibility can be driven *by financial incentives over different time horizons* : Day-Ahead, Intraday and real-time balancing timeframe

Financial incentives result in a *simple decision* for the customer *based on the price level and availability* : **"I do participate only if I want to"**
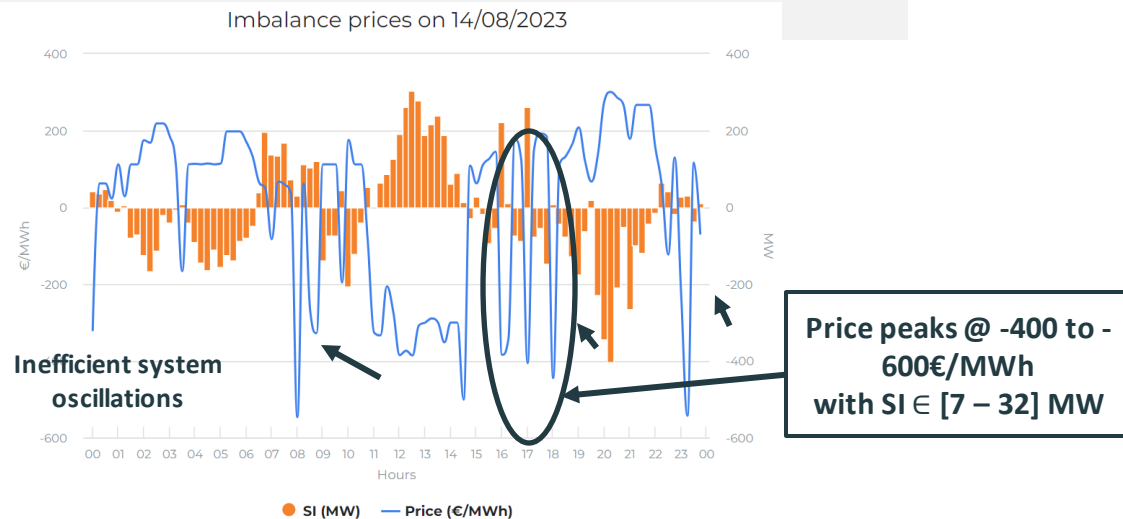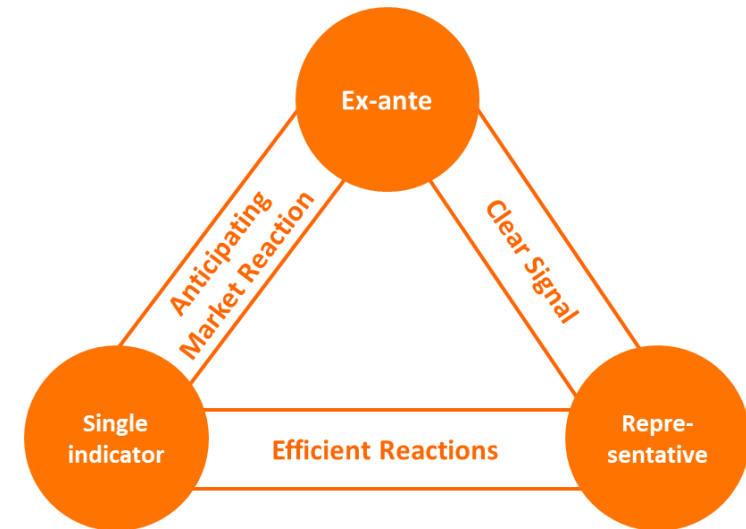
Current Imbalance Price

- Not representative of the system needs
- Characterized by inefficient oscillations (induced by inadequate price signal)

Imbalance prices on 14/08/2023

Inefficient system oscillations

Price peaks @ -400 to -600€/MWh
with SI $\in$ [7 – 32] MW

SI (MW)   — Price (€/MWh)

Imbalance Price as a Real-Time Price

Ex-ante

Anticipating Market Reaction

Clear Signal

Single indicator
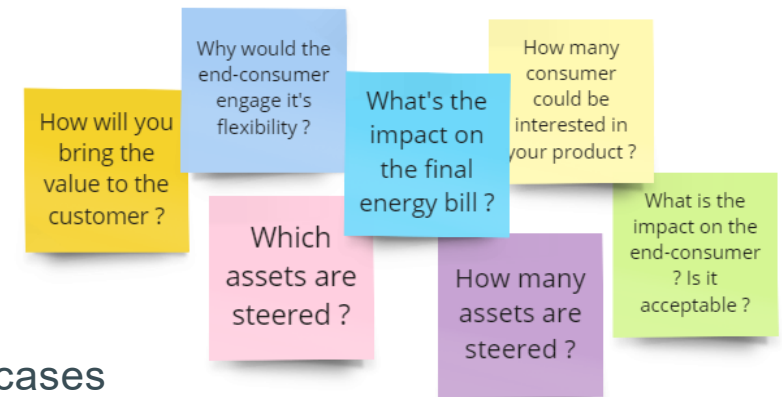
Efficient Reactions

Repre-sentative

1 Hackathon 2024 – Challenge

– **Challenges**

1. Challenge 1: Develop a product to optimize flexible assets in **households** or **office buildings**

2. Challenge 2: Bring your own use case

– **Our expectations**

o Come up with an innovative business model & product

o Make sure it can handle a live, real-time scenario

o Be CREATIVE, don't hesitate to elaborate further on the given use cases

A **simulation** will be run Thursday morning, before the pitching sessions **(9.30AM-2.30PM).** Your algorithm should be ready before the simulation. Results of the simulation will be shown to the jury for participants of the 1st challenge. For participants of challenge 2, it'll be an opportunity to test your product.

2

Technicalities - Datasets

Hackathon Time

The hackathon runs in hackathon time, 20x faster than real-life time.

You'll be able to:

- Get the current hackathon time
- Convert real-life time into hackathon time

Real-Time Prices

The first forecast of the Real-Time Price for a quarter-hour is given 3 minutes before the quarter-hour. It is updated each minute until the end of the quarter-hour.

You'll be able to:

- Get past* and current Real-Time Price forecasts
- Get the day-ahead price, available in day-ahead, as an estimation of the Real-Time Price

Asset data and steering

Participants of the 1st challenge will be able to steer the flexible assets of their use case.
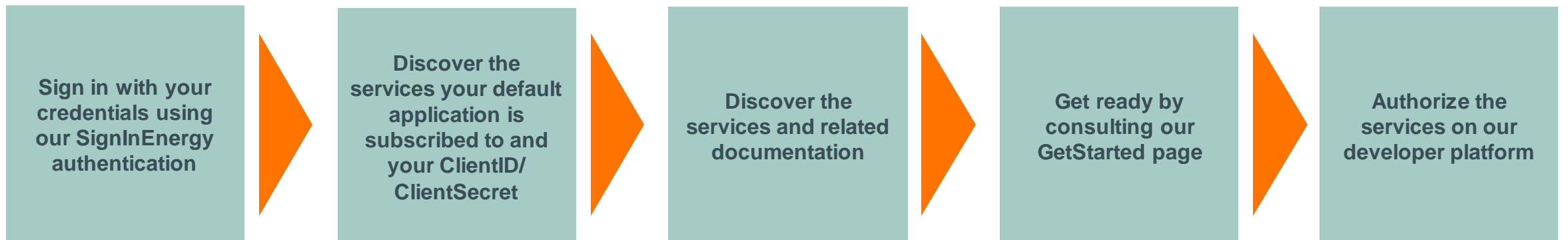
You'll be able to:

- Get past* and current asset states of the assets
- Get past and current site states
- Steer the flexible assets

*one year of historical data will be made available

② **Technicalities - Platform**

– The traXes developer portal will be available in pre-production

  – https://prprd.traxes.io/

    traXes

– Each team is given credentials to access our traXes developer portal the day of the hackathon

  – One user ID per team (e.g. team31@traxes.io)

  – One password per team

| Sign in with your credentials using our SignInEnergy authentication | → | Discover the services your default application is subscribed to and your ClientID/ ClientSecret | → | Discover the services and related documentation | → | Get ready by consulting our GetStarted page | → | Authorize the services on our developer platform |

March 26	March 27	March 28
7.30 AM: Arrival Elia Team on site	5 AM: Opening doors	5 AM: Opening doors
8 AM: Breakfast + registrations	7.30 AM: Arrival Elia Team on site	7.30 AM: Arrival Elia Team on site
8.30 AM: Official opening	8 AM: Breakfast	8 AM: Breakfast
9.15 AM: Get the teams together		
10.30 AM: Kick-Off	8.30 AM: Second day kick-off	8.30 AM: Last day Kick-off
12 PM: Lunch	10.30 AM: Teamwork	10 AM: Pitch preparation
1 PM: Inspiration session: Decentralized Energy	12 PM: Lunch	12 PM: Lunch
1.30 PM: Teamwork	2 PM: Inspiration Session: Incompressibility	1.30 PM: Pitching dry run sessions
4 PM: Inspiration Session: Eco-To-Grid	3 PM: Teamwork	5 PM: Pitching Session 1
7 PM: Dinner	4 PM: Inspiration Session: Eco-To-Grid	6.15 PM: Break
9 PM: Teamwork	7 PM: Diner	6.30 PM: Pitching Session 2
12 AM: Doors closed	9 PM: Teamwork	7.30 PM: Entertainment
	12 AM: Doors closed	8 PM: Winner Ceremony & Closing Speeches
		8.30 PM: Drinks & Walking Dinner
		10 PM: The end

A simulation will run on March 28 between 9.30 AM and 2.30 PM.

3 **Practicalities**

- Every team will have its own Teams channel: [Elia Group Hackathon 2024 Communication | General | Microsoft Teams](#)

- We'll be present at the info point: pass by in case of questions!

3 **Practicalities: Meet Your Jury Members**

Catherine Vandenborre

Ad Interim CEO Elia Group

David Zenner

Head of Customers

Pascale Van Damme

Vice President EMEA VMware at Dell Technologies

Béatrice De Mahieu

CEO BeCode

3 Practicalities: Evaluation Criteria

- **Real-Time Price utilization: How effectively does the solution allow the customer to control energy costs using the real-time price?**
  The solution uses elements of the real-time price, showing:

  o Assets can be steered in an optimized way based on RT data

  o Impact of steering assets based on the real-time pricing data

- **Product appeal: Is the product user-friendly, engaging, and innovative?**

  o The solution is appealing to the customer and engages him/ her, it is user-friendly, understandable and innovative

  o The solution motivates the user to adapt his/her behavior and addresses a consumer need

- **Technology implementation: Is the product based on state-of-the art, scalable and reusable technology?**

  o State-of-the-art technology is used for the solution. Platform thinking is applied, the service/solution is scalable

  o There is ready-to-use code and a running prototype instead of only beautiful slides

- **Scalability and impact of the solution: Can the product be easily used by a wide range of customers? Is it designed to scale up to larger groups, maintaining its effectiveness and user experience?**

  o The presented solution can be scaled to larger groups of customers

- **Bonus point: Live Demo of the solution (prototype): Bonus points will be awarded for teams that present a working prototype.**

  o The team can present a demo tool. Instead of just slides, the team pitches a real tool (perfect functionality is secondary)

  o There is strong commitment to turn the idea into a prototype

3 Practicalities: Pitches

March 28
5 AM: Opening doors
7.30 AM: Arrival Elia Team on site
8 AM: Breakfast
8.30 AM: Last day kick-off
10 AM: Pitch preparation
12 PM: Lunch
1.30 PM: Pitching dry run sessions
5 PM: Pitching Session 1
6.15 PM: Break
6.30 PM: Pitching Session 2
7.30 PM: Entertainment
8 PM: Winner Ceremony & Closing Speeches
8.30 PM: Drinks & Walking Dinner
10 PM: The end

A simulation will run on March 28 between 9.30 AM and 2.30 PM. Your algorithm should be ready before the simulation!

– Pitch
  - o 4 slides per team
  - o 3 min Pitch
  - o 3 min Q&A
  - o Jury rating

Dry run with agile coaches as of 1.30 PM. Book a 15 min slot with them!

Q&A