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Focus Group Interview Report

Results of the Focus Group Interviews in DigiSET (WP 2, MS7)

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Disclaimer on AI usage

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1. Introduction

DigiSET aims to support teachers in making educationally purposeful, inclusive and sustainable use of digital technologies and artificial intelligence. To inform the development of its competence framework and training programme, project partners conducted focus group interviews with teachers and education stakeholders across eight countries. This report presents the focus group interview design and a qualitative analysis of participants' views on teacher competences, the meaning of a digitally sustainable teacher, open educational resources (OER), professional learning needs and the conditions for implementation. It also considers how the findings can inform DigiSET's four thematic areas: gender-unbiased AI, systems thinking, AI for adaptive learning and the inclusion of students with learning difficulties. The proposed competence areas are an interpretation of the interview evidence in conjunction with the project's country studies and survey findings.

Objectives of the focus group interviews were:

- **Validate Competence Needs**: Identify and prioritise the key competences teachers require today, specifically assessing the relevance of digital teaching, Education for Sustainable Development (ESD), AI in education, and OER development within the local context.
- **Assess Concept Relevance**: Evaluate the applicability and importance of the "Digitally Sustainable European Teacher" concept for the specific country.
- **Define Resource Requirements**: Determine necessary materials, tools, and training offers needed to support teacher development in initial training and continuing education.
- **Triangulate Findings**: Validate and interpret preliminary results from the country desk study and surveys through expert discussion.
- **Formulate Implementation Strategies**: Develop concrete recommendations for integrating DigiSET results into existing national teacher training frameworks and future educational activities.

The discussions provided an opportunity to interpret preliminary country desk-study and survey findings alongside participants' professional experience. Their contributions inform the development of the DigiSET **competence framework,** training programme, including work on gender bias in AI, systems thinking, adaptive learning, OER, and inclusive teaching. They also provide evidence for considering how teachers might collaborate and continue using project results after the project ends.

2. Focus group design, data collection and analysis

2.1. Recruitment and participants

The recruitment plan targeted four stakeholder groups in each country: policymakers, initial teacher education providers, continuing professional development providers, and teachers' union representatives. Aligned with the Description of Action (DoA), the focus group guide (Schön et al., 2026c, see Annex) specified a minimum of two and a recommended target of three participants per group. Some partners reached only the

minimum, primarily because of contextual constraints rather than project management or partner commitment.

The discussions coincided with end-of-year duties, including grading, reports, examinations and class handovers. Recruitment windows were further compressed by school summer holidays beginning from early June in Italy, mid-June in Romania and Türkiye, late June in Spain, Ireland and Norway, and early July in Austria. Holiday preparations and childcare arrangements added pressure, particularly for participants with parental responsibilities, reducing availability and willingness to attend additional appointments.

Consequently, some groups comprised two participants rather than three. Their findings retain analytical value as exploratory evidence intended to triangulate survey results rather than support representative claims. These scheduling lessons should inform comparable data collection in later work packages.

Between 2 June and 23 July 2026, the partners conducted 20 focus group sessions across eight countries, involving 77 participants, excluding moderators. The sessions were conducted predominantly online, using Zoom, Google Meet or comparable video-conferencing tools. The Bulgarian session and one of the two Romanian sessions were held in person, as was the Irish session (see Table 1 for sessions and formats per country).

Table 1: Interview sessions, format and number of participants per country

Country	Sessions	Format	Participants (excl. moderation)
Austria	4	Online	8
Bulgaria	1	In person	12
Ireland	1	In person	8
Italy	3	Online	14
Norway	2	Online	7
Romania	2	1 online, 1 in person	8
Spain	6	Online	13
Türkiye	1	Online	7
Total	**20**	**predominantly online**	**77**

The participant records identify 7 policymakers, 16 initial teacher education providers, 14 continuing professional development providers, 10 union representatives, 28 teachers and 2 participants in other roles (see Table 2). Each participant was counted once, including those who held more than one relevant role. Representation varied across countries and stakeholder groups.

Table 2: Participant numbers and categories

Country	Policy Makers	Initial Training	Continuing Development	Union Reps	Teachers	Other	Total
Austria	0	3	3	0	2	0	8
Bulgaria	0	6	2	1	3	0	12
Ireland	0	0	0	2	6	0	8
Italy	2	1	0	2	9	0	14
Norway	2	0	0	2	3	0	7
Romania	0	0	1	2	4	1	8
Spain	2	4	5	1	1	0	13
Türkiye	1	2	1	2	1	0	7
Total	**7**	**16**	**14**	**10**	**28**	**2**	**77**

Note: Each person is counted once. If the role description names a Description of Action (DoA) category (policy maker, initial training, continuing development, union), the first one named counts; otherwise "teacher" if listed as a teacher; otherwise "other".

Measured against the four stakeholder groups set out in the Description of Action, 47 participants were recruited against a target of 96, and no country reached three participants in every group. Partners also involved 28 teachers and two further experts, whose perspectives are reported alongside, but not counted towards, the stakeholder target. This composition is consistent with the purpose of the focus groups set out in the country reports overview, which was to give teachers space to articulate their experiences, challenges and aspirations in their own terms (Schön et al., 2026b). It also means that classroom perspectives are well represented, whereas policy and union perspectives are less fully represented in the findings.

2.2. Discussion guide

Moderators used a common discussion guide developed by the WP2 leaders (Schön et al., 2026a; see Annex 1) while allowing participants to develop examples from their own educational settings. Sessions began with an introduction to DigiSET, consent procedures, and participants' professional backgrounds. Where available, moderators presented preliminary country findings as a starting point for discussion.

The main discussion addressed five topics: teachers' key competences and the relevance of DigiSET's competence areas; the meaning and relevance of the "Digitally Sustainable European Teacher"; materials, tools, and professional learning offers needed by teachers; interpretation of country findings; and recommendations for implementing and sustaining DigiSET results. Sessions ended with an opportunity to raise additional issues and summarise the discussion.

2.3. Data preparation and analysis

Focus group sessions were audio- or video-recorded, mostly through the video-conferencing platforms used to conduct them (e.g., Google Meet, Microsoft Teams). Recordings were first transcribed with automated transcription tools and then reviewed by partner team members against the original recordings to correct misrecognised words, technical terms and unclear passages, and to label speakers accurately. Where data were not analysed in the original language, transcripts were translated into English using machine translation tools (e.g., DeepL), followed by manual revision. A team

member familiar with the original language then checked the translations against the source transcripts and resolved ambiguous phrases and educational terminology. Austrian and Turkish data were coded in the original language, and translations were used mainly for project documentation and for reporting quotations. Personal identifiers, such as participants' names, school names and specific locations, were removed or replaced with codes, and files were stored in access-restricted environments available only to authorised project team members.

The focus group data were analysed using a combined deductive and inductive coding approach. First, the lead researcher developed an initial code tree using Austrian data following Braun and Clarke (2007). The initial codes were inspired by the previous studies (e.g., DigCompEdu, GreenComp, and relevant AI competence frameworks). This framework provided a common structure for organising the interview data and identifying relevant concepts across the participating countries. Then, five DigiSET team members from Austria and Türkiye, all with expertise in qualitative data analysis, coded the material manually in MAXQDA following the initial code tree. During coding, the researchers also identified concepts emerging from the interview data. This combined approach supported the identification of both anticipated concepts in the code tree and emerging perspectives that were not fully captured by the initial framework. Their analyses were subsequently merged in MAXQDA. Next, the coded datasets were brought together to support analysis across the participating countries by the lead researcher. The lead researcher reviewed the merged dataset to examine the organisation and interpretation of the coded material. This stage supported the identification of related codes and the development of broader analytical categories. Following Braun and Clarke (2006), themes were understood as meaningful patterns within the dataset rather than simply the most frequently occurring codes. The findings were organised around the identified themes and illustrated using relevant participant quotations. Details of the dataset and coding can be seen in Table 3.

Table 3: Details of dataset and coding in MAXQDA

Country	Transcripts	Coded segments	Share of all segments
Austria	4	557	23.8 %
Bulgaria	1	271	11.6 %
Ireland	1	235	10.0 %
Italy	3	581	24.8 %
Norway	2	326	13.9 %
Romania	2	113	4.8 %
Spain	6	205	8.8 %
Türkiye	1	52	2.2 %
Total	**20**	**2,340**	**100 %**

2.4. Ethical considerations and data handling

The ethics application for the “DigiSET Project: The Academy of Digitally Sustainable European Teacher” was approved by the Bahçeşehir University (BAU) Scientific Research and Publication Ethics Committee on 30 April 2026 (approval number: 2026/04). The official approval letter, dated 24 June 2026, bears document reference

number E-85646034-604.01-129910 and confirms that the project complies with the principles of scientific research and publication ethics. Each country partner remained responsible for obtaining any additional national, institutional or school-level ethical and administrative approvals required before commencing data collection.

Before each focus group, participants received information about the study's purpose, the session procedures, the intended use and analysis of the data, and their rights. Written informed consent covered participation, recording, transcription and the use of anonymised quotations. A standardised consent statement was used across participating countries, with translations and adaptations to national legal requirements where necessary. Participation was voluntary, and participants were informed of their right to withdraw consent and to request access to, rectification of or deletion of their personal data, subject to applicable legal provisions and the possibility of identifying their contributions.

Personal data were processed for the stated research purposes on the basis of participant consent under Article 6(1)(a) of the General Data Protection Regulation (GDPR, Regulation EU 2016/679). Country partners were responsible for ensuring that the platforms and procedures used to conduct, record and document the focus groups met applicable data protection requirements. Confidentiality, rather than anonymity at the point of collection, was the relevant safeguard because participants could be identifiable during the discussions and in recordings. Anonymised quotations and appropriately contextualised summaries were used in reporting to reduce the risk of identifying individuals.

The analytical process was documented to support transparency and the trustworthiness of the findings. Records covered the coding procedures, analytical decisions and revisions to the coding framework. Clear code definitions supported consistency among researchers, and differences in coding were discussed during analysis. Themes were developed from meaningful patterns in participants' accounts, with attention to contrasting perspectives, rather than from code frequencies alone. Interpretations were checked against the coded material and supported by anonymised quotations. Researchers also reflected on how their own perspectives could influence the analysis, while translated concepts and quotations were checked to preserve their original meanings. The report describes the research context, sampling, data collection and analysis procedures and acknowledges the study's limitations, enabling readers to assess the relevance of the findings to other settings.

3. Results

The coding framework organises the data into nine main categories: relevance of DigiSET topics (1), policy uptake and scaling (2), needed materials and programmes (3), teacher competences (4), digital competences (5), critical and sustainable digital and AI practice (6), the digitally sustainable teacher (7), OER (8), and challenges (9) (see

Table 4). Together, these comprise 51 subcategories and 158 codes; the complete framework is provided in the Appendix.

Numbered references in the findings follow the hierarchy **category.subcategory.code**: for example, 4.3.2 identifies code 2 within subcategory 4.3 of category 4. Quotations use a different identifier, such as "Norway, P6" or "Bulgaria, SPK_7", to indicate the country and the segment label in the interview records. These segment identifiers were retained to make quotations traceable to their source; they are not code numbers. Where a passage supports more than one analytical point, it may be associated with multiple codes.

Table 4: List of categories and subcategories

Code No.	Main category	Subcategories
1	Relevance of DigiSET topics	1.1. Critical decision making; 1.2. development of OER; 1.3. diversity, inclusion and education for sustainable development; 1.4. AI and adaptive learning; 1.5. digital teaching and tools; 1.6. relevance and implementation of DigiSET learning
2	Policy uptake, institutional embedding and scaling	2.1. Policy, standards and curriculum alignment; 2.2. embedding in teacher education and schools; 2.3. resources and procurement; 2.4. partnerships and professional networks; 2.5. uptake and professional engagement; 2.6. quality assurance and improvement
3	Needed materials, programmes and formats	3.1. What the learning must cover; 3.2. materials and design aids; 3.3. platforms and technical infrastructure; 3.4. programme pathways and targeting; 3.5. delivery formats and learning process; 3.6. facilitation and communities; conditions, uptake and quality
4	Teacher competences	4.1.Knowledge and integrated competence; 4.2. critical, ethical and sustainable judgement; 4.3. pedagogical design and learner response; 4.4. assessment and evaluation; 4.5. relationships, collaboration and community; 4.6. professional agency and development
5	Digital competences	5.1. Operational fluency; 5.2. critical and responsible literacy; 5.3. digital pedagogy; 5.4. digital resource practice; 5.5. professional digital development

Code No.	Main category	Subcategories
6	Critical and sustainable digital/AI practice	6.1. Critical appraisal and purposeful use; 6.2. human agency and learning ownership; 6.3. inclusion, accessibility and fairness; 6.4. rights and ethical safeguards; 6.5. sustainable and systems practice; 6.6. professional and collective governance
7	Digitally sustainable teacher	7.1. Purposeful digital pedagogy; 7.2. critical and ethical digital practice; 7.3. ecological responsibility; 7.4. social sustainability and inclusion; 7.5. durable practice and professional growth; 7.6. meaning and enabling context
8	OER	8.1. Educational value and access; 8.2. creation, reuse and rights; 8.3. quality and lifecycle; 8.4. professional and institutional capacity; 8.5. competing resource models and transitions
9	Challenges	9.1. Coherence and implementation; 9.2. resources and access; 9.3. professional capacity and workload; 9.4. critical AI use and learning
Total	**9 main categories**	**3-7 subcategories**

These themes overlap because participants often connected a competence with the resources or institutional conditions needed to exercise it. Quotations below retain the wording in the supplied coded segments; the country and coded-segment reference identify the excerpt. The analysis reports participants' views and does not independently verify claims made in discussion.

3.1. The meaning of a digitally sustainable teacher

Participants did not use sustainability in only its environmental sense. In the category on the digitally sustainable teacher (7), their accounts linked effective and ethical digital use to learning that endures, social responsibility, inclusive participation, resource stewardship and the teacher's continuing development. Some questioned whether the label was sufficiently clear or feared that "sustainability" could become a slogan detached from classroom decisions (7.6.1). Others described a durable practice as one that can be reused and shared beyond a single lesson (7.5.2).

> *"We now have many tools within our reach, which can clearly give us a lot of power and make things much easier, but teachers also need to know how to use them responsibly."*
>
> Spain, Digitally supported learning, DS10

Across categories 1, 4, 5 and 6, participants associated digitally sustainable teaching with decisions about whether to use a tool, how to design learning tasks, and when automation weakens rather than strengthens learning. However, they emphasised different aspects of sustainability. The Austrian discussion questioned whether a digital tool justified the resources it consumed and whether another approach could meet the same need (Digitally Sustainable Teacher, P31). Others focused on teaching practices and materials that could be adapted, shared and maintained over time: one Italian participant emphasised applicability and whether an approach "can then be shared and disseminated" (Digitally Sustainable Teacher, P63). Sustainability also encompassed the quality of learning itself, with another Italian contribution highlighting the ability to cope with overload and calling for closer consideration of "cognitive sustainability" in relation to AI. These compatible but distinct emphases provide a basis for an integrated definition encompassing ecological, social, pedagogical, cognitive and professional dimensions, without implying that participants reached a single, agreed definition. They suggest that DigiSET should clarify these dimensions through concrete teaching decisions.

3.2. Pedagogical judgement and teacher competences

The relevance codes (1.1 and 1.5) and teacher competence codes (4.1–4.6) converge on purposeful design. Participants described the need for subject knowledge, pedagogical expertise and digital fluency to work together. They favoured selecting tools in relation to a learning objective, with analogue alternatives remaining available. Digitalisation across subjects was considered relevant, but simply putting a textbook or task on a screen was not treated as pedagogical improvement. The digital competence coding (5.3) makes this more concrete: design includes classroom workflow, attention, subject-specific applications, differentiation and assessment, as well as basic operational competence (5.1). In the Bulgarian focus group, this argument was extended to initial teacher education: digital tools such as cloud-based collaboration and AI assistants should become part of the teaching methodology during university studies, "rather than simply as a separate, isolated subject within information technology" (Bulgarian practice, relevance, gaps, SPK_7).

The same competence extends to knowing learners. Participants discussed varying prior knowledge, language, disability and life circumstances, and the teacher's role in diagnosing needs before using adaptive tools (1.3; 4.3; 5.3.3). AI-generated adaptations could assist, but a generic prompt or output was not assumed to match a particular child. In the Italian segments on special education, teachers described the need to know the learner and specify the intended adaptation. Other discussions valued practical and vocational settings, including digital simulations, where tools could support an authentic task rather than merely deliver information.

Participants also identified communication, collaboration, sustainability, critical thinking and readiness for learning as key competences under the existing teacher competence branch (4.K1–4.K5). These are connected in their examples: critical thinking supports the appraisal of sources and AI output; collaboration supports resource development; and readiness to learn supports professional adaptation. The coding therefore describes an integrated professional profile rather than an isolated list of technical skills.

3.3. AI as support while retaining human judgement

The critical and sustainable digital and AI practice codes (6.1–6.4) show both interest in AI's assistance and concern about delegating thought or responsibility to it. Participants mentioned preparation, basic feedback, practice, scaffolding and tailored materials as possible uses. They distinguished these from asking AI to produce a learner's reasoning or determine achievement on its own. Assessment discussions focused on evidence of the learning process, the learner's own answers, transparent rules for permissible AI use and the teacher's responsibility for judgements (1.1.3–1.1.4; 4.4; 6.2.3).

> *"After all, it's the whole process of revising texts that we want the pupils to focus on. But when AI is used for thinking, that's where the problem lies."*
>
> Norway, Critical and Sustainable digital/AI practice, P6

Critical AI literacy was understood as more than operating an interface. Participants asked teachers to understand capabilities and limits, check sources, detect errors and examine apparently convincing or flattering responses (5.1.2; 5.2.1; 6.1.1–6.1.2). An interviewee in Türkiye expressed the expectation that teachers "question AI-generated output through critical thinking rather than simply accepting what is presented" (Human agency and critical AI use, H1). The material also identifies risks of cognitive offloading: readily generated solutions can reduce opportunities for learners to work through a problem, practise or retain what they have learned (6.2.1; 9.4.2). These are participants' concerns, not an experimental estimate of AI's effect.

3.4. Inclusion, fairness and responsible use

Across the relevance, competence and practice categories, inclusion was discussed both as adapting instruction and as examining who benefits from digital provision (1.3; 4.3.3; 5.3.3; 6.3). AI may help prepare accessible or differentiated versions of content, including for learners with disabilities or learning difficulties, but a participant in Norway warned that pupils with stronger literacy and comprehension might benefit most unless teachers consider differing starting points (Critical and Sustainable digital/AI practice, P16–P17). Access to devices, paid models, support and prior knowledge also affects participation. This moves the question from whether a tool can personalise a task to whether its use improves equity for a particular group. In Bulgaria, participants working with pupils with special educational needs reported a lack of ready-made adapted resources, specialised software and assistive technologies (Needed materials, programs and formats, SPK_11).

> *"I think there does need to be an awareness on like the computational bias, but obviously human bias, because we would bring our own bias into any kind of inputs that we give into AI and it's important that teachers are aware of that and they are using it."*
>
> Ireland, Gender-bias awareness, B16

Bias was raised in relation to gender, culture and the social assumptions carried into AI models and prompts (1.3.3; 5.2.2; 6.3.3). Responsible use also involves judging the provenance of content, declaring AI assistance where appropriate, attending to

copyright and avoiding unnecessary disclosure of student information (6.4). One Irish passage specifically raised the implications of uploading content to ChatGPT and the need for school leadership to understand data protection responsibilities (Critical and Sustainable digital/AI practice, P55). The interviews frame these as shared pedagogical and organisational responsibilities, not merely individual teacher preferences.

3.5. Environmental responsibility and lasting practice

Environmental sustainability appeared both as content for pupils and as a criterion for teachers' own decisions. Participants called for climate and SDG literacy, systems thinking and opportunities to connect digital technologies to real environmental problems (1.3.4; 7.3.1). They also discussed the energy and water associated with AI, the resources embodied in devices, replacement cycles, repair, reuse and travel (5.2.4; 6.5; 7.3.2–7.3.3). Several passages resist a simple assumption that a digital option is automatically the more sustainable one. In the Norwegian challenge data, replacement of devices was described as competing with other school spending (Investment / financing equipment, F1). An Austrian segment calls for asking whether a digital tool is the best way to achieve the intended result (Digitally Sustainable Teacher, P31).

A second meaning of sustainability is that learning and teaching practices remain effective over time. Participants discussed meaningful, lasting understanding and resources that can be applied, revised and shared. The Italian account cautioned that "we should reflect much more carefully on the concept of sustainability in the classroom, considering it together with the topic of artificial intelligence", reflecting on a broader understanding of the environmental behaviour (Critical sustainability practice, P75). This professional dimension complements, rather than replaces, the environmental one.

3.6. Open educational resources as an ecosystem

The OER codes (8.1–8.5) distinguish access, production, lawful adaptation, quality, maintenance and dissemination. Participants valued open materials because they could reduce costs, widen access and permit adaptation to local curricula, languages and learner needs. They also stressed that free access, open-source software and openly licensed educational content are different matters. The practical value of an open licence lies partly in the permission to revise, simplify, translate and share materials. A Norwegian participant contrasted that possibility with the restriction on altering a copyrighted text (OER and Educational resource ecosystem, P4).

> *"If I were to make a resource and I was very sure of its effectiveness, of course I would share it with other colleagues because I am among those who strongly believe in the collective success of a community, of an institution, less in personal success."*
>
> Romania, OER Production, PR10

Production alone did not resolve the resource problem. Teachers described time needed to research, test and polish a resource, uncertainty about whether it was good enough to publish, and the need for colleagues or specialists to collaborate (8.2.1; 8.4). Participants also asked who would review and update materials after a project ends.

One Austrian passage observed that project resources can remain unmaintained as circumstances change and errors emerge (OER and Educational resource ecosystem, P23). Searchability and editorial review mattered because an unorganised abundance of versions can increase rather than save teachers' work (8.3). An Italian participant questioned whether creating or selecting alternatives to costly textbooks was straightforward when the material still had to be reliable, valid and sufficient for programme competences (OER and Educational resource ecosystem, P39).

3.7. Learning offers and routes into practice

The requested materials and formats codes (3.1–3.7) translate these needs into programme design. Participants asked for learning on AI literacy and ethics, purposeful pedagogy, inclusion, digital sustainability and OER; ready-to-use examples and decision aids; accessible and multilingual materials; and subject- and school-level relevance. They also described varied starting points. Some teachers need basic platform skills before advanced AI applications, while experienced users need opportunities to test an approach in their own subject. A progressive pathway, targeted routes and continued support therefore sit alongside short, clear learning units (3.4–3.5).

Participants valued practical work: trying a resource or scenario, discussing it with peers, receiving feedback and adapting it for the classroom. They also called for facilitators, mentoring, communities of practice and collaborative design, rather than relying solely on a repository or self-paced content (3.5.3; 3.6). Flexibility in online and face-to-face participation could make learning feasible, but the availability of a course does not by itself create time to attend or apply it. Protected time, manageable workload, relevant examples and visible benefits were recurrent conditions for uptake (3.7).

3.8. Embedding and scaling within education systems

The policy uptake and scaling codes (2.1–2.6) locate DigiSET within standards, curricula, teacher education and school practice. Participants described a need to connect a European competence approach to national curricula, local subjects and existing professional development routes. They also pointed to school-level responsibility: teachers, leadership, teacher educators and specialist support services may need shared guidance rather than expecting an individual teacher to solve procurement, data protection or quality assurance alone. Networks between universities, authorities, schools and communities could help practices travel, but examples and resources still need local adaptation and review.

In the challenges data (9.1–9.4), the gap between ambition and available conditions becomes explicit. An Italian participant warned of the risk of being "very digital but not very sustainable" if the usefulness and reproducibility of practice are not examined (Sustainability integrated teaching, SI37). A Norwegian participant described school platforms and teaching materials as insufficiently adapted to the teaching situation, adding that even capable teachers can be held back by poor systems (Challenges, P1). Other passages describe inconsistent guidance for AI, restrictions on otherwise convenient tools because of data processing agreements, uneven access to paid tools,

limited training and little time for lesson preparation or resource creation. These are implementation conditions that require institutional decisions and ongoing review.

3.9. Key competences emerging from the interviews

The teacher competence coding (4) identifies five key competences named in the existing code system: sustainability (4.K1), critical thinking (4.K2), communication and collaboration (4.K3), readiness for learning (4.K4), and digital competences (4.K5). These recur across participants' accounts and intersect with the six analytic themes below. They are presented as themes emerging from the interviews, without adding another set of competence categories or ranking them by importance.

Knowledge and integrated competence

Participants connected subject expertise and interdisciplinary understanding with digital and AI fluency (4.1.1–4.1.2). Knowing how a tool works was insufficient without knowing the subject and the pedagogical purpose. They described an ability to bring subject, pedagogical, digital and transversal knowledge into balance (4.1.3). This theme includes the key competence of digital competence (4.K5) and the capacity to learn enough about new tools to judge their relevance.

Critical, ethical and sustainable judgement

Participants expected teachers to evaluate information, evidence and AI-generated claims, recognise limitations and decide how outputs should be used (4.2.1). They also raised transparency about AI assistance, learner agency, copyright and responsible use (4.2.2). Resource consumption, device lifecycles and environmental consequences formed a further dimension of judgement (4.2.3). The existing key competences of critical thinking and sustainability (4.K2 and 4.K1) are particularly visible here.

Pedagogical design and learner response

Teachers were described as choosing methods and tools in relation to learning aims, including deciding when an analogue approach serves better (4.3.1). They observe learners' needs and circumstances, adapt pace and support, and design accessible participation for different languages, cultures and disabilities (4.3.2–4.3.3). Participants also valued authentic and vocational tasks (4.3.4) and the ability to select, create, adapt and share resources (4.3.5). These competences connect the digital and sustainability questions to everyday teaching decisions.

Assessment and evaluation

The interviews raised the validity of assessment where AI can generate a polished product without showing the pupil's understanding (4.4.1). Participants called for tasks and judgements that make learners' own thinking visible, alongside observation, feedback and self-assessment during the learning process (4.4.2). Assessment therefore requires both judgement about permissible AI assistance and attention to how students revise, explain and apply their work.

Relationships, collaboration and community

Participants named empathy, communication and trust in relationships with learners, including explaining content in accessible ways (4.5.1). They also described working

with colleagues and partners to prepare and adapt materials and support individual learners (4.5.2). Professional communities provide a place to exchange experience and improve practice collectively (4.5.3). These accounts give the existing communication and collaboration competence (4.K3) a pedagogical as well as a collegial meaning.

Professional agency and development

Teachers were expected to reflect on their own decisions, assumptions and learning needs (4.6.1), adapt to changing technologies and school conditions (4.6.2), and sustain constructive practice amid uncertainty and constraints (4.6.3). Participants also defended the teacher's responsibility for selecting tools and making pedagogical and assessment decisions (4.6.4). Continued experimentation, research and training were described as ways to maintain competence (4.6.5). This theme directly reflects readiness for learning (4.K4), while the accounts of limited time and unsuitable tools show why professional development also needs institutional support.

4. Conclusion and implications for DigiSET

Section 3.9 presents six themes identified through the analysis of interview data on teacher competences. The six areas presented in the following part serve a different purpose: they are a proposed structure for DigiSET programme development. They were developed by interpreting the focus group findings alongside the earlier country studies and teacher survey (Schön et al., 2026b, 2026c). The five key competences identified in the teacher competence coding—sustainability, critical thinking, communication and collaboration, readiness for learning, and digital competence (4.K1–4.K5)—run across the proposed areas. OER practice likewise connects several areas, particularly sustainable digital practice and ethical and inclusive digital education. The six areas should therefore be read as an interpretive synthesis for the next stage of programme design, rather than as six separate competences directly named or agreed upon by focus group participants.

4.1. Key competences suggested for DigiSET

The interview codes point to six connected areas that can form the empirical basis for the DigiSET competence framework. These are an analytic synthesis of what participants said teachers need to know, judge and do; the focus groups do not establish a ranked or universally agreed list. The five transversal competences already named in the code system—sustainability, critical thinking, communication and collaboration, readiness for learning, and digital competence (4.K1–4.K5)—run through the six areas rather than sitting beside them as separate technical modules. Open educational resources (OER) also connect the areas in practice: teachers need to find, evaluate, adapt, create and share resources in ways that support learning, inclusion and responsible use. These competence-related findings were reconstructed by the research team from participants' accounts of teaching, resources and implementation conditions; participants may have framed them differently from the analytic categories used here. It is important to underline that the discussion guide did not elicit competence descriptions directly; competence-related findings were reconstructed by

the research team from accounts of practice, resources and conditions. Participants' own framings of competence may differ from the analytic categories presented.

Critical digital awareness

Teachers need to operate common digital environments, understand the capabilities and limits of AI, search and appraise information, check generated outputs and recognise misleading claims or stereotypes (4.1.2; 4.2.1; 5.1–5.2; 6.1). The practical subskills are source verification, comparing AI outputs with subject knowledge, identifying uncertainty and bias, and helping pupils acquire the same habits. Participants repeatedly treated fluent output as something to interrogate, not evidence that a tool is accurate.

Eco-digital responsibility

Teachers need to understand sustainability and climate questions and consider the material consequences of digital decisions (4.K1; 4.2.3; 5.2.4; 6.5.1; 7.3). Subskills include comparing the resources used by digital and analogue options, considering energy and device lifecycles, extending use through repair and reuse, and making these trade-offs discussable with pupils. The evidence supports reflective judgement rather than a fixed rule that one medium is always greener.

Sustainable digital practice

Teachers need to develop digital activities and resources that remain useful, adaptable and maintainable over time (5.3–5.4; 7.1; 7.5.2; 8.2–8.3). OER practice includes finding and evaluating suitable materials, understanding open licences and attribution, adapting resources to local curricula and learners, and sharing improvements with others (8.1–8.3). Participants also emphasised quality review, discoverability and responsibility for updating resources after publication. These practices depend on time, collaboration, confidence and institutional support (8.4).

Purpose-driven pedagogical design

Teachers need to set learning aims first and then decide whether a tool, an AI-supported task or an analogue approach best serves them (1.1.1; 4.3.1; 5.3.1–5.3.5; 6.1.3). Subskills include designing active and subject-relevant tasks, managing attention and classroom workflow, using AI as feedback or scaffolding, and assessing the process and the learner's own understanding. This area connects digital choices to pedagogical and subject expertise rather than tool familiarity alone.

Ethical and inclusive digital education

Teachers need to respond to learners' different starting points and protect their rights when technology is used (1.3; 4.3.2–4.3.3; 6.3–6.4; 7.4). Subskills include diagnosing needs, adapting accessible materials, checking who can access and benefit from paid or assistive tools, challenging gender and cultural bias, protecting personal data, and being transparent about AI assistance and authorship. Participants also asked teachers to consider when purported personalisation might reproduce unequal outcomes. Open licensing can enable teachers to translate, simplify and adapt materials for different learners, provided that the resource format is accessible and the licence permits the intended changes (8.1.2; 8.2.2–8.2.3).

Professional agency and knowledge sovereignty

Teachers need to remain responsible for judgements about teaching, assessment and resource use while learning with others as technologies change (4.5–4.6; 6.2; 6.6; 7.5).

Subskills include reflective self-assessment, continuing learning, collegial exchange, setting clear boundaries for AI, preserving independent thinking and deciding when outputs require human review. Knowledge sovereignty here reflects the interview concern that teachers and pupils understand, question and shape the resources and AI tools they use, rather than surrendering their decisions to a platform. The policy and challenge codes (2; 9) make clear that this agency also depends on time, appropriate tools and coherent institutional rules.

Table 5 maps the interview-derived teacher competence themes onto the proposed DigiSET areas. The connections overlap and do not indicate a ranking or a one-to-one correspondence.

Table 5: From interview coding to the proposed DigiSET competence areas

Data-derived teacher competence themes (Section 3.9)	Proposed DigiSET competence area (Section 4.1)	Main connection
Knowledge and integrated competence (4.1); critical, ethical and sustainable judgement (4.2)	**Critical digital awareness**	Understand digital and AI systems; evaluate sources, outputs, limitations and bias.
Critical, ethical and sustainable judgement (4.2)	**Eco-digital responsibility**	Consider energy, materials, device lifecycles and the environmental effects of digital choices.
Pedagogical design and learner response (4.3); relationships, collaboration and community (4.5), OER (8.1-8.4)	**Sustainable digital practice**	Create, adapt, share, review and maintain useful learning resources with others.
Knowledge and integrated competence (4.1); pedagogical design and learner response (4.3); assessment and evaluation (4.4)	**Purpose-driven pedagogical design**	Start with learning aims, choose suitable methods and assess learners' own understanding.
Critical, ethical and sustainable judgement (4.2); pedagogical design and learner response (4.3); relationships, collaboration and community (4.5)	**Ethical and inclusive digital education**	Respond to diverse learners while addressing accessibility, fairness, rights and AI bias.
Assessment and evaluation (4.4); relationships, collaboration and community (4.5); professional agency and development (4.6), OER (8.1; 8.2)	**Professional agency and knowledge sovereignty**	Retain human responsibility, protect independent thinking and continue learning with colleagues with the support of OER.

4.2. Conclusion

The focus groups support a DigiSET programme that connects digital and AI literacy with pedagogical design, inclusion, sustainability and professional agency. Across these topics, participants emphasised *informed judgement*: teachers should be able to decide whether, when and how a technology serves a learning purpose, assess its outputs and consequences, and retain responsibility for teaching and assessment.

Developing this competence also requires supportive conditions, including usable tools, legally reusable and maintained materials, relevant training, time for professional learning, collaboration and clear institutional guidance.

The findings offer a basis for learning outcomes in DigiSET's four thematic areas. Concerns about stereotypes, representation and fairness inform *gender-unbiased AI*. Accounts of scaffolding, personalisation and feedback inform *AI for adaptive learning*, provided teachers evaluate the support offered and retain pedagogical responsibility. Emphasis on learner diagnosis, differentiation and accessibility informs the *inclusion of students with diverse needs*. *Systems thinking* was less explicitly articulated, but participants connected digital choices to learning, unequal access, resource use and institutional conditions. The training programme should develop these connections into an explicit way of examining the wider effects of classroom decisions.

Based on the interviews, we can define the digitally sustainable teacher as "a teacher who makes informed decisions about whether, when and how digital technologies, including AI, support learning, and when a non-digital approach is more appropriate. They understand the possibilities and limits of these tools, use them critically and ethically, and protect learners' independent thinking and their own professional judgement. They design accessible, meaningful learning for diverse learners while considering unequal access, environmental impacts and resource use. They create, adapt and share resources that remain useful over time and continue to develop their practice as technologies and educational needs change."

In this definition, *sustainable* encompasses the meanings expressed across the interviews: responsible use of environmental resources, equitable participation, learning that lasts and professional practice that can be maintained and developed over time.

4.3. Limitations

The findings reflect the perspectives of participants recruited for the DigiSET focus groups and are not representative of teachers or education systems across the eight participating countries. The 20 sessions and 77 participants were unevenly distributed across countries and stakeholder roles. The target of at least two participants from each of the four stakeholder groups set in the Description of Action was not reached in any country (see Section 2.1), which may have narrowed the range of perspectives represented. The number and format of sessions also varied, limiting direct comparisons between countries.

The number of coded segments varied considerably between countries, with Austria and Italy contributing larger shares of the coded material than Türkiye. These differences may reflect the number or length of sessions, the detail of the transcripts and coding decisions. A coded-segment count is not a count of participants who expressed or endorsed a view, nor does it indicate that an issue is more important in one country than another.

Interviews were conducted in different languages and analysed using English translations except Austria and Türkiye . Although translations were checked, some linguistic and cultural nuance may have been lost, especially in interpretations of

sustainability, *inclusion* and *professional agency*. The analysis combined an initial code tree with concepts identified in the data, and the lead researcher subsequently refined the merged coding structure. The resulting themes are interpretations of participants' accounts, not a measure of consensus.

These findings identify perceived competence needs, implementation conditions and possible uses of digital technologies. They do not establish the effectiveness of specific tools, training approaches or the proposed DigiSET competence framework.

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Annex 1: WP2 – Focus Group Interview Methodology and Guide

1. Objectives of the Focus Group Interviews:

Objectives of the focus group interviews are:

- **Validate Competence Needs**: Identify and prioritize the key competencies teachers require today, specifically assessing the relevance of digital teaching, Education for Sustainable Development (BNE), AI in education, and OER development within the local context.
- **Assess Concept Relevance**: Evaluate the applicability and importance of the "Digitally Sustainable European Teacher" concept for the specific country.
- **Define Resource Requirements**: Determine necessary materials, tools, and training offers needed to support teacher development in initial training and continuing education.
- **Triangulate Findings**: Validate and interpret preliminary results from the country desk study and surveys through expert discussion.
- **Formulate Implementation Strategies**: Develop concrete recommendations for integrating DigiSET results into existing national teacher training frameworks and future educational activities.

Generally, it contributes to the following objectives of WP 2: “To formulate the training programme of the “Digitally Sustainable European Teacher” in English, aimed at providing teachers with the knowledge, skills and competences to create, use and adapt Open Educational Resources (OER) for: Gender unbiased AI; System thinking; AI for adaptive learning, and teaching practices for the inclusion of students with learning difficulties” (DigiSET WP description, p. 32)

And to the report (D2.1) that will consider the potential impact of trained teachers collaborating post-project closure. (DigiSET DoA, p. 33)

2. Planning Phase

2.1. Timeline of partners’ duties

Date	Step
(about May, 15 2026)	Selection of experts/invitation, date(s) for focus group events planned, organisational technical issues clarified (video conference tool/ room organised)
(about May, 30 2026)	• Invitation sent out, potentially as well the consent forms • Interview guidelines translated/adapted and developed (specific country-related DigiSET results) • Consent forms translated (see Digiset informed consent form.docx) • Introduction slides for DigiSET and the focus group interviews are translated/adapted (T2.2_focus_group_slides_English.pptx- please use fitting slides from the DigiSET project presentation, if wished: 1.DigiSET_Project_Presentation.pptx)
(In June 2026)	• Focus Group(s) conducted and audio/video recorded focus group interviews (video if applicable) • Consent forms are available – see:

	• Recordings transcribed (manually or with the help of AI tools) and assigned to the respective interview participants, or anonymized where applicable. (in your language or automatically translated)
By July 10, 2026	**Transcripts and additional information uploaded in the Teams folder -** 03_FocusGroupInterviews All consent forms are archived in partner institutions (if requested in e.g. a review/check).
(July/August 2026)	Data Analysis (We will update all partners about this later)
(September 2026)	Review of Analysis results by partners and summary (Reviewing the draft of the joint focus group interview results report)
(October 2026)	Integration into final D2.1 and analysis

2.2. Mandatory Stakeholder Composition and Targets (see DoA)

All partners are asked to at least organise and document ONE, but of course as well more focus group interviews.

All partners are asked to involve the recommended numbers of people and stakeholder categories according to the following table:

Stakeholder Category	Minimum Required - Baseline value (According to the DoA)	**Recommended-Target Value (according to the DoA)**	**Role in Focus Group**
Policy Makers	At least 2	**At least 3**	Policy alignment, funding, regulatory framework
Teacher Initial Training* Providers	At least 2	**At least 3**	Pre-service curriculum, university partnerships
Teacher Continuing Professional Development Providers*	At least 2	**At least 3**	In-service training, ongoing certification
Teachers' Union Representatives	At least 2	**At least 3**	Teacher needs, working conditions, acceptance
Total per Country	*At least 8 experts/country*	***At least 12 experts***	—

* Initial training refers to pre-service education (universities, teacher colleges), while continuing professional development covers in-service training and ongoing certification programs.

2.3. Participant Selection Criteria

Expert Focus Groups (Stakeholders):

- 12 or more participants per country (3/category, see 2.1)
- Balanced representation across all four mandatory categories
- Geographic spread within country (if applicable)
- Seniority: Mid-level to senior decision-makers

Please note: Of course, it might be of interest for you, your country and the project to involve (additionally): Teachers, students, people responsible for competence frameworks, researchers or other experts.

2.4. Desk Research Integration

Before conducting focus groups check with the DigiSET country reports existing frameworks and settings in your country, identified gaps.

3. Discussion Guideline

3.1. Structure Overview

Section	Duration	Focus Area and material
Welcome & Consent	5 min	Welcome, ethics, consent forms
Introduction DigiSET	5 min	Agenda, project description and aims
Participant introduction	10-30 min	Interview partners are asked to shortly describe their professional background regarding the topic (max. 2 minutes each person)
Presentation of first country-related results (desktop research or study)	5 min	First results are presented that might be of interest as a base to be discussed later.
Needed Teachers' key competences and relevance of DigiSET competences	10 min	See below
Relevance of the idea of a "Digitally sustainable European teacher"	10 min	See below
Needed materials and offers	10 min	See below
Participants recommendations for DigiSET	10 min	See below
Open Issue, Wrap-Up and Thanks	5-10 min	See below
Closing & Summary	10 min	Key takeaways, next steps

3.2. Interviewer Instructions

3.2.1. Welcome & Consent

Introduce yourself and the DigiSET project very shortly

Explain:

- Participation is voluntary
- Responses are confidential
- Data will be used for research and project development
- Therefore, recording will be done and started after consent
- Introduce the consent forms/ (if online you can send them the forms before the meeting and receive a verbal consent during the recording)

Hello everyone, and thank you for joining us. My name is [Your Name]. I work at/for [Your institution] and I am conducting this interview on behalf of the DigiSET project.

Before we dive into the discussion, I need to go over a few important administrative points regarding your participation:

- *First, please know that your participation here is entirely voluntary. You are free to skip any question or withdraw from the interview at any time without any negative consequences.*
- *Everything you say today will remain strictly confidential. Your names will not be attached to any specific quotes in our final reports. The data will be anonymized and used solely for the purposes of this research and the development of the DigiSET project.*
- *To ensure we capture your insights accurately and don't miss any details, I will be audio/video-recording this session.*

Consent Check: Do I have your permission to start the recording? And does everyone agree to participate under these conditions?

(Pause for verbal confirmation from all participants)

"Great, thank you. I am starting the recording now.

3.2.2. Introduction DigiSET

- Show the agenda (shortly)

Thank you all for being here today. Before we begin, let me quickly walk you through our agenda. Our session today will take approximately 90 minutes. We'll start with a brief introduction to the DigiSET project, then move into a round of introductions from all of you. After that, we'll discuss four main topics: key teacher competences, the relevance of the 'Digitally Sustainable European Teacher' concept, needed materials and offers in your country, and finally, your recommendations for future implementation. There will be room for open discussion throughout — your perspectives are exactly what we're here for.

- Introduce the DigiSET project, aims and first results (slides)

[Use slides and presentation from your perspective]

3.2.3 Participants Introduction

Interview partners are asked to shortly describe the professional background in relation to the DigiSET project.

Before we dive into the main topics, I'd like everyone to briefly share: Your current role and professional background and how your experience or expertise connects to the DigiSET project.

3.2.4 Needed Teachers' key competences and relevance of the DigiSET key competence areas

Interview partners are asked to discuss most important competences teachers need today?

- *What do you consider the most essential competences teachers need in today's educational landscape?*

Interview partners are asked to discuss the competences teachers need today according to the DigiSET project.

- *How important are the following DigiSET key competence areas Digital teaching, ESD, AI in education and OER development?*

Interview partners are asked to discuss the DigiSET core training:

- *How important is it to provide teachers with the knowledge, skills and competences to create, use and adapt Open Educational Resources (OER) for:*
- *Gender unbiased AI;*
- *System thinking;*
- *AI for adaptive learning,*
- *and teaching practices for the inclusion of students with learning difficulties" (DigiSET WP description, p. 32)*

3.2.5 Relevance of the idea of "Digitally Sustainable European Teacher" (D)

Focus group interviews partners are asked to discuss how relevant they see the idea of a "digitally sustainable teacher" or "digital sustainable teaching" for your country.

- *D.1 What comes to mind when you hear the term "digitally sustainable teacher"? How would you explain/define it?*
- *D.2 How relevant is this concept for your country's educational system?*
- *D.3 Does the idea of combining digital competence and sustainability resonate with existing national priorities — or does it feel like an external framework?*

3.2.6 Needed materials and offers for teachers in your country

Building upon your focus group discussion, please discuss needed materials or offers that are needed in initial teacher training or further education of teachers to support the competence development towards "digitally sustainable teaching".

- *What specific materials, tools, or resources are currently missing to support teachers in developing these competences?*
- *In initial teacher training, what offers would be most impactful?*
- *In continuing professional development, where do you see the greatest gaps?*
- *Are there existing programmes or initiatives that already work well — and could serve as a model?*

3.2.7 Discussion of selected results (from the country report or the survey)

According to your preparation, focus group interviews can support you in validating or interpreting results from your country desk study or the survey results.

- *[Insert specific finding from country report] — Does this match your experience? How would you explain this result?*
- *[Insert specific survey data point] — Were you surprised by this, or does it confirm what you see in practice?*

Please note, you can use e.g. this data as well (survey): […]
Preliminary rough automatic analysis by the survey system is provided below. You might use this for focus group discussion. Please do not share it publicly […]

3.2.8 Participants' recommendations for a future implementation of DigiSET's results within teacher training and further education

The focus group interview is good opportunity to discuss potential steps and activities to align the project plan/activities and results to existing activities and offers.

- *How could DigiSET results be meaningfully integrated into your country's teacher training structures?*
- *What concrete steps would you recommend ensuring uptake — e.g., policy level, institutional level, individual level?*
- *Who are the key stakeholders that need to be involved for successful implementation?*
- *What are the challenges that may arise for the implementation of DigiSET framework?*

3.2.9 Open issues, Wrap-Up and Thanks

4. Conducting Focus Groups

4.1. Moderator Responsibilities

- Ensure all questions are addressed
- Document stakeholder mentions systematically

4.2. Data Collection Requirements

Up to your preferred format (online, hybrid, offline) you might use different ways to prepare, organise and document the focus group interviews. E.g.

Data Type	Method	Storage
Audio recording	Digital recorder/online audio recording	Encrypted drive
Field notes	Written observations	Separate document
Visual materials	Photos of whiteboards	Anonymized
Consent forms	Signed paper/if online verbal recording of the consent	Secure filing
Stakeholder Log	**Category tracking**	**Separate document**

4.3. Quality Control

- Stakeholder composition meets minimum (8) or recommended (12)
- All four stakeholder categories represented
- Separate representation from initial training AND continuing development
- Consent form signed

5. Transcript and documentation

5.1. Transcript with participant descriptions and notation

Please document data, locality and participants names locally.

Transcripts must be prepared in the original language, featuring clearly attributed dialogue for anonymized participants (identified as P1, P2, or you can give pseudonyms) alongside an anonymous participant profile for each individual.

Transcript must be anonymised and should be done as verbatim as possible.

This is how the transcript could look like:

P1: Union, female, active teacher

P2: Policy maker, male, researcher

P3: [...]

***P1**: Thank you all. We've discussed some promising use cases, but I want to turn to the tensions. Specifically, how do we reconcile the pressure to adopt AI tools with the concern that students' critical thinking may suffer? P2, you mentioned a shift in student writing.*

***P2:** Yes. Last semester, I had three essays that were grammatically flawless but completely lacked voice. It was like reading a polished void. When I asked those students to explain their thesis in class, they couldn't. One of them literally said, "The AI wrote it, but I agreed with it." So I redesigned the assignment — now they submit a recorded reflection alongside the essay explaining their reasoning.*

***P3:** I see the same in history. Students feed a primary source into an AI and ask for an analysis. What they get back is a competent summary, but it strips away the ambiguity, the contradiction in the source. Historical thinking requires sitting with discomfort. AI smooths that out. We risk producing learners who can consume an answer but can't interrogate one.*

[...]

Guidelines for Conducting and Transcribing Focus Group Interviews

When conducting focus group interviews, it is recommended that **you refer to the individual questions** during the session **using the corresponding labels from the interview guide or slides** (e.g., **A., D.1, D.2, D.3**, etc.).

*Example: "Thank you very much. We will now continue with question **D.3**: 'How relevant is this concept for our country's educational system?'"*

Using these identifiers during the recording significantly facilitates subsequent transcription, data consolidation, coding, and categorization of the responses. It also supports comparability across different focus groups and simplifies the assignment of statements to their respective topic areas and analysis categories.

During transcription, the questions should also be documented along with their corresponding labels. This enables consistent structuring of the data and facilitates subsequent qualitative analysis.

Example from the transcript:

Moderator: Thank you very much. We will now continue with question D.3: "How relevant is this concept for our country's educational system?"

P1: I think this concept is...

P2: From a political perspective, I see...

You can use AI supported transcription systems and software but you have to check the accuracy by listening and correcting the transcription. It is important that you also check the translated version of the transcription after it was translated to English.

5.2. Stakeholder Representation Summary

All partners are asked to report e.g. in the following way.

Country	Policy Makers	Initial Training	Continuing Development	Union Reps	Total
AT	[Count]	[Count]	[Count]	[Count]	[Total]
IT	[Count]	[Count]	[Count]	[Count]	[Total]
RO	[Count]	[Count]	[Count]	[Count]	[Total]
TR	[Count]	[Count]	[Count]	[Count]	[Total]
BG	[Count]	[Count]	[Count]	[Count]	[Total]
IE	[Count]	[Count]	[Count]	[Count]	[Total]
ES	[Count]	[Count]	[Count]	[Count]	[Total]
NO	[Count]	[Count]	[Count]	[Count]	[Total]
Sum	[Total]	[Total]	[Total]	[Total]	[Total]

6. Data analysis

Data will be analyzed centrally by a core team with MaxQDA. More details will be provided.

7. Deadline for Completing the Focus Groups

Deadline for completing the focus group interviews is July 10th 2026.

Annex 2: DigiSET focus group coding categories and subcategories

This reference lists the nine main categories, their 51 numbered subcategories and the associated codes. Category 4 also retains five cross-cutting key competences. Labels and meanings follow the supplied code list.

Category	Name	Subcategories
1	Relevance of DigiSET topics	6
2	Policy uptake, institutional embedding and scaling	6
3	Needed materials, programmes and formats	7
4	Teacher competences	6
5	Digital competences	5
6	Critical and sustainable digital and AI practice	6
7	Digitally sustainable teacher	6
8	Open educational resources	5
9	Challenges	4
Total	9 main categories	51

1. Relevance of DigiSET topics

1.1. Critical decision making

Code	Code label	Meaning
1.1.1	Pedagogical judgment and purpose	Evaluate when a technology serves learning and when another approach is preferable.
1.1.2	Critical appraisal of AI	Check outputs, limits, assumptions and flattering or misleading feedback using subject knowledge.
1.1.3	Learner agency and authentic work	Protect independent thought, practice, ownership of work and credible assessment.
1.1.4	Ethical rules and teacher oversight	Apply workable rules for AI use and assessment while retaining professional responsibility.
1.1.5	Democratic and civic judgment	Develop independent opinions and critical participation in public life.

1.2. Development of OER

Code	Code label	Meaning
1.2.1	Collaborative resource creation	Teachers and other stakeholders jointly design and improve learning resources.
1.2.2	Open licensing and adaptation	Use permissions that allow editing, simplification and reuse.

Code	Code label	Meaning
1.2.3	Curriculum fit and quality curation	Review, organise and select resources suited to local curricula and learners.
1.2.4	Accessible and usable resource formats	Make learning materials easy to find, access and use in manageable forms.

1.3. Diversity, inclusion and education for sustainable development

Code	Code label	Meaning
1.3.1	Differentiation and special educational needs	Adapt instruction and support learners with varied needs and starting points.
1.3.2	Equity of access and outcomes	Consider how digital and AI access can widen or reduce inequality.
1.3.3	Bias, gender and cultural representation	Recognise, challenge and correct stereotypes and unequal representation.
1.3.4	Sustainability and systems thinking	Connect environmental, social, economic and cognitive dimensions and their interactions.
1.3.5	Intercultural inclusion and participation	Engage diverse backgrounds and make inclusion a shared teaching responsibility.

1.4. AI and adaptive learning

Code	Code label	Meaning
1.4.1	Personalised learning and scaffolding	Use adaptive systems and AI to adjust learning steps and support.
1.4.2	AI assistance for teaching and writing	Use AI as a support for preparation, feedback, writing or practice.
1.4.3	AI literacy and limitations	Understand how AI works, what it can do and its educational limitations.

1.5. Digital teaching and tools

Code	Code label	Meaning
1.5.1	Digital pedagogy and tool choice	Choose tools and design teaching around a clear educational purpose.
1.5.2	Classroom workflow and attention	Manage access, storage, participation and distraction in digital classrooms.
1.5.3	Digital citizenship and basic skills	Teach digital competence for participation in school and society.
1.5.4	Analogue and digital transfer and interdisciplinary use	Move between modes and connect digital practice across subjects.

Code	Code label	Meaning
1.5.5	Tool discovery and continued adaptation	Keep track of tools and develop competence through informed use.

1.6. Relevance and implementation of DigiSET learning

Code	Code label	Meaning
1.6.1	Perceived priority and contested meanings	Record explicit ranking, endorsement or questioning of DIGISET concepts.
1.6.2	Reflective, practical professional learning	Learn through reflection, examples, trial, feedback and peer exchange.
1.6.3	Targeted and accessible course design	Offer relevant subject content, suitable group size and manageable formats.
1.6.4	Dissemination, support and participation barriers	Address awareness, time, resources, institutional backing and uptake.

2. Policy uptake, institutional embedding and scaling

2.1. Policy, standards and curriculum alignment

Formal rules and fit with education systems

Code	Code label	Meaning
2.1.1	Competence standards and policy endorsement	Recognition in official frameworks, standards or ministry guidance
2.1.2	National curriculum and contextual fit	Adapting a European approach to national curricula or local school contexts
2.1.3	Legal and ethical governance	Legal certainty, data protection and workable rules for use

2.2. Embedding in teacher education and schools

Where and how the competences enter established practice

Code	Code label	Meaning
2.2.1	Initial and continuing teacher education	Incorporation into teacher preparation and ongoing development
2.2.2	School-level implementation	Putting approaches into school programmes, subject teaching or local projects
2.2.3	Shared professional responsibility	Ensuring relevant training and responsibilities extend beyond specialists

2.3. Resources and procurement

Material conditions for sustained implementation

Code	Code label	Meaning
2.3.1	Funding and protected participation time	Funding, staff time and other support for participation
2.3.2	Equipment, software and procurement decisions	Purchasing and selecting devices, software or services

2.4. Partnerships and professional networks

Organisations and people working together to scale practice

Code	Code label	Meaning
2.4.1	Education-system partnerships	Cooperation among ministries, universities, authorities and schools
2.4.2	Professional communities and local partnerships	Teacher networks and collaboration with community or support services

2.5. Uptake and professional engagement

How teachers learn about, adopt and continue using the approach

Code	Code label	Meaning
2.5.1	Communication and visible benefits	Making opportunities known and explaining their practical value
2.5.2	Participation, requirements and incentives	Motivation, compulsory development, recognition and career incentives
2.5.3	Practical routes into use	Training, guidance, examples and supported application

2.6. Quality assurance and improvement

Maintaining and checking the quality of implementation

Code	Code label	Meaning
2.6.1	Quality of training and providers	Suitability of trainers, courses and delivery platforms
2.6.2	Review, feedback and monitoring	Evaluation, editorial review and iterative improvement

3. Needed materials, programmes and formats

3.1. What the learning must cover

Code	Code label	Meaning
3.1.1	AI literacy, critical use and ethics	Content on AI capabilities, limitations, prompting, bias and responsible use.

Code	Code label	Meaning
3.1.2	Purposeful digital pedagogy	Content on when and why a digital tool serves learning, including analogue alternatives.
3.1.3	Inclusion and accessible teaching	Content on differentiated, disability-aware or culturally inclusive practice.
3.1.4	Digital sustainability and OER literacy	Content connecting sustainability, digitalisation, resource sharing and OER.

3.2. Materials and design aids

Code	Code label	Meaning
3.2.1	Ready-to-use examples and guidance	Templates, subject examples, scenarios, tutorials and implementation guides.
3.2.2	Adaptable and co-created OER	Openly reusable resources that teachers can tailor and jointly develop.
3.2.3	Accessible and multilingual materials	Materials in local languages, plain language or accessible formats.
3.2.4	Subject and school-level fit	Resources organised or adapted by subject, school type, learner group or level.
3.2.5	Practical decision aids	Checklists or prompts to guide tool selection and instructional design.

3.3. Platforms and technical infrastructure

Code	Code label	Meaning
3.3.1	Shared resource platform and integration	A curated place for finding, connecting, sharing and improving resources.
3.3.2	Devices, software and technical support	Usable infrastructure, assistive technology, connectivity and maintenance.

3.4. Programme pathways and targeting

Code	Code label	Meaning
3.4.1	Progressive learning pathway	A sequence from digital basics toward more advanced work.
3.4.2	Differentiated and targeted routes	Different entry points and content for roles, prior knowledge and contexts.
3.4.3	Ongoing professional learning	Continued development beyond a single course or initial teacher education.

3.5. Delivery formats and learning process

Code	Code label	Meaning
3.5.1	Blended and flexible participation	Thoughtful mix of online, face-to-face, synchronous and self-paced work.
3.5.2	Short, clear and accessible units	Manageable units, plain explanations and accessible tutorials.
3.5.3	Hands-on, reflective and iterative learning	Try approaches, reflect, discuss, get feedback and improve.

3.6. Facilitation and communities

Code	Code label	Meaning
3.6.1	Facilitation, mentoring and expert support	Human pedagogical or technical guidance accompanying independent study.
3.6.2	Peer communities and exchange	Networks where teachers discuss experience and share practice.
3.6.3	Collaborative design and peer multipliers	Co-design with stakeholders and train peers to spread practice.

3.7. Conditions, uptake and quality

Code	Code label	Meaning
3.7.1	Protected time and manageable workload	Time and working conditions needed for learning, creation and participation.
3.7.2	Outreach, relevance and teacher buy-in	Communication and a visible benefit that encourage participation.
3.7.3	Quality review and user feedback	Check usability, pedagogical fit and improve through piloting.

4. Teacher competences

Cross-cutting key competences

Code	Competence	Illustrative segment
4.K1	Sustainability	Segment 61: where device resources come from and what happens to discarded phones.
4.K2	Critical thinking	Segment 73: “a fundamental competence is critical thinking.”
4.K3	Communication/Collaboration	Segment 102: “the ability to work collaboratively.”
4.K4	Readiness for learning	Segment 43 calls for remaining curious and trying new things.
4.K5	Digital competences	Segment 21 asks how generative AI works and what its limitations are.

4.1. Knowledge and integrated competence

Code	Code label	Meaning
4.1.1	Subject expertise and interdisciplinary integration	Use sound subject knowledge and connect disciplinary perspectives.
4.1.2	Digital and AI fluency	Understand and operate digital systems and AI, including limitations.
4.1.3	Integrated competence and balance	Bring subject, pedagogical, digital and transversal competences together.

4.2. Critical, ethical and sustainable judgment

Code	Code label	Meaning
4.2.1	Critical information and research literacy	Evaluate sources, evidence, claims and AI outputs.
4.2.2	Ethical AI judgment and transparency	Judge responsible uses, disclose AI assistance and protect learner agency.
4.2.3	Sustainability and resource judgment	Consider environmental and material consequences of digital practice.

4.3. Pedagogical design and learner response

Code	Code label	Meaning
4.3.1	Purposeful pedagogical design	Choose tools, analogue alternatives and methods to serve explicit learning aims.
4.3.2	Learner diagnosis and responsive teaching	Notice learner circumstances and adjust instruction, support and pace.
4.3.3	Inclusion and accessible design	Enable participation across disability, language and cultural differences.
4.3.4	Authentic and vocationally relevant learning	Connect learning with practical tasks, lived contexts and future work.
4.3.5	Create, adapt and share resources	Select, design, adapt and openly exchange learning resources.

4.4. Assessment and evaluation

Code	Code label	Meaning
4.4.1	Assessment validity in the AI era	Design and judge assessment that demonstrates the pupil's own learning.
4.4.2	Formative evaluation and feedback	Use observation, self-assessment and process evidence to support progress.

4.5. Relationships, collaboration and community

Code	Code label	Meaning
4.5.1	Empathy, communication and trust	Build relationships and explain content accessibly.
4.5.2	Collegial collaboration	Work and share with colleagues and other partners.
4.5.3	Lead and participate in learning communities	Contribute to learning networks and collective professional learning.

4.6. Professional agency and development

Code	Code label	Meaning
4.6.1	Reflective and metacognitive practice	Examine one's assumptions, decisions, strengths and need to improve.
4.6.2	Adaptability and change management	Respond constructively to changing technology and school conditions.
4.6.3	Professional resilience	Maintain constructive practice amid uncertainty and constraints.
4.6.4	Teacher agency and professional responsibility	Own professional decisions, safeguard the teacher's role and act with purpose.
4.6.5	Continuing learning and professional development	Maintain knowledge through experimentation, research and training.

5. Digital competences

5.1. Operational fluency

Code	Code label	Meaning
5.1.1	Basic devices, platforms, files and communication	basic devices, platforms, files and communication
5.1.2	AI tool knowledge and limitations	ai tool knowledge and limitations

5.2. Critical and responsible literacy

Code	Code label	Meaning
5.2.1	Search, source evaluation and AI output verification	search, source evaluation and ai output verification
5.2.2	AI ethics, bias, provenance and transparent use	ai ethics, bias, provenance and transparent use
5.2.3	Equity and digital participation	equity and digital participation
5.2.4	Digital sustainability and resource impacts	digital sustainability and resource impacts

5.3. Digital pedagogy

Code	Code label	Meaning
5.3.1	Purposeful tool choice and digital–analogue balance	purposeful tool choice and digital–analogue balance
5.3.2	Subject-specific and authentic digital learning	subject-specific and authentic digital learning
5.3.3	Personalisation, differentiation and inclusion	personalisation, differentiation and inclusion
5.3.4	Digital assessment and feedback	digital assessment and feedback
5.3.5	Learning environments and classroom routines	learning environments and classroom routines

5.4. Digital resource practice

Code	Code label	Meaning
5.4.1	Creating, adapting and licensing materials	creating, adapting and licensing materials
5.4.2	Accessible and assistive learning resources	accessible and assistive learning resources

5.5. Professional digital development

Code	Code label	Meaning
5.5.1	Self-assessment and recognition of existing practice	self-assessment and recognition of existing practice
5.5.2	Updating, experimenting and learning with colleagues	updating, experimenting and learning with colleagues

6. Critical and sustainable digital and AI practice

6.1. Critical appraisal and purposeful use

Code	Code label	Meaning
6.1.1	Understand AI capabilities, limitations and misconceptions	Recognising what AI systems can and cannot do, how their outputs are produced, and why apparent fluency or popularity should not be mistaken for reliability.
6.1.2	Verify outputs, evidence and bias in information	Checking AI and online claims against sources and subject knowledge, and identifying errors, unsupported claims and misleading information.
6.1.3	Choose tools for a clear learning purpose and evaluate effects	Starting with the learning objective, selecting digital or non-digital approaches accordingly, and considering whether the tool improves learning.

6.2. Human agency and learning ownership

Code	Code label	Meaning
6.2.1	Preserve independent thinking and avoid cognitive offloading	Protecting the learner's and teacher's own reasoning, memory, creativity and effort when AI makes it easy to delegate the thinking.
6.2.2	Use AI as scaffold while retaining teacher and learner judgment	Using AI for feedback, prompts, practice or routine support while people interpret results, make decisions and remain responsible.
6.2.3	Design assessment, attribution and integrity for AI use	Making permitted AI use explicit in tasks and assessment, checking what learners know themselves, and addressing generated work and attribution.

6.3. Inclusion, accessibility and fairness

Code	Code label	Meaning
6.3.1	Adapt learning and assistive resources to actual needs	Adjusting content, pathways and assistive tools to particular learners, including those with disabilities or learning difficulties.
6.3.2	Examine unequal access and unequal benefits	Recognising differences in access, support and ability to benefit from AI, and considering how digital practice can deepen or reduce inequalities.
6.3.3	Identify and counter gender, cultural and other algorithmic bias	Identifying gendered, cultural and other stereotypes in training data or outputs, including biases introduced by users, and challenging their reproduction.

6.4. Rights and ethical safeguards

Code	Code label	Meaning
6.4.1	Protect data, privacy and student information	Understanding what information is entered into digital and AI systems, where it may go, and how to protect personal data.
6.4.2	Address consent, authorship, licensing and transparency	Considering permission to use material, copyright and open licences, who created an output, and whether AI involvement is disclosed.
6.4.3	Reflect on moral and philosophical consequences	Examining the values and consequences behind AI use, including human responsibility and effects on relationships and educational purposes.

6.5. Sustainable and systems practice

Code	Code label	Meaning
6.5.1	Weigh environmental costs, device lifecycles and resource use	Taking account of electricity, computational demands, devices, their lifespan and disposal when deciding whether digital or AI use is justified.

Code	Code label	Meaning
6.5.2	Consider wider educational, social and institutional effects	Looking beyond a tool or task to its connections with educational systems, social inequalities, commercial interests and wider effects.

6.6. Professional and collective governance

Code	Code label	Meaning
6.6.1	Develop workable AI rules and shared boundaries	Developing AI and assessment rules that teachers and learners understand and can realistically follow, with shared responsibilities.
6.6.2	Maintain professional learning and teacher agency amid change	Keeping professional judgment and pedagogical expertise central while learning about changing tools and contributing to collective decisions.

7. Digitally sustainable teacher

7.1. Purposeful digital pedagogy

Code	Code label	Meaning
7.1.1	Select technology for an educational purpose	The teacher chooses digital or analogue approaches according to whether they help pupils learn, rather than treating technology use as a goal.
7.1.2	Design active and lasting learning	Digital teaching supports understanding, engagement, application and retention beyond producing or transmitting content.
7.1.3	Adapt teaching and assessment to learners and contexts	Methods, resources and assessment respond to subjects, learner needs and authentic settings; technology does not replace pedagogical planning.

7.2. Critical and ethical digital practice

Code	Code label	Meaning
7.2.1	Understand and scrutinise digital and AI systems	Teachers and pupils learn how technologies work, test claims and outputs, and question their limits and effects.
7.2.2	Protect thinking, authorship and professional agency	The teacher safeguards pupils' original thought and meaningful work, while retaining human responsibility for teaching and assessment.
7.2.3	Use technology safely and responsibly	Digital resources are used with attention to privacy, academic ethics, fairness, wellbeing and the consequences for learners.

7.3. Ecological responsibility

Code	Code label	Meaning
7.3.1	Teach sustainability, climate and SDG literacy	Sustainable development, climate and the environment become topics of teaching and learner awareness.
7.3.2	Weigh the footprint of digital choices	Teachers consider energy, water, materials, travel, paper and the resource demands of AI and devices before making choices.
7.3.3	Support efficient use, repair and reuse	Resource stewardship includes using what already exists, extending the life of devices and avoiding waste.

7.4. Social sustainability and inclusion

Code	Code label	Meaning
7.4.1	Make digital learning accessible and equitable	Teaching considers diverse learning and life circumstances, access to devices and the risk that technology amplifies disadvantage.
7.4.2	Develop civic, social and environmental responsibility	The teacher supports pupils' informed participation, social responsibility and critical engagement with society.

7.5. Durable practice and professional growth

Code	Code label	Meaning
7.5.1	Keep learning and adapting to change	Teachers update their competences, test new approaches and remain ready for changing technologies over a career.
7.5.2	Build usable, reusable and shareable practice	Teaching methods and resources are practical, transferable or shareable, and can remain useful beyond one lesson or teacher.
7.5.3	Exercise professional judgment and collaboration	Teachers use their expertise and autonomy, learn with colleagues and resist turning professional practice into routine tool use.

7.6. Meaning and enabling context

Code	Code label	Meaning
7.6.1	Clarify the meaning and scope of sustainability	Participants define, question or dispute what "digitally sustainable" means and whether its environmental, social and professional dimensions belong together.
7.6.2	Identify conditions for implementation	Training, policy, employment, infrastructure and institutional support shape whether the ideal can be put into practice.

8. Open educational resources

8.1. Educational value and access

Code	Code label	Meaning
8.1.1	Open access and affordability	Resources available without purchase or subscription can widen access to learning and reduce dependence on costly textbooks.
8.1.2	Adaptation for learners and contexts	Teachers can tailor resources for local curricula, languages, accessibility and diverse learning needs when the material and permissions allow it.
8.1.3	Pedagogical use with other learning practices	Resources support teaching when they are embedded in suitable learning activities, professional exchange and reflection rather than treated as materials alone.

8.2. Creation, reuse and rights

Code	Code label	Meaning
8.2.1	Teacher creation, curation and co-creation	Teachers develop, select, combine or collaboratively improve materials; they need not create every resource from scratch.
8.2.2	Licensing, attribution and lawful adaptation	Copyright and open licences determine whether materials can be shared, modified, translated or used with AI; free access alone does not grant these permissions.
8.2.3	Accessible and modular resource design	Materials are designed in usable, accessible formats, including short units, tutorials and resources suitable for assistive use.

8.3. Quality and lifecycle

Code	Code label	Meaning
8.3.1	Review for accuracy and educational fit	Resources need checking for reliability, classroom usefulness, curriculum alignment and appropriateness to learners.
8.3.2	Maintenance and version stewardship	Responsibility for updating, correcting and improving resources remains after initial publication.
8.3.3	Discoverability, organisation and dissemination	Catalogues, platforms, clear descriptions and communication help teachers find appropriate resources amid many versions and choices.

8.4. Professional and institutional capacity

Code	Code label	Meaning
8.4.1	Skills and confidence for OER practice	Teachers need practical knowledge and confidence to create, license, evaluate, publish and adapt resources.
8.4.2	Time, workload and recognition	Creation and sharing require time, effort, support and recognition within teachers' professional work.

Code	Code label	Meaning
8.4.3	Funding, infrastructure and governance	Budgets, access to tools, public platforms, editorial oversight and shared policies shape a functioning resource ecosystem.
8.4.4	Collaboration and communities of practice	Teams, peers, specialists and other stakeholders contribute to co-development, testing and dissemination.

8.5. Competing resource models and transitions

Code	Code label	Meaning
8.5.1	Textbook and publisher dependence	Closed or familiar textbook systems can constrain affordability, adaptation and the uptake of teacher-selected open materials.
8.5.2	Free platforms and proprietary tool constraints	Free trials, subscriptions or open-source software affect resource choices but should be distinguished from openly licensed educational content.

9. Challenges

9.1. Coherence and implementation

Code	Code label	Meaning
9.1.1	Integrating digitalisation with sustainability	Digital teaching and sustainable development are often planned separately; participants call for ways to connect them in training and teaching.
9.1.2	Translating ambitions into classroom practice	Recognised priorities remain hard to enact without concrete teaching examples, guidance and workable implementation.
9.1.3	Aligning policy, rules and practice	National and local priorities or rules can pull in different directions, leaving schools uncertain about acceptable AI and digital use.

9.2. Resources and access

Code	Code label	Meaning
9.2.1	Suitable and current tools for learning	Available platforms, materials or AI tools may be poorly matched to the classroom, outdated or inadequate for effective planning.
9.2.2	Unequal access to tools and expertise	Differences in access to useful devices, paid tools, knowledge or support can create unequal opportunities.
9.2.3	Funding and lifecycle costs	Buying and replacing devices and licensing tools strain school budgets and raise questions about environmental sustainability and priorities.
9.2.4	Tool approval and data safeguards	Data processing agreements, licences and institutional approval determine which tools teachers can legitimately use.

9.3. Professional capacity and workload

Code	Code label	Meaning
9.3.1	Practical digital and AI skills	Teachers report uneven competence or training for selecting, using and adapting tools in teaching.
9.3.2	Time for preparation, evaluation and creation	Planning, assessing and developing shared digital resources require protected time alongside teaching duties.

9.4. Critical AI use and learning

Code	Code label	Meaning
9.4.1	AI reliability, ethics and rights	Teachers need to judge generated content, bias and AI limits while addressing personal data and copyright.
9.4.2	Overreliance and loss of active learning	Quick AI answers may displace learners' own problem solving, explanation, retention and engagement with teachers.