



## **Towards a sustainable Open Data ECOsystem**

### **D1.5 Training Week 3 “Towards a circular open data ecosystem”**



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## Abbreviations

BIR	Business Informatics Research
D	Deliverable
DoA	Document of Action
ECTS	European Credit Transfer and Accumulation System
ESR	Early-Stage Researcher
M	Month
MS	Milestone
OD	Open Data
ODECO	Open Data ECOsystem
SB	Supervisory Board
TW	Training Week
WP	Work Package

Nr	Partner	Partner short name	Country
<b>Beneficiary</b>			
1	Technische Universiteit Delft	TU Delft	Netherlands
2	Katholieke Universiteit Leuven	KUL	Belgium
3	Centre National de la Recherche Scientifique	CNRS	France
4	Universidad de Zaragoza	UNIZAR	Spain
5	Panepistimio Aigaiou	UAEGEAN	Greece
6	Aalborg Universitet	AAU	Denmark
7	Università degli Studi di Camerino	UNICAM	Italy
8	Farosnet S.A.	FAROSNET S.A.	Greece
<b>Partner organisations</b>			
1	7eData	7EDATA	Spain
2	Digitaal Vlaanderen	DV	Belgium
3	City of Copenhagen	COP	Denmark
4	City of Rotterdam	RDAM	Netherlands
5	CoC Playful Minds	CoC	Denmark
6	Derilinx	DERI	Ireland
7	ESRI	ESRI	Netherlands
8	Maggioli S.p.A	MAG	Italy
9	National Centre of Geographic Information	CNIG	Spain
10	Open Knowledge Belgium	OKB	Belgium
11	SWECO	SWECO	Netherlands
12	The government lab	GLAB	United States of America
13	Agency for Data Supply and Infrastructure	ADSI	Denmark

## 1 Introduction

### 1.1 Training week program objective

The third training week (TW) of the ODECO project was organized by University of Camerino in its premises located in the city of Ascoli Piceno. ODECO partners agreed in organizing the training week in the period September 11<sup>th</sup>-15<sup>th</sup>, 2023.

In defining the program of the week, the following relevant objectives/aspects were considered:

1. Feedback from the previous TW and needs expressed by the ESRs
2. Deliverables that had to be delivered by the consortium in the upcoming period
3. Involvement of external actors and of ODECO partners so to permit the exchange of ideas and point of views with people not involved in the ODECO project
4. Inclusion of diverse social events for the whole week evenings, so to permit to the ESRs to enjoy some time together, and to reinforce the bindings among the ODECO partner members.
5. Inclusion of classes on relevant topics, as foreseen by the DoA
6. Inclusion of collaborative activities with the objective to concretely produce a conceptual artefact.

In the following sections it is described how the organizational context, and the reported objectives were considered to setup the final program of the week.

### 1.2 Setup of the program

The first input that was considered, to derive the program of the TW3, was the feedback provided by the ESRs after the previous TWs held in Copenhagen and Zaragoza.

Incidentally, in the same week selected for the TW, UNICAM had to organize, being Andrea Polini, UNICAM, the conference General Chair, the 22<sup>nd</sup> International Conference on Perspectives in Business Informatics Research (BIR2023) - <https://bir2023.unicam.it>. This is an international conference that focuses on the adoption of Information Technologies within complex organizations, and the challenges that this can pose. The ODECO supervisory board discussed the possibility of having joined activities with the conference. An Open Data ecosystem can certainly be considered a kind of information system that can be integrated with organizational information systems to create value for a company or a complex organization. In such a sense the participation of ODECO members to the conference was considered a plus for the conference itself and specific topics related to data management and Open Data ecosystems were added to the conference topic list.

Combining the training week, with the program of a scientific conference running in parallel, certainly was the most challenging aspect of the organization, clearly having as main objective the definition of a plan that could benefit both the ESRs participating to the TW, and the conference.

According to the questionnaire circulated and filled by the ESRs, UNICAM selected some of the answers/proposals that were considered particularly relevant, and for which an effective answer could be proposed. In particular, the following answers/remarks attracted the attention:

1. Talks given by people from industry and government have always received positive feedback from the ESRs that consider such an activity extremely useful to confirm or to refute ideas.
2. The Datathon held at the TW2 at UNIZAR was judged as a very good experience.
3. The possibility of including a day off in the middle of the week.
4. A general need to work on deliverables. The derivation of such documents can be an interesting collaborative activity, permitting to ESRs to share ideas and to consider different perspectives on the same problem.

As it can be observed the remarks made by the ESRs were quite in line with most of the objectives.

According to the second point of the list of objectives, and in agreement with ESRs' remarks, UNICAM decided to include one session for each deliverable for discussing their progress at the time of the TW. As a result, a slot for collaborative activities on the following deliverables was added:

1. D2.3 User needs from a governance perspective: Governance model strategy guide to sustainably engage user groups in the open data ecosystem (M24) Lead: CNRS
2. D2.2 User needs from a technical perspective: Report on technological means for FAIR data provision meetings the needs of different user groups. (M24) Lead: UNIZAR
3. D3.1 Report on potential contribution of open government data users to the open data ecosystem. (M25) Lead: FAROSNET S.A. (HUFFPOST GREECE).

In addition, it was decided to include a slot in which to discuss the structure, objectives, and organization of WP4 for which the activities are going to start soon.

In relation to point 3 of the objectives list, and still in line with ESRs opinion, two different activities were included in the program. The first one was meant to hear "the voice of practitioners", while the second one to hear "the voice of academics". The whole Tuesday morning was devoted to the interaction with practitioners from Italian companies and public bodies expert in Open Data, and Open Data evangelist. The activity has been organized in strict cooperation with the ODECO partner Maggioli S.p.A.

Six experts were invited to take part to the TW and four of them could attend in person, while two of them attended and interacted with the ESRs from remote. In particular, the following experts participated to the activity:

1. Daniele Crespi – Maggioli S.p.A., OD activist, expert and responsible for OD strategies in Maggioli S.p.A. (<https://twitter.com/CrespiDaniele>)
2. Andrea Nelson Mauro - former journalist, OD activist, CEO and founder of Dataninja (<https://twitter.com/nelsonmau>, <https://www.dataninja.it/>)
3. Vincenzo Patruno - IT and Data Manager at ISTAT, Columnist for OnData web site, OD activist (<https://twitter.com/vincpatruno>, <https://www.linkedin.com/in/vincenzopatruno/>)
4. Morena Ragone - Lawyer working on data science, social, open data employed at Regione Puglia (<https://twitter.com/morenaragone>)
5. Ugo Bonelli - Expert on Open Government and Open Data. Member at the Department of Italian administration in the context of the project Open gov Italia (OGP - Open Government Partnership) (<https://twitter.com/ugobonelli>, <https://www.linkedin.com/in/ugobonelli/>)
6. Giorgia Lodi - researcher at STLAB-CNR, expert on linked data, knowledge graphs, semantics, interoperability in the context of OD, OD activist (<https://twitter.com/GiorgiaLodi>)

The last two experts attended the meeting remotely.

For "the voice of academics" a Doctoral Symposium was organized as a BIR co-located activity. The Symposium was organized by Prof. Bjorn Johansson from University of Linköping and Prof. Barbara Re from University of Camerino. Interested ESRs had the opportunity to present their work to BIR community and to get feedback from and people not involved in ODECO but still acquainted with OD and Information Systems topics.

To fulfil the objectives expressed in point 4 social events were organized in the evening from Monday to Thursday. The social events held on Wednesday and Thursday were shared with the BIR conference, the main intention was to facilitate the enlargement of the scientific network of the ESRs. A more detailed report on the social activity is included in Section 1.6.

In relation to point 5 of the objectives list it was decided to include two additional classes with respect to the ones foreseen in the DoA. As a result, the following classes were included in the program:

- "Professional Skills Training: How to design a curriculum" - Glenn Vancauwenberghe, KULEUVEN
- "Professional Skills Training: Career development" - Mélanie Dulong de Rosnay, CNRS
- "Professional Skills Training: Designing learning material for students" - Rikke Magnussen, AAU
- "The interplay between Knowledge Graphs and Enterprise Modelling for semantic enrichment of Open Data" - Robert Buchmann, University of Cluj-Napoca
- Writing of EU proposals - Andrea Polini, UNICAM, and Bastiaan Van Loenen, UDELFT

The last two activities were not foreseen by the DoA but considered particularly relevant in relation to the objectives of the TW and of the professional development for the ESRs. The class delivered by Prof. Buchmann focused on the capability of enriching structured and linked open data with a semantic layer that could provide interesting research directions in relation to the capability of effective retrieving and using open data, as well as to return back possible data sets that are then clearly linked to the used one. This follows the direction of circularity, being it one of the main research challenge/directions of the ODECO OD ecosystem. The "Writing EU proposal" class has been delivered by Andrea Polini and Bastiaan Van Loenen collaboratively. The activity intended to expose the ESRs to the possible strategies for the derivation of EU research proposals. The Horizon Europe Framework was shortly presented introducing its main pillars. The activity was then mainly focused on the description of Marie-Curie and collaborative projects actions, providing to the ESRs general indication on the various aspects of a proposal life cycle, from its conception and elaboration, to its submission.

Finally, to satisfy the last objective it was decided to organize a hackathon that had the objective to challenge the ESRs, grouped in groups of 5, to define and elaborate on project proposals that, considering available open data sets available, could have a concrete impact on a specific productive domain. The Hackathon was presented on Monday, in the first session after lunch, so that the groups could work on it during the week, and then the Friday afternoon was completely devoted to such an activity.

To follow the supervisory board decision of fostering the interaction of ESRs and of BIR conference attendees it was decided to include the first conference day in the TW. During the first day many ESRs that got a paper accepted to the conference had the opportunity to present their research work to the BIR community. In addition, the BIR organizing committee decided to invite Bastiaan Van Loenen to deliver a keynote speech at the conference. The speech, titled "Open Data: Everything Everywhere All at Once", was also a good dissemination activity, as also the project was mentioned and the speech was delivered in cooperation with 2 ESRs that had the great opportunity to exercise their presentation skills in a somehow quite challenging situation, such as that of a conference Keynote. The joined conference/TW day permitted also to partially fulfil one of the desiderata reported in the answers to the questionnaire such as that of having one day break in the middle of the TW. Indeed, even though most of the ESRs attended the conference some of them had the opportunity to rest.



### 1.3 Location



*Figure 1: Cloister at the Annunziata convent. Photo by Héctor Ochoa Ortiz (ESR13, UNICAM).*

The venue of the Training Week was the Chiesa della Santissima Annunziata (Church of the Holy Annunciation) in Ascoli Piceno, an old church currently turned into the School of Architecture and Design of UNICAM<sup>1</sup>. Ascoli Piceno as a location for the TW was selected instead of Camerino as it is easier to reach by public transportation, as well as having good accommodation options. Moreover, Camerino centre is unfortunately still closed as consequence of the 2016 earthquake.

The location was selected as it provided big rooms with big table that are used by architectural studies students in their laboratory classes. Such kind of rooms were considered particularly suited to the objective and activities of the TW.

### 1.4 Credits

The SB agreed to issue a Certificate of Achievement for the training week at UNICAM for 50 hours workload as each country has different standards for what workloads reflect ECTS (European Credit Transfer and Accumulation System).

The Certificate of Achievement was given to all ESRs during the training week.

### 1.5 Supervisors attending the training week

*Table 1: Supervisors attendance*

Beneficiary	Supervisor name	Attendance
TU Delft	Bastiaan van Loenen	In person, every day
UNICAM	Andrea Polini	In person, every day
	Barbara Re	In person, days 4-5
UNIZAR	Francisco Javier López Pellicer	In person, days 1-3

<sup>1</sup> <https://saad.unicam.it/it/scuola/sedi/colle-dell-annunziata>

Beneficiary	Supervisor name	Attendance
FAROSNET	Antonis Furlis	In person, days 4-5
KUL	Glenn Vancauwenberghe	Online, day 1
CNRS	Mélanie Dulong de Rosnay	Online, day 1
AAU	Rikke Magnussen	Online, day 4

## 1.6 Social Activities



*Figure 2: ESRs and BIR attendees at the Wine Tasting social event.  
Photo by Héctor Ochoa Ortiz (ESR13, UNICAM).*

To strengthen team building and networking between ESRs, social activities were planned for every evening from Day 1 to Day 4. The social activities are an important element in the training week and ensure a positive dynamic within the team.

During Day 3 and Day 4, the social activities were jointly organized with the BIR conference. This gave ESRs the opportunity to mix with the conference attendees and expand their network. In Day 1 it was organized a walk through the city centre with some historical and cultural information provided by Andrea Polini. Ascoli Piceno has one of the biggest historical city centre in Italy, with building and artefacts dating back to the Roman empire and still in use. The evening was closed with a dinner in a typical restaurant "Locanda del Medioevo". The four practitioners that could participate in person to the TW attended the dinner. This gave the opportunity to ESRs and practitioners to know each other in an informal context, so to start the next day with a more relaxed environment and a more fruitful activity. The first social event day were meant as relaxing activities as most of the participants travelled the day before to reach Ascoli Piceno.

On Day 2 was organized a hiking activity. Starting from the city at 150m, the participants walked towards south to reach the "Colle San Marco" plateau at around 700m and then some of the participants decided to walk further to reach "Rifugio Paci" at around 900m. A bus service permitted then to reach the "hotel Remigio" at 1100m where a dinner made of traditional dishes was served. The activity was quite tiring and served to reinforce the binding among the ESRs in an informal and somehow challenging activity.

Day 3 saw a joined event with the BIR conference. The event included a visit to a local wine producer and a wine tasting session. Successively the group was brought to San Benedetto del

Tronto for a dinner at the beach. The ESRs had the opportunity to share space and time with BIR attendees in a quite informal context and to expand their scientific network more easily. Finally in Day 4 a dinner in the premises of the Annunziata building was organized. The dinner included a live R&B and Jazz accompaniment. The event was still organized as part of the BIR event with the intention to give to ESR a relaxing moment after that was clearly a quite physically and mentally draining week.

## 2 Day 1

### 2.1 Objectives, activities, assignments, and program

The first day of the training week started off on a high note with an enlightening opening speech by Andrea Polini from UNICAM at 9:00. This was promptly followed by a deep dive into the "User needs from a governance perspective", facilitated by Ramya Chandrasekhar and Silvia Cazacu-Bucică. Their discussions revolved around the contents of the much-anticipated Deliverable 2.3.

After a brief coffee break, the discourse on Deliverable 2.3 continued until lunchtime.

The afternoon saw an exciting kick-off presentation for Friday's hackathon by Héctor Ochoa Ortiz and Umair Ahmed. They introduced the problem statements, rules, expected outcomes, and the team arrangements for the event. Subsequently, Francisco Javier López Pellicer guided us through "User needs from a technical perspective", discussing the contents of Deliverable 2.2.

In the late afternoon, Glenn Vancauwenberghe provided invaluable insights on course design methodologies, culminating in the ESRs crafting a constructive alignment table for their proposed courses. Mélanie Dulong de Rosnay then took the lead, empowering participants with career development tools and strategies.

The formal sessions concluded at 17:50, but the day was not over yet! Andrea Polini led the consortium on a mesmerizing tour of Ascoli Piceno, acquainting everyone with its historical and tourist spots. The day ended on a delightful note with a dinner at Pizzeria Locanda del Medioevo.

*Table 2: Program Day 1*

Time	Activity	Facilitator	Description
9:00	Opening	Andrea Polini (UNICAM)	Opening speech
9:20	D2.3: User needs from a governance perspective	Ramya Chandrasekhar (ESR04, CNRS), Silvia Cazacu-Bucică (ESR03, KUL)	Discussion about the contents of the upcoming Deliverable 2.3
10:40	Coffee break		
11:00	D2.3 (continuation)	Ramya Chandrasekhar (ESR04, CNRS), Silvia Cazacu-Bucică (ESR03, KUL)	Discussion about the contents of the upcoming Deliverable 2.3
13:00	Lunch break		
14:00	Hackathon kick-off presentation	Héctor Ochoa Ortiz (ESR13, UNICAM), Umair Ahmed (ESR14, UNICAM)	Explanation of the problem statements, rules, expected outcomes, and teams for Friday's hackathon.
14:30	D2.2: User needs from a technical perspective	Francisco Javier López Pellicer (UNIZAR)	Discussion about the contents of the ongoing Deliverable 2.2
15:30	Coffee break		
15:50	Professional Skills Training: Course design	Glenn Vancauwenberghe (KUL)	ESRs are taught the different methodologies for preparing a course. After, they must fill in a constructive

Time	Activity	Facilitator	Description
			alignment table with details about their proposed course.
16:50	Professional Skills Training: Career development	Mélanie Dulong de Rosnay (CNRS)	ESRs were guided about the possible career options post PhD and paths that lead to them.
17:50	END		
19:15	Social event: Ascoli Piceno tour	Andrea Polini (UNICAM)	A walk alongside the touristic spots of Ascoli Piceno, with a historical explanation.
20:30	Social event: Dinner at Pizzeria Locanda del Medioevo		

## 2.2 Evaluation of Day 1

- Delved into "User needs from a governance perspective" relative to Deliverable 2.3.
- Unveiled the framework for the upcoming hackathon, including problem statements and expected outcomes.
- Explored "User needs from a technical perspective" concerning Deliverable 2.2.
- Cultivated insights on course design methodologies, leading to a constructive alignment table for proposed courses.
- Embarked on a journey of career development through specialized tools and strategies.
- Immersed in cultural richness and fostered connections during the tour of Ascoli Piceno and dinner at Pizzeria Locanda del Medioevo.



*Figure 3: ESRs writing their ideas on the whiteboard.  
Photo by Héctor Ochoa Ortiz (ESR13, UNICAM).*





**Figure 4: Ramya Chandrasekhar (ESR04, CNRS) and Silvia Cazacu-Bucicã (ESR03, KUL) facilitating the session related to the Deliverable 2.3: "User needs from a governance perspective". Photo by Héctor Ochoa Ortiz (ESR13, UNICAM).**

### 3 Day 2

#### 3.1 Objectives, activities, assignments, and program

The second day of the training week began with a dynamic session of "ESR lightning talks", where ESRs showcased their topic status and prospects to a keen audience of data practitioners. This was followed by an enriching "Round table with practitioners", where ESRs received valuable feedback and perspectives on their ideas and topics. This interactive format was deliberately chosen to foster direct engagement between ESRs and seasoned data practitioners. Such interactions are invaluable as they allow the young researchers to gain insights, refine ideas, and validate their research trajectories based on practitioner feedback.

Post-lunch, attendees were treated to a master class on "Linked Open Data and Knowledge Graphs", led by the expert Robert Andrei Buchmann from Babeş-Bolyai University, offering deep insights into the domain. This specific topic was picked due to its contemporary relevance and the growing importance of open data ecosystems in today's research landscape.

The academic sessions wrapped up by 16:00, but the day was far from over. Andrea Polini led a strenuous hike up the scenic San Marco Hill from Ascoli Piceno. To accommodate everyone, a shuttle bus was available at intermediate stops, ensuring participants could reach the summit irrespective of their fitness levels. The day concluded with a lavish dinner at Hotel Remigio I, providing a perfect end to another insightful day.

*Table 3: Program Day 2*

Time	Activity	Facilitator	Description
9:00	ESR lightning talks		ESRs present their topic status and prospects for the future in front of data practitioners
10:40	Coffee break		
11:00	Round table with practitioners		Data practitioners discuss with the ESRs about their ideas and topics
13:00	Lunch break		
14:00	Linked Open Data and Knowledge Graphs master class	Robert Andrei Buchmann (Babeş-Bolyai University)	A master class introducing the concepts of Linked Data and Knowledge Graphs, with relevant examples.
16:00	END		
17:00	Social event: Hiking	Andrea Polini (UNICAM)	Hike up the San Marco Hill from Ascoli Piceno. A shuttle bus picks up the participants at intermediate stops depending on each person fitness and takes them to the top.
20:00	Social event: Dinner at Hotel Remigio I		

#### 3.2 Evaluation of Day 2

- ESRs presented ongoing projects and prospects during "ESR lightning talks."
- Valuable feedback and perspectives obtained from seasoned data practitioners during the "Round table" session.

- Deep insights into "Linked Open Data and Knowledge Graphs" acquired from the master class by Robert Andrei Buchmann.
- Physical engagement and scenic exploration achieved through the hike up San Marco Hill.
- Networking and reflection facilitated during the dinner at Hotel Remigio I.



*Figure 5: Davide Di Staso (ESR01, TU Delft) presenting his work to the practitioners. Photo by Umair Ahmed (ESR14, UNICAM).*



*Figure 6: Round table with practitioners. Photo by Umair Ahmed (ESR14, UNICAM).*



## 4 Day 3

### 4.1 Objectives, activities, assignments, and program

Day 3 of the training week was integrated with the esteemed BIR conference, a platform that not only showcased the work of several ESRs but also highlighted innovations from external researchers.

Andrea Polini inaugurated the day with his opening address, setting the tone for the sessions to follow. The highlight of the morning was the keynote titled "Open Data: Everything Everywhere All at Once" delivered by Bastiaan van Loenen and the ESRs María Elena López Reyes, and Ashraf Shaharudin. Their discourse revolved around the trending topic of open data, emphasizing its evolution, the significance of recognizing varied data users, and the potential impacts of their data utilization. They critically examined the prevailing metrics of open data's success and proposed a vision for a sustainable open data ecosystem, emphasizing the data's value for both companies and the broader community.

Following a brief interlude, the conference progressed with "Session 1 - Applied Business Informatics", chaired by Robert Andrei Buchmann. This session delved into practical applications and innovations within the realm of business informatics. Post-lunch, "Session 2 - New trends in data governance" took centre stage, under the expert chairmanship of Václav Řepa, exploring emerging paradigms and methodologies within data governance.

Concluding the formal proceedings, the evening transitioned to a more relaxed setting with a delightful social event. Participants were treated to a wine tasting experience at Velenosi, followed by a serene dinner by the beach at La Croisette, providing a fitting closure to a day rich in academic exchange and camaraderie.

**Table 4: Program Day 3**

Time	Activity	Facilitator	Description
9:10	[BIR] Opening	Andrea Polini (UNICAM)	Opening speech
9:30	[BIR] Keynote #1: "Open Data: Everything Everywhere All at Once"	Bastiaan van Loenen (TU Delft), María Elena López Reyes (ESR06, AAU), Ashraf Shaharudin (ESR15, TU Delft)	Over the last decade, open data has been trending with a focus on open government data. Some argue that we are now experiencing the third wave of open data that includes the re-use of data created or collected by companies as well as universities and citizens. In the third wave, we should celebrate various types of data users and the real-world impacts of their data use. However, as of today, evidence of the success of open government data does not go much beyond 'millions of data downloads' in open data portals. Information on open data users is scant and consequently, its true impact including the social impact, is undervalued even though open data could be

Time	Activity	Facilitator	Description
			everything, everywhere, all at once. This keynote will build on the third wave of open data to show the value open data may have for companies as users as well as providers of open data and propose steps to achieve a sustainable open data ecosystem.
10:30	Coffee break		
11:00	[BIR] Session 1 - Applied Business Informatics	Chair: Robert Andrei Buchmann (Babeş-Bolyai University)	Conference session, with talks from different academics about their related topics.
13:00	Lunch break		
14:20	[BIR] Session 2 - New trends in data governance	Chair: Václav Řepa (Prague University of Economics and Business)	Conference session, with talks from different academics about their related topics.
16:15	END		
17:15	Social event: Wine tasting at Velenosi and dinner by the beach (La Croisette)		

#### 4.2 Evaluation of Day 3

- Integration with BIR conference showcased ESRs' work and external research innovations.
- Opening address by Andrea Polini set the tone for ensuing sessions.
- Keynote on "Open Data" by Bastiaan van Loenen, María Elena López Reyes, and Ashraf Shaharudin highlighted open data's evolution, user recognition, and potential impacts.
- "Session 1 - Applied Business Informatics" chaired by Robert Andrei Buchmann explored practical business informatics applications and innovations.
- "Session 2 - New trends in data governance" chaired by Václav Řepa delved into emerging data governance paradigms and methodologies.
- Evening social event with wine tasting at Velenosi and dinner at La Croisette enriched networking and camaraderie, wrapping up a day of academic exchange.



**Figure 7: María Elena López Reyes (ESR06, AAU) delivering the BIR Keynote #1 speech. Beside her are the other two speakers: Ashraf Shaharudin (ESR15, TU Delft) and Bastiaan van Loenen (TU Delft). Photo by Maria Ioanna Maratsi (ESR07, UAEGEAN).**

## 5 Day 4

### 5.1 Objectives, activities, assignments, and program

The fourth day of the training week began with an opening speech of BIR by Andrea Polini, where he welcomed a dynamic group of researchers and introduced the agenda for the conference. This was followed by a keynote speech by Steven Alter in which he explored the role of AI in sustainable innovation and the risks that come along with it. He particularly explored the perspective of business informatics. After the keynote and coffee break, the separate sessions of ODECO resumed.

The first session after the break was a training about designing learning material for students by Rikke Magnussen. It was a hands-on session where ESRs chose a topic of their interest and built a layout of course around it by following the introduced framework. The subsequent session was about introducing WP 4, led by Andrea Polini. The approach and the deadlines were discussed in the session. Also, the learnings about the approach of previous deliverables were discussed to approach upcoming work packages more efficiently. After concluding the discussions everyone departed for a scrumptious lunch hosted by the university.

Post lunch, Giorgos Papageorgiou representing FAROSNET briefed everyone about the Deliverable D3.1. He particularly delved into consumers of open government data and their potential contributions to open data ecosystem. Following it, Andrea Polini and Bastiaan van Loenen dived into writing of EU project proposals. They navigated through different kinds of EU projects, what they entail and how to approach them. The day concluded with a happening dinner at L'Annunziata where ESRs enjoyed a live music session along with it.

*Table 5: Program Day 4*

Time	Activity	Facilitator	Description
9:10	[BIR] Opening	Andrea Polini (UNICAM)	Opening speech
9:30	[BIR] Keynote #2: "Roles and Risks of AI in the Pursuit of Sustainable Innovation"	Steven Alter (University of San Francisco)	Artificial intelligence, sustainability, innovation, and sustainable innovation are discussed passionately, but often with little or no agreement about the meaning of those terms. Highly abstract discussions in those areas often touch upon important social, political, and economic issues but float far above real-world practicalities that business informatics needs to address. This keynote proposes an approach for moving the discussion of AI and sustainable innovation forward within business informatics. That approach starts with definitions that can be applied in describing and understanding operational systems. Those definitions are applied in explaining a spectrum of roles that AI can play through digital agents that pursue responsibilities related to

Time	Activity	Facilitator	Description
			specific facets of work in real world situations. The result is a view of AI, sustainable innovation, and related opportunities and risks that is directly applicable for determining system requirements, describing operational systems, and evaluating operational results.
10:30	Coffee break		
11:00	Professional Skills Training: Designing learning material for students	Rikke Magnussen (AAU)	Lecture about designing learning material about open data topics to students, paired with a practical exercise for the ESRs to design the material for a course.
12:00	WP4: From an exclusive to an inclusive Open Data Ecosystem	Andrea Polini (UNICAM)	Discussion about the contents of the upcoming Work Package 4
13:00	Lunch break		
14:00	D3.1: Closing the cycle: Understanding potential contributions of open government data users to the open data ecosystem	Giorgos Papageorgiou (ESR09, FAROSNET S.A.), Antonis Fourlis (FAROSNET S.A.)	Discussion about the contents of the upcoming Deliverable 3.1
14:30	Writing of EU proposals guidelines	Melissa Mancini (UNICAM), Andrea Polini (UNICAM), Bastiaan van Loenen (TU Delft)	Session explaining the available EU-funded projects and how to write proposals to apply for them.
18:00	END		
20:00	Social event: Dinner at L'Annunziata and live music session		

## 5.2 Evaluation of Day 4

- Opening speech by Andrea Polini introduced the agenda to a dynamic group of researchers at BIR.
- Keynote by Steven Alter explored AI's role in sustainable innovation and associated risks, particularly in business informatics.
- Post-break session by Rikke Magnussen on designing learning material, where ESRs developed course layouts on chosen topics following a provided framework.
- Session on introducing WP 4 by Andrea Polini discussed approach, deadlines, and learnings from previous deliverables for efficient future work package execution.
- Post-lunch briefing by Giorgos Papageorgiou on the Deliverable D3.1 explored consumers of open government data and their potential contributions to the open data ecosystem.

- Session by Andrea Polini and Bastiaan van Loenen on writing EU project proposals covered different EU projects, their requirements, and approach strategies.
- Evening wrapped up with a dinner at L'Annunziata, featuring live music, promoting relaxation and camaraderie among ESRs.



*Figure 8: Social dinner with live music. Photo by Umair Ahmed (ESR14, UNICAM).*

## 6 Day 5

### 6.1 Objectives, activities, assignments, and program

The last day of the training week started with opening speech by Andrea Polini for BIR conference participants. Following it Barbara Re formally introduced the doctoral consortium and provided the stage to the doctoral students to present their work for input by various researchers. From ODECO, Abdul Aziz (ESR 08, UNIZAR), Héctor Ochoa Ortiz (ESR 13, UNICAM), and Umair Ahmed (ESR 14, UNICAM) presented their doctoral projects and received insights from other researchers.

The afternoon gradually transitioned into a session of intense cooperation and creativity among the ESRs when the doctoral consortium was finished. Hector and Umair summarized the hackathon's introduction before officially starting the four gruelling hours. It observed three teams working together on various concepts to use open data and derive sustainable value from it, together with their mentors. After a demanding 4-hour hackathon, judges Andrea Polini and Bastiaan van Loenen discussed the team proposals and proclaimed the winners. ESRs were presented with TW3 certifications at the end of the training week.

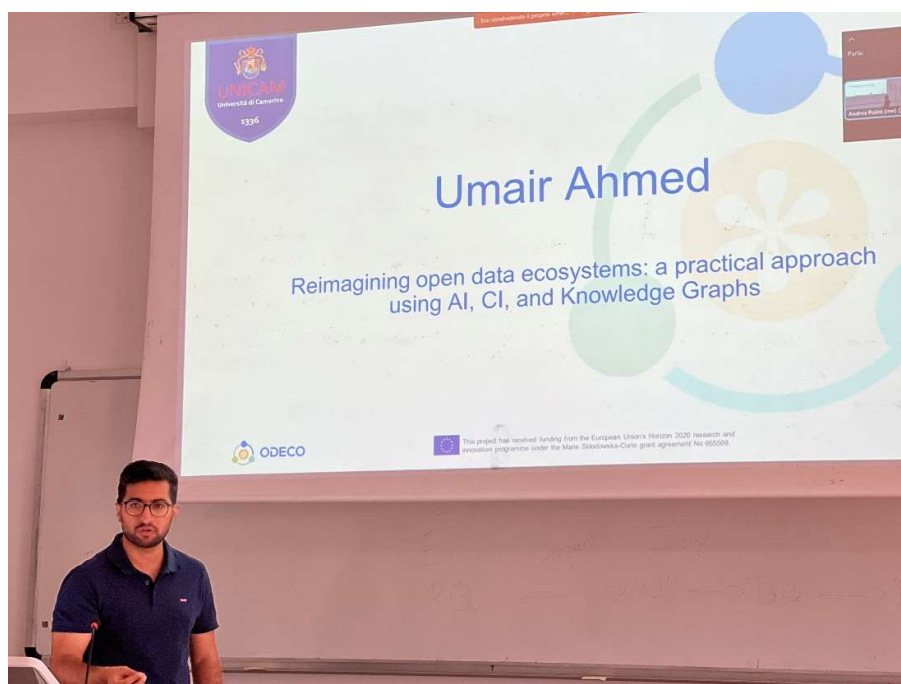
*Table 6: Program Day 5*

Time	Activity	Facilitator	Description
8:15	[BIR] Opening	Andrea Polini (UNICAM)	Opening speech
8:35	[BIR] Doctoral Consortium	Barbara Re (UNICAM)	Forum for doctoral students to discuss about their work.
11:00	Coffee break		
11:30	[BIR] Doctoral Consortium	Björn Johansson (Linköping University)	Forum for doctoral students to discuss about their work.
13:00	Open Data Hackathon	Héctor Ochoa Ortiz (ESR13, UNICAM), Umair Ahmed (ESR14, UNICAM)	A quick ideation and prototyping session about Open Data challenges, in groups.
13:30	Lunch break		
14:30	Open Data Hackathon	Héctor Ochoa Ortiz (ESR13, UNICAM), Umair Ahmed (ESR14, UNICAM)	A quick ideation and prototyping session about Open Data challenges, in groups.
17:30	END		

### 6.2 Evaluation of Day 5

- Doctoral students, including Abdul Aziz, Héctor Ochoa Ortiz, and Umair Ahmed, received valuable input on their projects from various researchers.
- ESRs engaged in a collaborative and creative session during the hackathon, working on concepts to leverage open data for sustainable value.
- Judges Andrea Polini and Bastiaan van Loenen provided feedback on team proposals from the hackathon, fostering a competitive and evaluative environment.
- Winning teams and individuals recognized, promoting a sense of achievement and competitive spirit among ESRs.
- ESRs awarded TW3 certifications, marking the successful completion of the training week and acknowledging their participation and achievements.



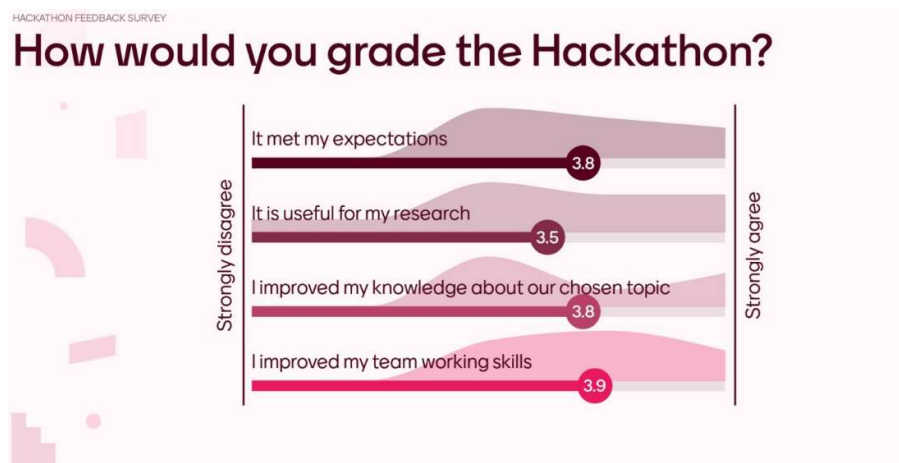


**Figure 9: Umair Ahmed (ESR14, UNICAM) presenting his research at the Doctoral Consortium. Photo by Héctor Ochoa Ortiz (ESR13, UNICAM).**



**Figure 10: Team Vortex Voyagers presenting their work at the Open Data Hackathon. Photo by Umair Ahmed (ESR14, UNICAM).**





*Figure 11: Hackathon grading according to the ESRs.*

## 7 Summary and Conclusions

### 7.1 Summary

The TW3 included a quite intense program, conceived to permit to the ESRs to have many interactions opportunities with practitioners and researchers outside the ODECO project. The topic of circularity, one of the topics of the TW, was not specifically confined to a single activity but somehow always part of the discussion, and especially in the presentation delivered by Prof. Buchmann.

No major issues emerged in the organization and the week went quite smooth, so that the ESRs had the opportunity to work and enjoy a lot of time together, both in working and leisure activities. The integration of with the BIR conference worked quite well and gave both to ESRs and to attending supervisors to meet and exchange ideas with researchers in a strictly related research domain.

### 7.2 Recommendations for the design of the next Training Week

After the TW, UNICAM circulated a questionnaire among the ESRs to collect feedback and suggestions useful to plan the organization of the successive TWs.

The following is a summary of the recurring remarks/suggestions. The spreadsheet including all the answers has been made available to the project partners:

1. It is better to avoid on-line presentations.
2. Practical and group activities are highly appreciated.
3. The possibility to interact with external experts/users should be a "must have" in future TWs.
4. The Hackathon activity is a useful training tool. However, it must be carefully planned, and it should not be too ambitious in its goals. The figure reported above witness a high appreciation by the ESRs for such an activity.

In the reported answers it can be noticed that some of the activities are ranked as top notch by some ESRs and not much interesting by others, at the same time. Clearly this reflects their different backgrounds and interests. at the same time. Nonetheless this aspect is certainly not easy to manage, unless the consortium decides to include just general presentations at the TWs, avoiding deep and technical contents. Another possibility could be to include technical presentations on different topics permitting to the ESRs that do not consider the specific topic in their interest, to perform some collaborative work. For instance, during such slots ESRs could work on structuring and writing the upcoming deliverables, or on the challenges of the hackathon.



*Figure 12: Group photo, with Prof. Buchmann and OD practitioners, in front of the Annunziata church, venue of the Training Week 3.*





*Figure 13: Group photo at the hiking social event.*