

I am CELISE

Sustainable production of Cellulose-based products and additives to be used in SMEs and rural areas

Deliverable D3.2. Final transfer of knowledge and training report. Decisions on future cooperation



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CELISE: Sustainable production of Cellulose-based products and additives to be used in SMEs and rural areas

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Table 1. Document information



D3.2: Final transfer of knowledge and training report. Decisions on future cooperation



Document information

Document	D3.2: Final transfer of knowledge and training report. Decisions on future cooperation
Executive Summary:	<p>This deliverable presents a concise overview of the knowledge transfer and training activities carried out through the CELISE secondments. A total of 105 person-months of mobility were completed between European and Latin American partners, enabling researchers and technical staff to exchange expertise, strengthen scientific capacities, and deepen cooperation across institutions.</p> <p>The report summarises mobility patterns by country, institution, region, and researcher profile, showing a productive and balanced flow of knowledge. European partners provided specialised research environments, while Latin American institutions offered applied contexts and region-specific resources. Together, these exchanges reinforced methodological alignment and supported interdisciplinary skill development.</p> <p>The secondments also fostered strong bilateral and multilateral collaborations, several of which have already led to new joint projects and research initiatives. These outcomes demonstrate CELISE's long-term impact and the consortium's capacity to maintain active cooperation beyond the project's lifetime.</p>
Keywords	Secondments; Knowledge transfer; Training activities; International cooperation; Europe–Latin America collaboration; Research mobility; Capacity building; Future cooperation.

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1. TABLE OF CONTENTS

1. TABLE OF CONTENTS.....	4
2. LIST OF FIGURES	5
3. LIST OF TABLES	6
4. LIST OF ABBREVIATIONS	7
5. INTRODUCTION	8
5.1. General purpose of the document.....	8
5.2. Role and contribution from partners	8
6. SECONDMENTS	9
6.1. Global Overview of Mobility Time.....	18
6.2. Analysis by Country	19
6.3. Analysis by Institution	20
6.4. Regional Dynamics	22
7. FUTURE COOPERATION	23
7.1. Clear Europe–Latin America Knowledge Circulation.....	24
7.2. Intensity of Institutional Collaborations	24
7.3. Transfer of Knowledge and Training Outcomes.....	25
7.4. Future projects	25
8. CONCLUSIONS.....	28



2. LIST OF FIGURES

Figure 1.	Profile of the people.	18
Figure 2.	Gender of the people.	19
Figure 3.	Sending country distribution.	19
Figure 4.	Receiving country distribution.	20
Figure 5.	Sending institution distribution.	21
Figure 6.	Receiving institution distribution.	21
Figure 7.	Sending Region.	22
Figure 8.	Receiving Region.	22
Figure 9.	Network among institutions.	23



3. LIST OF TABLES

Table 1.	Document information -----	2
Table 2.	List of abbreviations-----	7
Table 3.	Secondments. -----	9



4. LIST OF ABBREVIATIONS

Table 2. List of abbreviations

Acronym	Definition
AUTH	Aristotle University of Thessaloniki
CA	Consortium Agreement
CT	Coordination Team
CVUT	České Vysoké Učení Technické v Praze
D	Deliverable
Ecores	Ecoresources IKE
ER	Experienced Researchers
ESR	Early-Stage Researchers
IChF	Institute of Physical Chemistry
LSIWC	Latvian State Institute of Wood Chemistry
QAI	Quantum Artificial Intelligence
SGGW	Szkoła Główna Gospodarstwa Wiejskiego w Warszawie
UC	Universidad de Cantabria
UCC	Universidad Cooperativa de Colombia
UGR	Universidad de Granada
UL	Univerza V Ljubljani
UNACH	Universidad Nacional del Cimboraço
UNL	Universidad Nacional del Litoral
UPM	Universidad Politécnica de Madrid
UTB	University Tomas Bata
WUT	Warsaw University of Technology



5. INTRODUCTION

5.1. General purpose of the document

The purpose of this document is to provide a comprehensive account of the knowledge transfer and training activities carried out through the secondments implemented in the CELISE project. As part of the project's overarching objective to strengthen scientific cooperation between Europe and Latin America, this deliverable evaluates how mobility actions have contributed to the exchange of expertise, the development of new skills, and the consolidation of long-term research partnerships across the consortium.

The document presents a detailed analysis of secondments in terms of duration, institutional participation, regional distribution, and researcher profiles, while also assessing their qualitative impact on scientific collaboration, capacity building, and interdisciplinary integration. In addition, the report identifies the collaborative structures, research synergies, and future cooperation pathways that have emerged as a direct outcome of the CELISE secondments. The aim is to demonstrate how mobility-driven interactions have enhanced the consortium's collective ability to address sustainability challenges, promote knowledge circulation, and build robust networks for future projects and innovation opportunities, under the analysis of social inclusion and exclusion, student voice or school improvement educational paradigm. Partners' secondments discussed Citizen-Science Maps and the importance of Global Education research in engineering projects, during 2024 and last 2025 event.

5.2. Role and contribution from partners

All partners in the CELISE consortium have played a central role in enabling the successful execution of the secondments and the associated knowledge transfer activities. Each institution contributed according to its scientific strengths, infrastructure, and regional context, ensuring that researchers were able to engage in meaningful training experiences and collaborative work. European partners provided advanced laboratories, specialised methodologies, and technical know-how, offering hosts for experimental work, material characterisation, modelling activities, and interdisciplinary supervision. Latin American partners contributed real-world challenges, contextual knowledge, region-specific biomass resources, and strong engagement with application-oriented research, enriching the consortium's scientific and social perspectives.

Secondments were hosted across universities, research institutes, and companies, demonstrating the diversity of the CELISE network and the project's commitment to integrating academic and non-academic environments. Mobility periods facilitated co-design of experiments, shared data analysis, joint training activities, and the development of new research ideas that have already resulted in collaborative projects and proposals.

Together, the partners ensured that mobility activities were aligned with the project's objectives and contributed to the creation of long-lasting research relationships that will remain active beyond the lifetime of CELISE.



6. SECONDMENTS

The CELISE project promotes scientific collaboration, mobility, and knowledge exchange between Europe and Latin America. Secondments constitute the core mechanism for enabling these exchanges, allowing researchers and technical staff to work temporarily at partner institutions. This report provides a detailed analysis of the total duration of secondments, aggregated by country, institution, region, gender, and profile. The objective is to offer a deep insight into patterns of mobility, collaborative intensity, capacity building, and interregional knowledge flows. Table 3 shows the secondments done during the project.

Table 3. Secondments.

No	No res.	Sending Org.	Receiving Org.	Start Date	End Date	Duration	Male/ Female	ER/ ESR/ Tech
1	1	Latvijas Valsts Koksnes Kimijas Instituts	Universidad Cooperativa De Colombia	27/01/2022	28/03/2022	2.07	M	ER
2	2	Universidad Cooperativa De Colombia	Universidad De Cantabria	30/04/2022	04/06/2022	1.2	M	ER
3	3	Universidad Nacional De Chimborazo	Universidad De Cantabria	11/04/2022	24/05/2022	1.47	M	ESR
4	4	Universidad De Cantabria	Universidad Nacional Del Litoral	05/06/2022	30/07/2022	1.87	M	ER
5	5	Universidad Cooperativa De Colombia	Universidad De Cantabria	13/05/2022	19/07/2022	2.23	F	ER
6	7	Latvijas Valsts Koksnes Kimijas Instituts	Inocure Sro	02/01/2023	01/03/2023	2	F	ESR



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No	No res.	Sending Org.	Receiving Org.	Start Date	End Date	Duration	Male/ Female	ER/ ESR/ Tech
7	4	Universidad De Cantabria	Inocure Sro	21/02/ 2023	20/04 /2023	2	M	ER
8	8	Universidad De Cantabria	Inocure Sro	23/03/ 2023	22/04 /2023	1	F	ER
9	12	Universidad Nacional Del Litoral	Universidad De Cantabria	31/05/ 2023	29/06 /2023	1	M	ER
10	13	Vocate Ltd	Universidad Cooperativa De Colombia	10/04/ 2023	11/05 /2023	1.07	M	ER
11	11	Instytut Chemii Fizycznej Polskiej Akademii Nauk	Universidad Cooperativa De Colombia	09/04/ 2023 05/05/ 2024 27/04/ 2025	12/05 /2023 29/05 /2024 28/05 /2025	3.03	M	ER
12	8	Universidad De Cantabria	Universidad Nacional Del Litoral	15/05/ 2023	19/07 /2023	2.17	F	ER
13	12	Universidad Nacional Del Litoral	Universidad Politecnica De Madrid	30/06/ 2023	31/07 /2023	1.07	M	ER



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No	No res.	Sending Org.	Receiving Org.	Start Date	End Date	Duration	Male/ Female	ER/ ESR/ Tech
14	14	Universidad Nacional Del Litoral	Universidad De Cantabria	01/10/2023	20/11/2023	1.67	F	ER
15	15	Universidad Nacional Del Litoral	Universidad De Cantabria	01/11/2023	11/12/2023	1.37	M	ESR
16	16	Quantum Artificial Intelligence SI	Universidad Cooperativa De Colombia	09/01/2024	09/03/2024	2.03	M	ER
17	18	Szkola Glowna Gospodarstwa Wiejskiego	Universidad Nacional Del Litoral	11/11/2023	31/12/2023	1.7	M	ER
18	17	Szkola Glowna Gospodarstwa Wiejskiego	Universidad Nacional Del Litoral	11/11/2023	31/12/2023	1.7	F	ESR
19	18	Szkola Glowna Gospodarstwa Wiejskiego	Universidad Cooperativa De Colombia	01/01/2024	31/01/2024	1	M	ER
20	17	Szkola Glowna Gospodarstwa Wiejskiego	Universidad Cooperativa De Colombia	01/01/2024	31/01/2024	1	F	ESR
21	4	Universidad De Cantabria	Ecoresources Ike	02/03/2024	05/05/2024	2.13	M	ER



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No	No res.	Sending Org.	Receiving Org.	Start Date	End Date	Duration	Male/ Female	ER/ ESR/ Tech
22	19	Universidad De Cantabria	Universidad Nacional Del Litoral	16/03/2024 17/03/2025	19/04/2024 06/05/2025	2.8	F	ER
23	8	Universidad De Cantabria	Ecoresources Ike	07/04/2024	06/05/2024	1	F	ER
24	2	Universidad Cooperativa De Colombia	Instytut Chemii Fizycznej Polskiej Akademii Nauk	04/03/2024 10/09/2024 13/06/2025	14/04/2024 27/09/2024 07/07/2025	2.8	M	ER
25	2	Universidad Cooperativa De Colombia	Universidad De Cantabria	08/06/2024	14/07/2024	1.23	M	ER
26	11	Instytut Chemii Fizycznej Polskiej Akademii Nauk	Quantum Artificial Intelligence SI	23/06/2024	22/07/2024	1	M	ER
27	20	Aristotelio Panepistimio Thessalonikis	Carbon Compost Company Limited	31/03/2024	01/05/2024	1.07	F	ER
28	4	Universidad De Cantabria	Universidad Cooperativa De Colombia	07/05/2024 01/03/2025	25/05/2024 23/03/2025	1.4	M	ER
29	21	Aristotelio Panepistimio Thessalonikis	Universidad Nacional Del Litoral	29/04/2024	06/07/2024	2.27	F	ESR



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No	No res.	Sending Org.	Receiving Org.	Start Date	End Date	Duration	Male/ Female	ER/ ESR/ Tech
30	2	Universidad Cooperativa De Colombia	Politechnika Warszawska	15/11/2023 04/09/2024	19/12/2023 09/09/2024	1.37	M	ER
31	22	Aristotelio Panepistimio Thessalonikis	Besarte Fibre Natural Sociedad Limitada	28/06/2024	30/07/2024	1.1	M	ER
32	23	Latvijas Valsts Koksnes Kimijas Instituts	Plastikarsky Klastr Z.s.	02/06/2024	06/07/2024	1.17	F	ESR
33	24	Universidad Politecnica De Madrid	Latitud-fundación Laboratorio Tecnológico Del Uruguay	10/07/2024	17/08/2024	1.27	M	ER
34	26	Latitud-fundación Laboratorio Tecnológico Del Uruguay	Universidad De Cantabria	09/09/2024	24/10/2024	1.53	M	ER
35	25	Universidad Nacional Del Litoral	Universidad De Cantabria	22/09/2024 24/08/2025	04/11/2024 30/09/2025	2.7	M	ER
36	27	Latvijas Valsts Koksnes Kimijas Instituts	Plastikarsky Klastr Z.s.	05/07/2024	04/08/2024	1	M	Techn ical staff



D3.2: Final transfer of knowledge and training report. Decisions on future cooperation



No	No res.	Sending Org.	Receiving Org.	Start Date	End Date	Duration	Male/ Female	ER/ ESR/ Tech
37	28	Univerzita Tomase Bati Ve Zline	Besarte Fibre Natural Sociedad Limitada	23/09/2024	23/11/2024	2.03	M	ESR
38	3	Universidad Nacional De Chimborazo	Universidad De Cantabria	20/09/2024	02/11/2024	1.47	M	ESR
39	17	Szkola Glowna Gospodarstwa Wiejskiego	Universidad Cooperativa De Colombia	07/11/2024 14/01/2025	06/12/2024 01/02/2025	1.63	F	ESR
40	18	Szkola Glowna Gospodarstwa Wiejskiego	Universidad Cooperativa De Colombia	07/11/2024 14/01/2025	06/12/2024 01/02/2025	1.63	M	ER
41	31	Szkola Glowna Gospodarstwa Wiejskiego	Plastikarsky Klast Z.s.	15/04/2024	14/06/2024	1.8	F	ESR
42	32	Latvijas Valsts Koksnes Kimijas Instituts	Ecoresources Ike	27/10/2024	27/11/2024	1.03	F	ER
43	33	Latvijas Valsts Koksnes Kimijas Instituts	Universidad Cooperativa De Colombia	06/11/2024	07/12/2024	1.07	M	ESR
44	34	Latvijas Valsts Koksnes Kimijas Instituts	Universidad Cooperativa De Colombia	06/11/2024	07/12/2024	1.07	F	ER



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No	No res.	Sending Org.	Receiving Org.	Start Date	End Date	Duration	Male/ Female	ER/ ESR/ Tech
45	35	Besarte Fibre Natural Sociedad Limitada	Ceske Vysoke Uceni Technicke V Praze	20/11/2024 10/03/2025	04/12/2024 25/03/2025	1.03	F	ER
46	36	Universidad De Cantabria	Universidad Nacional Del Litoral	17/03/2025	06/05/2025	1.67	F	ER
47	35	Besarte Fibre Natural Sociedad Limitada	Latitud-fundación Laboratorio Tecnológico Del Uruguay	01/02/2025	06/03/2025	1.2	F	ER
48	38	Universidad Nacional Del Litoral	Universidad De Cantabria	19/05/2025	07/07/2025	1.63	M	ER
49	37	Politechnika Warszawska	Besarte Fibre Natural Sociedad Limitada	19/03/2025 07/07/2025	17/04/2025 05/08/2025	2	F	ER
50	39	Ceske Vysoke Uceni Technicke V Praze	Besarte Fibre Natural Sociedad Limitada	28/03/2025	31/05/2025	2.13	M	ER
51	41	Universidad De Granada	Universidad Nacional De Chimborazo	10/05/2025	08/07/2025	1.97	M	ESR
52	40	Universidad De Granada	Universidad Nacional De Chimborazo	10/05/2025	08/07/2025	1.97	F	ESR



D3.2: Final transfer of knowledge and training report. Decisions on future cooperation



No	No res.	Sending Org.	Receiving Org.	Start Date	End Date	Duration	Male/ Female	ER/ ESR/ Tech
53	43	Universidad De Granada	Universidad Nacional Del Litoral	20/07/ 2025	23/08 /2025	1.13	F	ER
54	44	Universidad De Granada	Universidad Nacional Del Litoral	20/07/ 2025	23/08 /2025	1.13	M	ESR
55	24	Universidad Politecnica De Madrid	Ecoresources Ike	10/06/ 2025	11/07 /2025	1.07	M	ER
56	37	Politechnika Warszawska	Carbon Compost Company Limited	20/05/ 2025 11/08/ 2025	18/06 /2025 20/08 /2025	1.33	F	ER
57	47	Ecoresources Ike	Universidad De Cantabria	01/07/ 2025	31/07 /2025	1	M	ER
58	45	Ecoresources Ike	Universidad De Cantabria	01/07/ 2025	31/07 /2025	1	F	ER
59	46	Ecoresources Ike	Universidad De Cantabria	01/07/ 2025	31/07 /2025	1	F	ER
60	49	Latvijas Valsts Koksnes Kimijas Instituts	Student Science, S.r.o.	17/07/ 2025	15/08 /2025	1	F	Techn ical staff



D3.2: Final transfer of knowledge and training report. Decisions on future cooperation



No	No res.	Sending Org.	Receiving Org.	Start Date	End Date	Duration	Male/ Female	ER/ ESR/ Tech
61	50	Univerza V Ljubljani	Plastikarsky Klastr Z.s.	02/08/2025	10/09/2025	1.3	F	ER
62	51	Politechnika Warszawska	Ecoresources Ike	01/09/2025	30/09/2025	1	M	ESR
63	52	Student Science, S.r.o.	Latvijas Valsts Koksnes Kimijas Instituts	18/08/2025	18/09/2025	1.03	F	ESR
64	53	Student Science, S.r.o.	Latvijas Valsts Koksnes Kimijas Instituts	16/08/2025	15/09/2025	1	M	ER
65	2	Universidad Cooperativa De Colombia	Politechnika Warszawska	16/08/2025	30/09/2025	1.5	M	ER
66	37	Politechnika Warszawska	Besarte Fibre Natural Sociedad Limitada	26/08/2025	24/09/2025	1	F	ER
67	28	Univerzita Tomase Bati Ve Zline	Besarte Fibre Natural Sociedad Limitada	01/06/2025	31/07/2025	2	M	ESR
68	10	Univerzita Tomase Bati Ve Zline	Latitud-fundación Laboratorio Tecnológico Del Uruguay	01/03/2025	01/04/2025	1.03	M	ESR



No	No res.	Sending Org.	Receiving Org.	Start Date	End Date	Duration	Male/ Female	ER/ ESR/ Tech
69	48	Universidad Nacional Del Litoral	Universidad De Granada	31/08/2025	30/09/2025	1.03	F	ESR
70	42	Universidad Nacional Del Litoral	Universidad De Granada	25/05/2025	20/07/2025	1.87	F	ESR

The analysis is based entirely on the secondment dataset provided by the consortium. Each record contains information on the sending and receiving institutions, duration (in months), researcher category (ER, ESR, Technical Staff), gender, and country. Data cleaning included removal of duplicate entries and standardization of institution names. Country and region assignments were manually validated. Aggregations were produced by summing the duration of all secondments in each category. Graphs were generated using CELISE's visual identity color palette.

6.1. Global Overview of Mobility Time

A total of 105.24 person-months of secondments have been implemented so far. This represents a significant investment of human resources across borders, a total of 49 people. The distribution of mobility time shows that 69 months (29 researchers) correspond to Experienced Researchers (ER), 32.01 months (17 researchers) to Early-Stage Researchers (ESR), and 4.23 months (3 people) to technical staff (Figure 1).

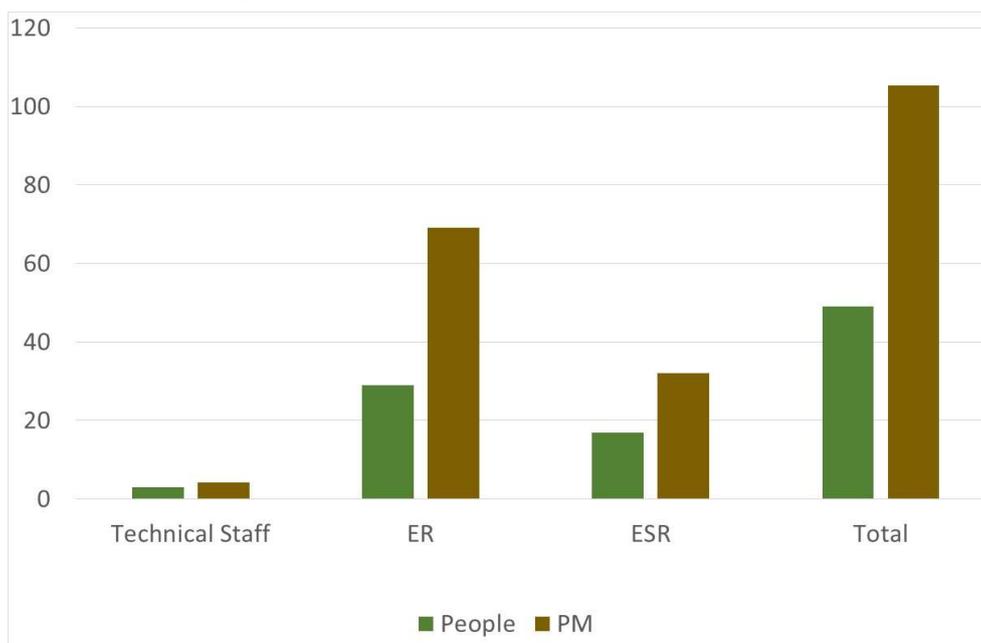


Figure 1. Profile of the people.



The gender distribution (Figure 2) indicates that men have completed 60.07 months of secondments, while women account for 45.17 months, representing about 50% of the total of researchers. As highlighted in earlier stages of the project, the participation of women remains particularly strong among ESRs, showing good gender balance in early-career training.

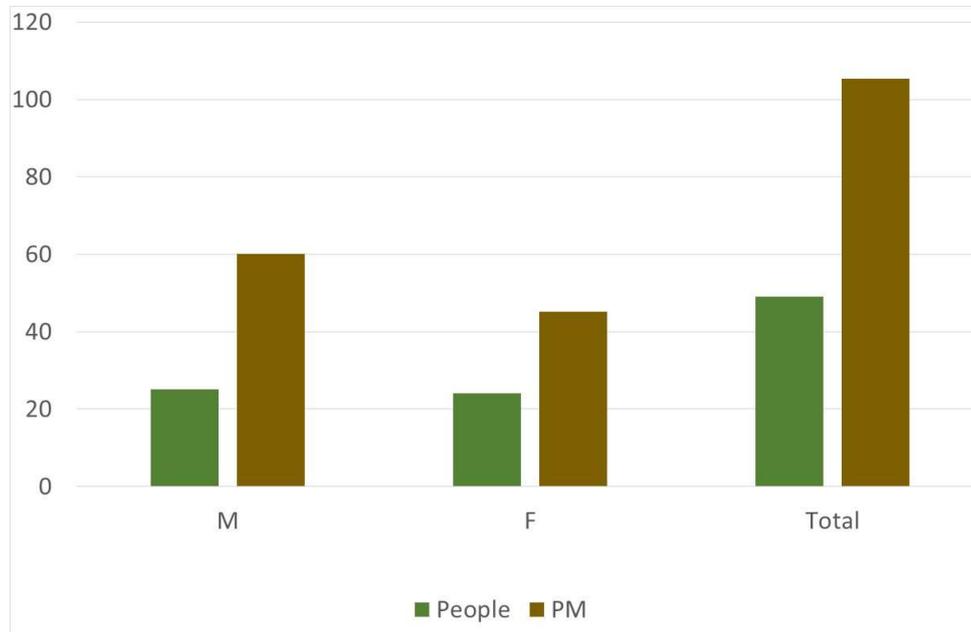


Figure 2. Gender of the people.

6.2. Analysis by Country

Figures 3 and 4 show the results per country.

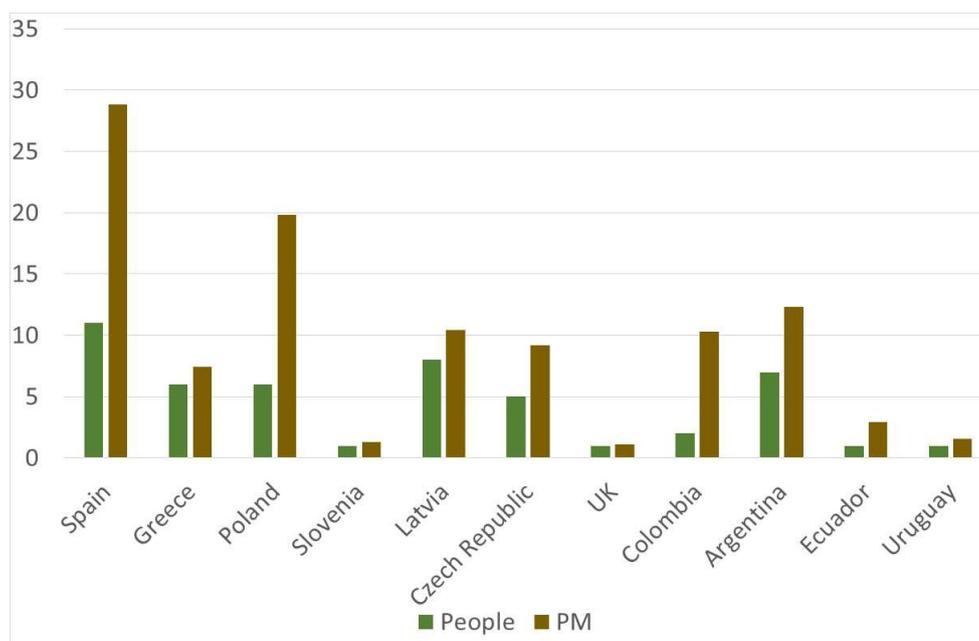


Figure 3. Sending country distribution.



The highest outbound mobility time corresponds to Spain (28.84 person-months), Poland (19.82 person-months), Argentina (12.34), Latvia (10.41) and Colombia (10.33). On the receiving side, Spain (35.73 person-months), Colombia (17.00 person-months), Argentina (16.44 person-months) and Czech Republic (12.3) are the main hosts.

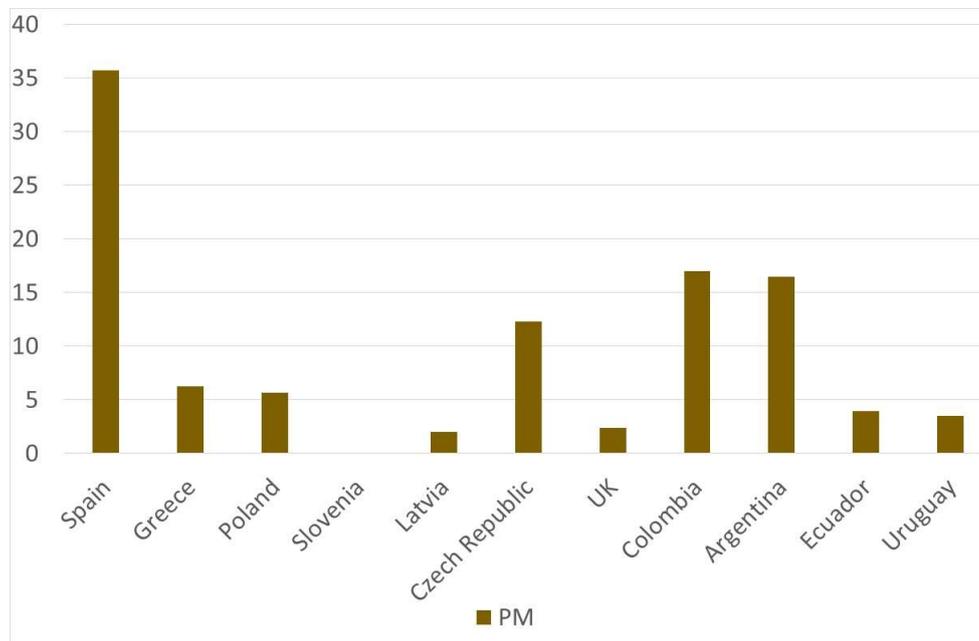


Figure 4. Receiving country distribution.

This dual perspective highlights the central role of Spain as both a sending and receiving hub. Latin-American countries contribute strongly as hosts, receiving 40.88 person-months and sending 27.14 person-months in total, demonstrating CELISE's success in strengthening South-North collaboration.

6.3. Analysis by Institution

Figures 5 and 6 show the results per institution. The distribution by institution reveals that a few organisations act as major mobility hubs. Universidad de Cantabria is the top sending institution with 16.04 person-months and the top receiving institution with 20.05.

Other key players include Universidad Nacional del Litoral, Szkoła Główna Gospodarstwa Wiejskiego, Universidad Cooperativa de Colombia, and Latvijas Valsts Koksnes Kimijas Instituts. These institutions form the backbone of the consortium's mobility activity, hosting and sending significant numbers of researchers and providing crucial support for capacity building and scientific exchange.



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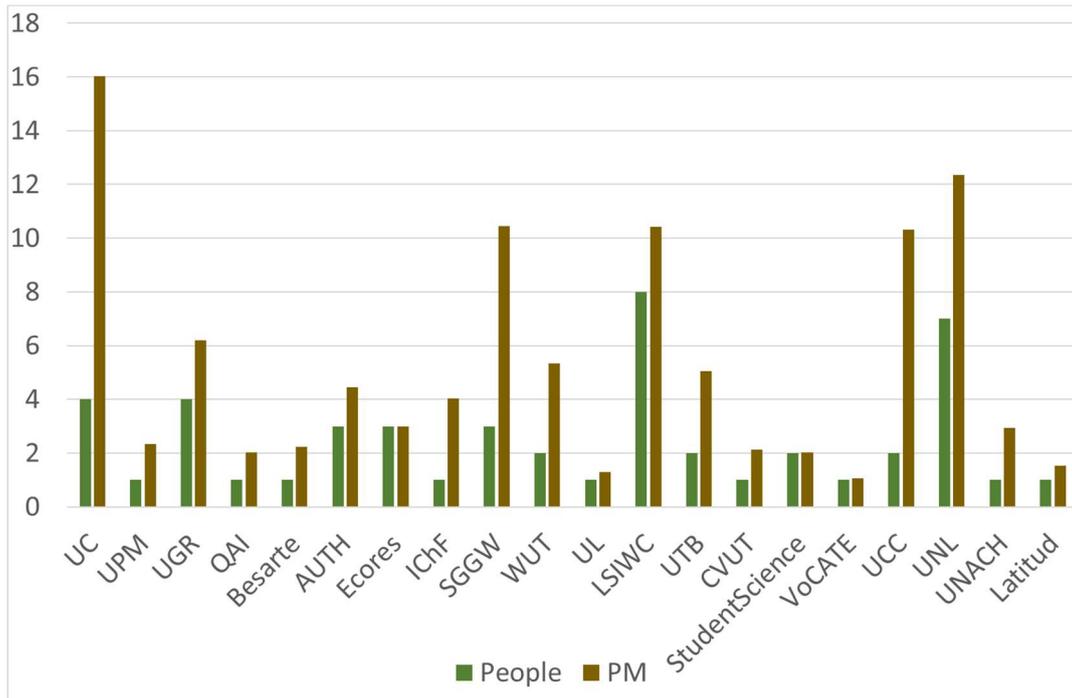


Figure 5. Sending institution distribution.

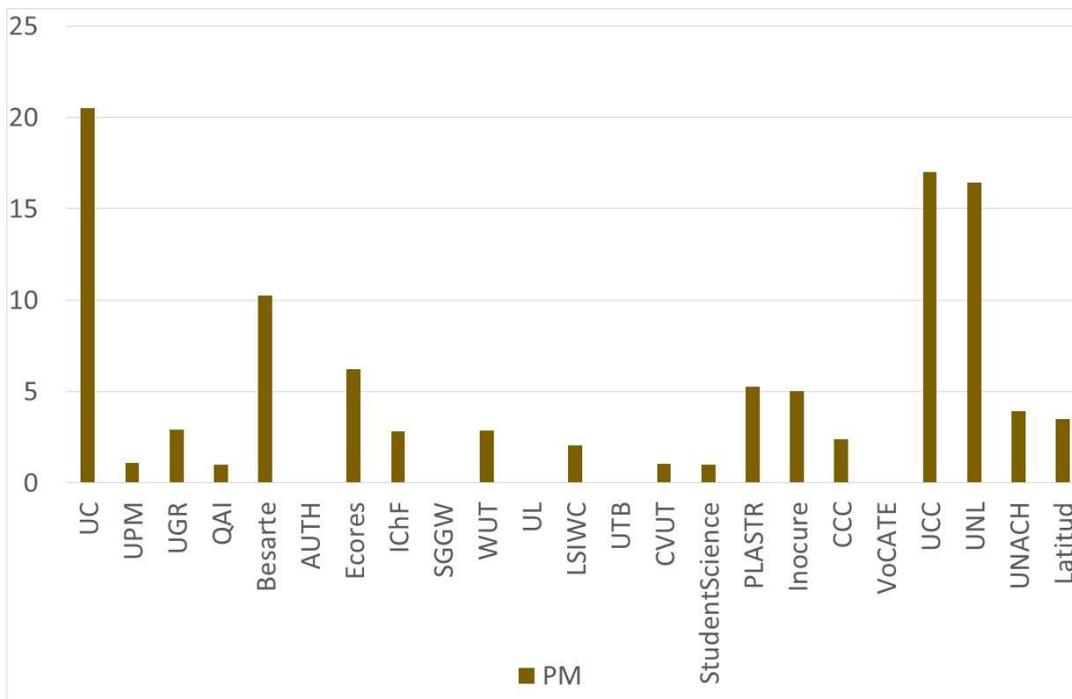


Figure 6. Receiving institution distribution.



6.4. Regional Dynamics

European institutions collectively sent 78.10 person-months and received 64.36 person-months of secondments. Latin-American institutions sent 27.14 person-months and received 40.88 person-months.

Notably, all Latin-American secondments were directed to Europe, while European institutions distributed their mobility time between intra-European exchanges (37.22 person-months) and European-to-Latin America exchanges (40.88 person-months). This reflects a strong bidirectional exchange dynamic, where Europe supports capacity building in Latin America while also benefiting from the expertise and unique research environments of Latin-American partners.

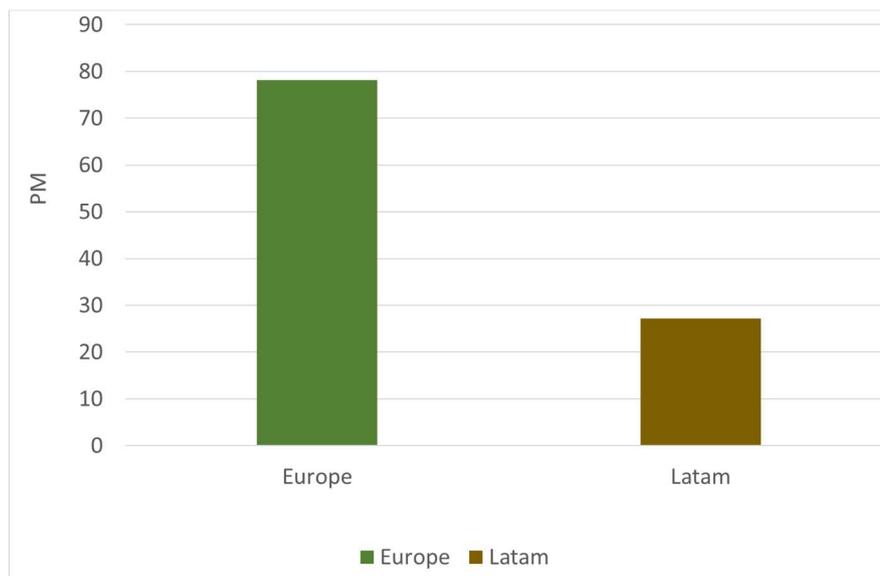


Figure 7. Sending Region.

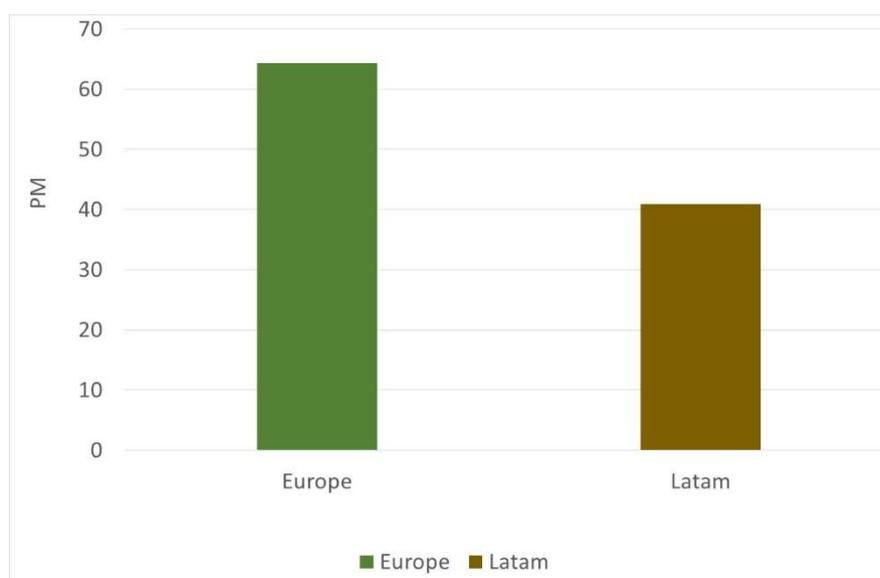


Figure 8. Receiving Region.



7. FUTURE COOPERATION

Future mobility planning could further benefit from increasing technical staff exchanges, strengthening multi-institutional visits, and promoting balanced flows in both directions. Additionally, deeper involvement of smaller institutions could further diversify the collaborative ecosystem. Continued emphasis on ESR mobility will ensure sustainable capacity building and long-term project impact.

Figure 9 shows the institution-to-institution secondment network.

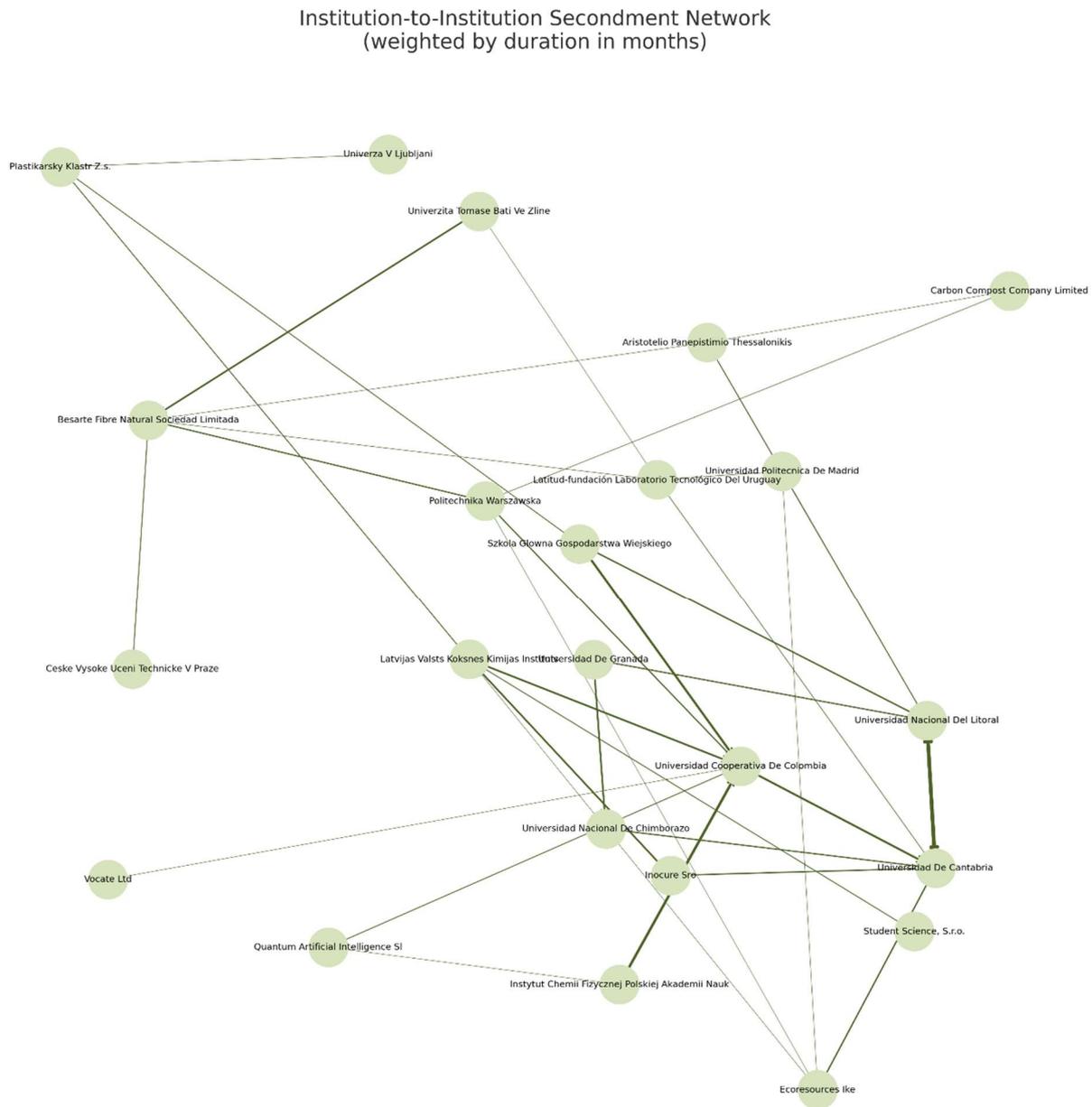


Figure 9. Network among institutions.



The analysis of secondment flows within the CELISE consortium provides strong evidence of effective knowledge transfer, balanced training dynamics, and the establishment of long-lasting collaborative links between Europe and Latin America. When considering the mobility in terms of total months exchanged, the project demonstrates significant depth in the scientific and technical interactions across institutions. The visual network representation of secondments illustrates a robust structure of cooperation, with several highly connected nodes acting as strategic hubs for training, research exchange, and institutional alignment.

The network diagram shows that the consortium's collaboration is not limited to isolated bilateral exchanges; instead, it forms a dense, interconnected structure. Institutions such as Universidad de Cantabria, Universidad Cooperativa de Colombia, Universidad Nacional del Litoral, and Latvijas Valsts Koksnes Kimijas Instituts emerge as central mobility hubs, each participating in multiple incoming and outgoing exchanges.

The presence of these hubs indicates:

- Strong institutional commitment to training and mobility
- The ability to host diverse profiles (ER, ESR, technical staff)
- Multi-directional knowledge flows rather than unidirectional transfers

This network topology is typical of mature collaboration frameworks, where institutions have not only engaged in exchanges but have developed trusted working relationships that will remain active beyond the project duration.

7.1. Clear Europe–Latin America Knowledge Circulation

A major objective of the CELISE project is to enable bidirectional knowledge transfer between regions. The results confirm that this objective has been achieved:

- European institutions sent 74% of the PM and receiving 61%.
- Latin American institutions sent 26%, receiving 39%.

This reveals a healthy circulation of expertise, where Latin American partners are not passive recipients but active hosts of European staff. Over 40 person-months of European secondments into Latin America illustrate the consortium's commitment to valorising local expertise, facilities, and research environments in Argentina, Colombia, Ecuador, and Uruguay.

The fact that all Latin American secondments were directed toward Europe reflects a natural pattern of infrastructure access, advanced training, and exposure to high-technology labs, fully aligned with the MSCA Staff Exchanges scheme.

7.2. Intensity of Institutional Collaborations

The weighted links in the network diagram show that some partnerships have become particularly strong. Examples include:

- Universidad de Cantabria and Universidad Cooperativa de Colombia. One of the most intense bidirectional collaboration channels, reflecting solid scientific alignment and complementary expertise.
- Universidad Cooperativa de Colombia and Poland partners. Strong collaborations between all of the partners in Poland and the Universidad Cooperativa de Colombia are done.
- Universidad Nacional del Litoral and European partners (Spain, Poland, Czech Republic). Demonstrating the Argentinian partner's crucial role as a bridge between Latin America and Europe.



D3.2: Final transfer of knowledge and training report. Decisions on future cooperation



- Latvijas Valsts Koksnes Kimijas Instituts and Czech partners / UCC Colombia. Indicating strong scientific coherence and potential for long-term cooperation in materials science and bioprocessing.

These “thick links” in the network (representing longer-duration exchanges) highlight the formation of strategic alliances, essential for sustainability after the project ends.

7.3. Transfer of Knowledge and Training Outcomes

The distribution of secondment months across profiles shows:

- ERs (66% PM) played a major role in transferring advanced know-how, laboratory methods, and leadership skills.
- ESRs (30% PM) benefited from high-quality training, exposure to international environments, and multidisciplinary work.
- Technical staff mobility (4% PM), though limited, contributed to operational knowledge exchange and infrastructure compatibility.

This pattern is aligned with MSCA objectives:

- Experienced researchers export advanced expertise, mentoring ESRs.
- ESRs gain essential training, improving their long-term career prospects.
- Institutions learn to harmonise methodologies, strengthening the scientific ecosystem.

The network structure confirms that training did not occur in isolation but flowed through clusters of institutions, amplifying the impact.

In all secondments, different transfer mechanisms (i) research work, (ii) demonstration of equipment, (iii) meetings and workshops, (iv) research work + workshop, and reintegration mechanisms (i) open seminars, (ii) seminars to the research group or department, (iii) delivering workshop, (iv) return to role, have been carried out, being the meeting and seminars the most popular activities.

In addition, the strong collaboration has given different future project among partners.

7.4. Future projects

The CELISE project has proven to be a decisive catalyst for long-term scientific cooperation between Europe and Latin America. Beyond its achievements in training and knowledge transfer, the secondment activities and collaborative interactions have directly enabled the conception, formulation, and implementation of new research initiatives across the consortium. The following projects—many of them already funded and underway—demonstrate the lasting added value of CELISE, the consolidation of strategic partnerships, and the strong foundation for sustained scientific cooperation.

1. Biofuel and Biochar Cooperation Project (UCC – UC – Government of Cantabria, 2024–2025)

One of the clearest examples of CELISE’s impact is the launch of a collaborative project between the Universidad Cooperativa de Colombia (UCC) and the Universidad de Cantabria (UC), supported by the Government of Cantabria. With a budget of €40,000, this initiative focuses on promoting biofuel and biochar solutions to combat desertification and energy scarcity among the Wayúu communities in La Guajira, Colombia.



D3.2: Final transfer of knowledge and training report. Decisions on future cooperation



The project tasks—waste identification, circular economy workshops, cultural exchange visits, co-creation events, and multi-criteria analysis—reflect a direct continuation of the expertise, methods, and interregional trust built during CELISE. The mobility experiences of researchers from both institutions played a decisive role in enabling this collaboration, which integrates technical innovation, social engagement, and sustainability.

2. Joint Biofuel Production Initiatives (UNACH – UCC – WUT – UC, 2022–2026)

A second major collaboration emerging from CELISE involves UNACH (Ecuador), UCC (Colombia), WUT (Warsaw University of Technology), and UC (Spain). These projects—supported by the Vice-Rectorate for Research and total of €40,000—focus on:

- Mapping lignocellulosic waste in Riobamba
- Designing and simulating biofuel production plants
- Applying multi-criteria analysis for sustainable system evaluation

These efforts represent multi-country, multi-institutional cooperation that would not have been possible without CELISE’s mobility-driven knowledge alignment. The collaborations connect European technological expertise with Latin-American regional needs, supporting green transition efforts at a practical level.

3. Young PW Project (WUT – UC – UCC, 2023–2025)

Funded through WUT’s Excellence Initiative (IDUB) with €34,800, this project exemplifies how CELISE stimulated young researcher collaboration and advanced material science research. The initiative focuses on synthesizing and characterizing carbon electrode materials from biomass for Na-ion batteries—a field that combines green chemistry, circular economy, and energy storage.

The project builds on ties formed through CELISE, especially through the researchers involved (Prof. Alberto Coz and Prof. Fernando Colmenares), and has strengthened collaboration between Poland, Spain, and Colombia. It demonstrates CELISE’s ability to spur high-impact, technology-oriented projects with long-term potential.

4. Photocatalysis Project (IChF – UCC, 2024–2028)

Another significant outcome linked to CELISE is the four-year research project led by IChF PAN (Poland) in cooperation with UCC (Colombia). Focused on surface–interface engineering and multi-dimensional piezophotocatalysts, this advanced materials research effort includes valorization of cellulose, lignin, and chitosan—topics strongly aligned with CELISE’s scientific orientation.

The project reflects:

- Deep scientific compatibility developed during CELISE
- Continuity of mobility-driven knowledge exchange
- Mutual recognition of complementary strengths in catalysis, biomass valorization, and flow chemistry

This is a clear example of CELISE generating long-term, high-level scientific collaboration.

5. BAPUR Project – M-ERA.NET (UC, UTB, UL, LSIWC, Åbo Akademi University), 2024–2027

With a total budget exceeding €1.7M, the BAPUR Project is a major collaborative outcome that brings together partners from CELISE and beyond. The project focuses on bio-based filtration systems for emerging pollutants, integrating:



- Biomaterials treatment
- Functionalized nanomaterials
- Process simulation and modeling
- Environmental and socioeconomic analysis

CELISE secondments facilitated the trust, the scientific language, and the complementary competencies that enabled partners to jointly compete in the M-ERA.NET call. This project stands as a flagship example of CELISE's capacity to generate competitive international consortia.

6. OPUS 2026 (UCC and IChF)

One of the outcomes in the frame of the collaboration UCC-IChF is the following project:

National Science Centre of Poland under OPUS 26 (Grant No. 2023/51/B/ST5/00752)

currently under execution in the research group of IChF in Warsaw and the research group of UCC.

Other Project Initiatives Linked to CELISE

- ChiSupport Proposal (LSIWC – UC + partners). Although unsuccessful, this proposal under HORIZON-WIDERA demonstrates the capacity of CELISE partners to jointly pursue competitive European funding in widening topics—including biomass innovation, sustainability, and raising research capacities.
- RuralBioPath Proposal (UC – UTB + partners), WATER4ALL 2025. This proposal, submitted within WATER4ALL, aims to study bio-based mitigation pathways for waterborne contaminants in rural areas. The conceptual foundations and interinstitutional collaboration networks stem directly from researcher exchanges facilitated by CELISE.



8. CONCLUSIONS

The analysis demonstrates that CELISE has successfully implemented a robust and balanced mobility scheme. The distribution of months indicates strong engagement from both regions, with Spain emerging as the primary mobility hub. The participation of ESRs and the nearly balanced gender distribution reflect positive trends in inclusivity and training. Latin-American institutions play a key role as hosts, helping deepen international scientific collaboration. Overall, CELISE's mobility actions are well aligned with the MSCA objectives of fostering cross-border research, strengthening international partnerships, and developing human capital. The consortium has laid a solid foundation for impactful, long-term collaboration between Europe and Latin America.

The combined analysis of durations, flows, and network structure demonstrates that CELISE has:

- Created a coherent, well-functioning international mobility system
- Achieved effective transfer of knowledge across disciplines and regions
- Enabled robust training opportunities for researchers at all career stages
- Strengthened institutional ties that are likely to continue beyond the project
- Generated the foundations for future collaborative proposals and joint research outputs
- Future projects are the key of the future collaboration

CELISE's secondment activities have therefore produced significant scientific, structural, and relational impact, fulfilling and exceeding the objectives of the Final Transfer of Knowledge and Training stage.

CELISE has successfully catalysed a rich portfolio of new collaborative projects, some already funded and others in advanced proposal stages. These initiatives represent concrete evidence of the project's long-term impact on scientific integration, researcher development, and interregional cooperation. The mobility-driven knowledge exchange has matured into stable research partnerships, capable of generating competitive proposals and tackling global sustainability challenges.

CELISE has shown that mobility and close collaboration really work when they are well organized and based on trust. The project taught us how to align research methods, share resources, and include different perspectives across regions. These lessons will help similar projects in the future. With this experience, the consortium is ready to grow its network, bring in new partners, and keep working together on solutions for sustainability and innovation.

CELISE's legacy is therefore not only the knowledge transferred during the project, but the network of future collaborations it has made possible.