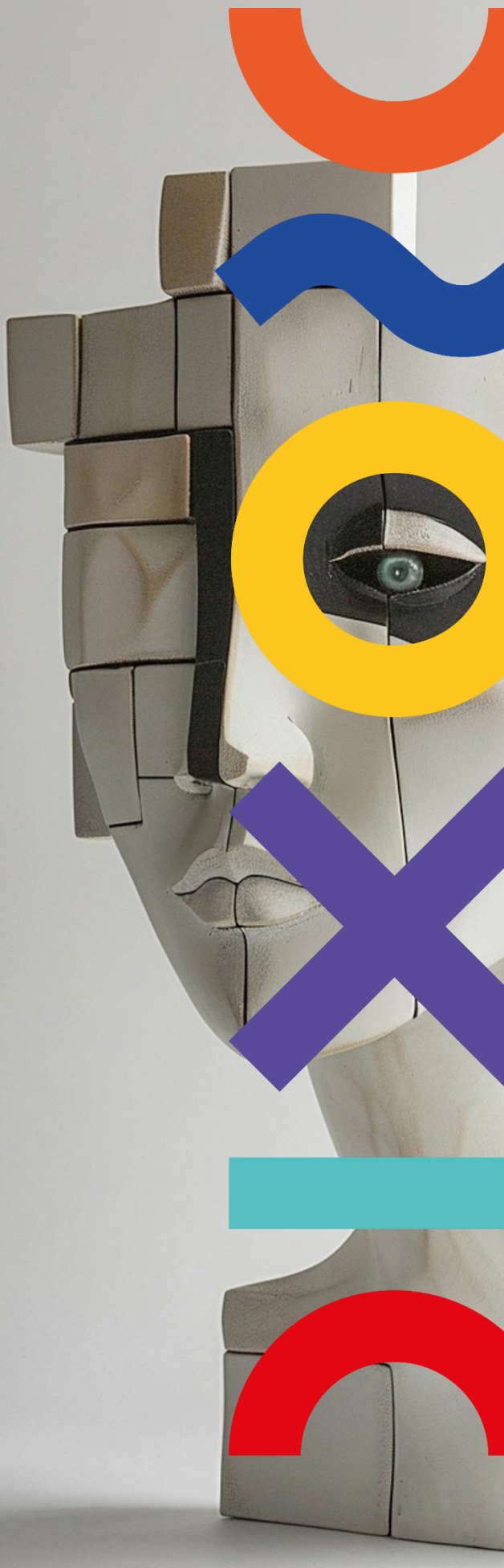
ENCODE

D4.2

Generating Emotional Responses



D4.2 Generating Emotional Responses

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DISCLAIMER

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Executive summary

Deliverable D4.2 "Generating emotional responses" reports the empirical foundation and analysis-ready data pipeline used in ENCODE Work Package 4 to elicit and interpret emotional responses to political narratives in digital environments. The deliverable builds directly on Deliverable D4.1, which specifies the full WP4 methodological protocol for triangulated biometric and qualitative research.

The objective of WP4 is to elicit emotional responses and analyse their internal complexity by comparing neurobiological reactions captured via face-tracking with citizens' accounts gathered through in-depth interviews. The approach is motivated by the premise that politically relevant emotions are multi-component: they involve automatic affective reactions, attentional selection, and socially mediated interpretation and regulation. As a result, what is "felt" during exposure to political content may diverge from what is later labelled, narrated, or justified.

Task 4.2 generates the key empirical inputs required for these analyses by integrating three data streams: (1) a pre-study questionnaire placing participants on a two-axis political compass (economic left-right; social authoritarian-libertarian) and collecting minimal demographic variables; (2) a synchronised biometric session measuring facial expressions while participants view simulated social media stimuli; and (3) an immediate post-stimuli in-depth interview (IDI) capturing conscious emotions, perceived authenticity, trust, resonance or rejection, and meaning-making processes.

The biometric session is conducted in a controlled setting and uses harmonised equipment and software: a Tobii Pro Fusion remote eye-tracker (120Hz) for attention metrics, and CAPTIV NeuroLab for face-tracking to produce emotion timelines. Stimuli are delivered via a timed video sequence that mimics natural social media engagement on the X platform while ensuring comparable exposure time across participants.

D4.2 in Chapters 1-6 documents the methodological and data-quality backbone required to support later analytical chapters: study design and standardisation principles; dataset structure and integration across countries and modalities; data governance and ethics safeguards; and the biometric processing and quality control (QC) pipeline. The emphasis is on transparency and reproducibility: raw data are preserved, processing steps are logged, and QC decisions are recorded as metadata to support robustness checks and cross-country comparability.

The outputs of D4.2 feed directly into subsequent WP4 deliverables, notably D4.3 "Emotional maps", which visualise country-level patterns of divergence between biometric results and verbally expressed emotions. In addition, D4.2 provides analysis inputs relevant for other WP experimentation and for future narrative development activities by identifying which narrative elements capture attention, trigger affective responses, and generate trust or rejection.

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1 INTRODUCTION

1.1 The ENCODE Project

The ENCODE project, titled "Unveiling Emotional Dimensions of Politics to Foster European Democracy," aims to explore and decode the role of emotions in political discourse and their impact on democratic processes. Recognizing that emotional appeals have significantly influenced political movements and voter behaviour, ENCODE seeks to understand the interplay between emotions, values, and identities. The project's primary goal is to create new positive narratives that can foster trust and engagement in European democratic processes, thereby counteracting the negative emotions that often dominate political discussions. Through innovative methodologies, including social media sentiment analysis, biometric research, and surveys, ENCODE aims to provide policymakers with tools and strategies to better incorporate the emotional needs of citizens into governance, ultimately enhancing democratic resilience and fostering a more inclusive political environment.

1.2 Objectives of deliverable

Deliverable D4.2 presents the empirical results of Task 4.2 and documents how emotional responses were generated, captured, processed and interpreted within WP4. In line with the Description of the Action, the deliverable contrasts biometric evidence - especially face-tracking outputs - with citizens' verbally expressed emotions from post-stimuli in-depth interviews, and situates both layers in relation to respondents' political-compass positions and socio-demographic characteristics. The report therefore serves as the main analytical bridge between the methodological protocol established in D4.1 and the country-level emotional maps to be developed in D4.3. Its specific objectives are to document the harmonised study design and dataset, report the main face-tracking and IDI findings, operationalise and interpret the affect-emotion gap, and provide a cross-country analytical synthesis that can inform the later WPs.

1.3 Structure of the document

The deliverable is structured in eleven substantive chapters, followed by annexes. Chapter 1 introduces the report and positions D4.2 within the wider ENCODE project. Chapter 2 defines the analytical rationale and research questions, including the contrast between current and future narratives. Chapter 3 summarises the triangulated study design, while Chapter 4 describes the dataset, sample and stimuli. Chapter 5 addresses data governance and ethics, and Chapter 6 presents the political compass results used to contextualise later findings. The analytical core of the deliverable is contained in Chapters 7 to 10: Chapter 7 reports face-tracking results; Chapter 8 presents the IDI codebook and thematic findings; Chapter 9 integrates biometric and qualitative evidence through the concept of convergence and mismatch; and Chapter 10 compares the results across and within countries. Chapter 11 concludes with an interpretation summary and a discussion of limitations, robustness and implications for subsequent ENCODE work. Chapter 12 show the study limitation, robustness check and the further steps.

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1.4 Relation to other tasks

The report is most directly linked to WP4, especially Task 4.1, which provided the methodological protocol and stimuli logic, and Task 4.2, which generated the empirical material analysed in the present document. The study design, participant flow, stimuli preparation and interview procedures reported here follow the D4.1 framework, while the analytical outputs of D4.2 provide the evidence base for D4.3 “Emotional maps”. The deliverable is also connected to WP2 and WP3, whose conceptual work on affective polarisation, affective pluralisation and social-media emotional patterns informed the development of the current and future narrative stimuli. Finally, the findings reported here feed forward into WP5, where the observed emotional patterns, cross-country differences and affect-emotion mismatches can support the refinement of later experiments, survey instruments and democratic resilience analyses.

2 BACKGROUND AND RESEARCH QUESTIONS

2.1 SCIENTIFIC RATIONALE: AFFECT, ATTENTION AND EMPTION TALK

ENCODE investigates the role of emotions in political discourse and their implications for democratic resilience. A key empirical challenge is that emotional responses to political narratives unfold across multiple levels. First, exposure to emotionally loaded cues triggers rapid affective reactions and shifts in attention. Second, individuals interpret and label their experiences through culturally available emotion vocabularies and political identities. Third, participants may regulate or strategically present their reactions, particularly when content relates to sensitive topics such as outgroups, distrust in institutions, or perceived threats.

Biometric methods provide a non-intrusive window into these processes. Face-tracking detects facially expressed affective signals and their temporal dynamics. In contrast, interviews capture reflective appraisal, narrative interpretation, and explicit emotional labelling. Triangulation of these sources allows ENCODE to study not only emotional effects, but also the conditions under which affective signals and verbal accounts converge or diverge, and what such "gaps" imply for political communication.

2.2 CONCEPTUAL FRAME: AFFECTIVE POLARISATION VS AFFECTIVE PLURALISATION

WP4 contrasts emotional engagement with narratives aligned to two affective frameworks. "Current narrative" stimuli reflect polarising patterns of online political communication, including antagonistic framing and emotionally conflictual cues. "Future narrative" stimuli represent an initial, theory-informed operationalisation of the Theory of Affective Pluralisation (TAP), incorporating elements such as

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emodiversity. Emodiversity is defined as "the variety and relative abundance of the emotions that humans experience" (Quoidbach et al., 2014, p.2057) and comprises two key factors:

- Richness – a measure indicating the number of different emotions experienced by an individual or group (e.g., whether someone feels only a few basic emotions or a wide range of them).
- Evenness – a measure determining whether different emotions are experienced in relatively equal proportions or if one emotion dominates (e.g., whether someone frequently feels only sadness and fear, or experiences all emotions in more balanced proportions).

At this project stage, future narratives are treated as experimental prototypes for validation and refinement.

2.3 ROLE OF THE TASK 4.2 AND DELIVERABLE D4.2

Task 4.2 generates harmonised biometric and qualitative data required to compare affective engagement across narrative types and countries. D4.2 documents: (a) the generation of emotional responses via controlled exposure; (b) the data structure enabling integration of biometrics, survey variables, and interviews; and (c) the processing and Quality Control (QC) rules that transform raw recordings into analysis-ready outputs. This documentation is necessary for valid cross-country comparison and for the transparency required in later deliverables.

2.4 RESEARCH QUESTIONS

Methodologically, the WP4 study combines three synchronised layers of evidence. First, participants completed a short pre-study questionnaire including demographic variables and a political compass instrument locating them on economic and socio-cultural dimensions. Second, they took part in a controlled biometric session in which they were exposed to simulated social-media content built around four fictional politician profiles and two narrative conditions: current/polarising and future/pluralistic. During this phase, face-tracking captured dominant affective reactions in real time. Third, an immediate post-stimuli in-depth interview elicited consciously expressed emotions, interpretations and evaluations of the same materials. Conducted in four countries under a harmonised protocol, this design makes it possible to compare what participants showed biometrically, what they later articulated verbally, and how both layers vary by country, topic and political orientation. Against this methodological background, the study was guided by the following research questions:

RQ1 - Affective response profiles: How do face-tracking-derived affective response profiles differ across narrative types (current polarised vs future pluralistic) and across the four fictional politician profiles?

RQ2 - Affects-emotions mismatch (the gap): Under which conditions do biometric affects diverge from verbally expressed emotions in IDIs, and what interpretive

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mechanisms explain these discrepancies (e.g., ambivalence, suppression, reappraisal, scepticism, perceived manipulation)?

RQ3 - Cross-country variation: To what extent do affective profiles, and mismatch indicators vary across countries, and what contextual factors may contribute to such differences?

RQ4 - Values/identity context and moderation: How do political orientation and values/identity variables (including an EU values focus) moderate responses to polarising versus pluralistic narratives?

RQ5 - Implications for narrative design: What do the observed patterns imply for designing emotionally resonant democratic narratives that reduce hostile polarisation while preserving pluralistic disagreement?

3 STUDY DESIGN OVERVIEW

3.1 TRIANGULATED DESIGN

The WP4 study uses a triangulated design integrating three phases: a pre-study questionnaire, a biometric exposure session, and a post-stimuli in-depth interview (IDI). This design is intended to combine objective behavioural and affective indicators with subjective emotional meaning-making and interpretation.

3.2 PRE-STUDY QUESTIONNAIRE: POLITICAL COMPASS AND DEMOGRAPHICS

The pre-study questionnaire places participants on a two-axis political compass: economic (left-right) and social (authoritarian-libertarian). This enables stratified interpretation of affective responses by political orientation. The questionnaire also collects minimal demographic variables required for analysis and anonymises responses using an individual participant code (e.g., R01_Poland, R02_Denmark) applied consistently across all research stages. The pre-study questionnaire was scripted using the Google Form. The structure of the questions was the same for each participant. Questions were translated to national languages, but if respondents wanted, they could also use the English versions. Using the same script for the on-line questionnaire allowed to minimise the data error when exporting the results into the excel/csv file from different sources and merging them afterwards.

3.3 BIOMETRIC SESSIONS: EXPOSURE TO SIMULATED SOCIAL MEDIA STIMULI

Participants view simulated social media content featuring four fictional politician profiles. Each of the 20 profiles were designed to appear platform-authentic (profile picture, banner, account description) and contains a fixed set of posts. In D4.1, the standard design specifies five posts per profile and a timed exposure of

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approximately two and a half minutes per profile in a video format that mimics natural use while enforcing comparability. The video was used to avoid accidental clicking on the interactive parts of the X platform that might disturb the research. This was also observed during the pilot testing. During exposure, face-tracking captures real-time facial affective signals and attention indicators.

3.4 POST-STIMULI IDI: ELICITING EMOTIONS AND INTERPRETATION

Immediately following the biometric session, an up to 30-minute semi-structured IDI was conducted (on average 15 minutes, depending on whether the respondent was willing to talk about the chosen political topics used in the posts). The interview was designed to: (a) capture consciously experienced emotions and cognitive appraisals; (b) explore why particular posts elicited positive, negative, or ambivalent responses; (c) assess perceived authenticity, trust, and engagement; and (d) identify patterns of resonance, rejection, or scepticism. Interviews were recorded only with participant permission and were followed by a structured debriefing. All the recordings were stored on the secured SharePoint for the purpose of preparing the interview transcripts.

3.5 DEBRIEFING

Debriefing ensures transparency and mitigates potential risks associated with deception inherent to fictional stimuli. Participants were informed that the profiles and posts were not real and were created solely for research purposes. They received project and data protection contact details and were reminded of their rights regarding data handling and withdrawal.

3.6 PILOT TESTING AND HARMONISATION

A pilot and validation phase precedes full data collection to ensure methodological rigour and cross-site alignment. This includes testing: clarity and neutrality of the questionnaire; realism and comprehensibility of stimuli; calibration and synchronisation reliability; and the interview guide's ability to elicit rich emotional accounts without leading questions. Harmonisation is supported by shared documentation, training materials, and implementation checklists.

3.7 STANDARDISATION OF SETTING AND EQUIPMENT

To reduce measurement artefacts and ensure comparability, sessions are conducted in a controlled environment. D4.1 specifies practical requirements for lighting (diffused and even, avoiding glare and shadows), sound control during interviews, and participant comfort (temperature, ergonomic seating). The study was conducted on one laptop to ensure the consistency of the hardware and the same parameters of camera and video capturing.

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4 DATASET DESCRIPTION

4.1 COUNTRIES AND STUDY SITES

The core WP4 biometric and qualitative data collection covers four countries: Poland, Austria, Denmark, and Bulgaria. Each site implements the harmonised protocol to enable cross-country comparison of affective response profiles and affects-emotions mismatch indicators. The research was conducted in facilities of ENCODE partners:

1. In Poland - ASM office in Lodz
2. In Austria – UNIVIE economic experiments laboratory in Vienna
3. In Denmark – UCPH workshop rooms in Copenhagen
4. In Bulgaria – CSD office in Sofia

4.2 TARGET SAMPLE DESIGN

D4.1 specifies a purposive design aimed at methodological coherence under a limited sample size, focusing on digitally engaged participants. The target design includes:

- Age group: 18-35 years (selected to align with intensive social media use and reduce intra-group variability).

- Education: higher vs non-higher education (to support exploratory heterogeneity).

- Recruitment channels: academic partners, NGOs, social media recruitment, snowball sampling, and/or external recruiters.

- Eligibility: adults (18+), fluent in the local language (and/or English where applicable), active social media users, and willing to consent to biometric recording and an audio-recorded IDI.

- Incentives: a small token of appreciation (e.g., gift card or equivalent), in line with national practice.

4.2.1 SAMPLE RECRUITMENT IN POLAND

In Poland total 30 participants were recruited. The recruitment process was conducted by the external recruitment entity among the citizens of Łódź city. The recruitment was bas od the sample distribution criteria to ensure the proportional participation in terms of gender, age, and educational level.

4.2.2 SAMPLE RECRUITMENT IN AUSTRIA

The Austrian part of the WP4's biometric and interview-based study had 15 participants. The study's participants were drawn from the pre-registered subject pool provided by the Vienna Center for Experimental Economics (VCEE). This is a

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pre-existing framework that provides a ready-made structure for selecting participants and ensuring their participation in the study. This method ensured that the process remained transparent and systematic.

The participants were invited using ORSEE, the Online Recruitment System for Economic Experiments, by selecting a random sample from the VCEE subject pool database. To ensure the study's participants came from the target population, only German-speaking participants who had been in the subject pool for at least a year before the study began were considered.

In accordance with VCEE's guidelines, the participants were sent an email explaining the study's details, eye-tracking, face-tracking, and the reward system, ensuring that the participants remained informed throughout the process.

4.2.3 SAMPLE RECRUITMENT IN DENMARK

In the Danish study, the participants were recruited through a combination of several strategies to reach the required number and ensure diversity. The main method involved distributing flyers within the University of Copenhagen. This was the main method through which the participants were reached within the target group.

However, to reach more than the university-based population, snowball sampling was also employed as part of the method. This involved the participants who had already been recruited encouraging others within the target group in their social network to also take part in the study.

The other part of the method involved the use of personal and professional networks. This was done to ensure diversity and prevent the participants from being homogenous. In this way, the participants were more diverse in terms of gender, age, and educational background.

4.2.4 SAMPLE RECRUITMENT IN BULGARIA

The participants in the biometric experiment in Bulgaria were selected from the predetermined target group consisting of young adults between the ages of 18 and 35 years. The selection was carried out through a structured network-based method. This method was efficient in accessing the participants from the target group and promoting diversity within the selected group. The initial selection was carried out through the existing professional and institutional networks available to the research team. This included personal and professional acquaintances as well as former interns associated with CSD.

To avoid overreliance on the direct contacts method and expand the participant base, the snowball method was also implemented in the selection of participants. This method encouraged the participants who were successfully recruited in the initial stage to disseminate the research invitation through their personal and professional networks in order to recruit more participants within the

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predetermined target group. This selection method was effective in accessing more participants and expanding the participant base.

The selected group was well balanced in terms of gender and had a certain degree of diversity in terms of educational background. A total of 16 participants were selected in the biometric experiment in Bulgaria.

4.3 ACHIEVED SAMPLE

A total of N=76 participants completed the political compass, biometric session and post-stimuli interview across four countries. The table below summarises the sample distribution in the research

Table 1 - Achieved sample characteristics by country (N=76)

Country	N	Age mean (SD)	Age range	Gender: Male / Female	Education: Higher / Non-higher
Austria	15	26.0 (4.7)	20-39	6 (40.0%) / 9 (60.0%)	8 (53.3%) / 7 (46.7%)
Bulgaria	16	26.0 (3.2)	21-31	7 (43.8%) / 9 (56.2%)	13 (81.2%) / 3 (18.8%)
Denmark	15	24.5 (3.5)	20-32	6 (40.0%) / 9 (60.0%)	6 (40.0%) / 9 (60.0%)
Poland	30	25.5 (5.2)	18-35	15 (50.0%) / 15 (50.0%)	15 (50.0%) / 15 (50.0%)
Total	76	25.5 (4.4)	18-39	34 (44.7%) / 42 (55.3%)	42 (55.3%) / 34 (44.7%)

The achieved distribution was Poland (n=30), Austria (n=15), Bulgaria (n=16) and Denmark (n=15). The achieved sample broadly follows the target design specified in D4.1 (18-35 years, variation in education). One participant in Austria was aged 39 at the time of fieldwork. This case was retained because the participant met all other eligibility criteria, including active social media use and successful completion of the full research protocol. Given the small deviation from the planned age bracket and the participant's otherwise typical fit with the young-adult sample, retention was judged methodologically preferable to ad hoc exclusion.

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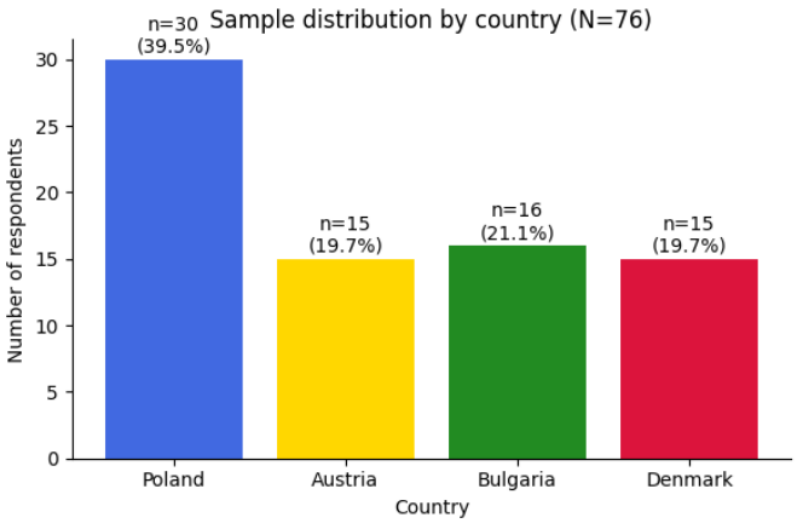
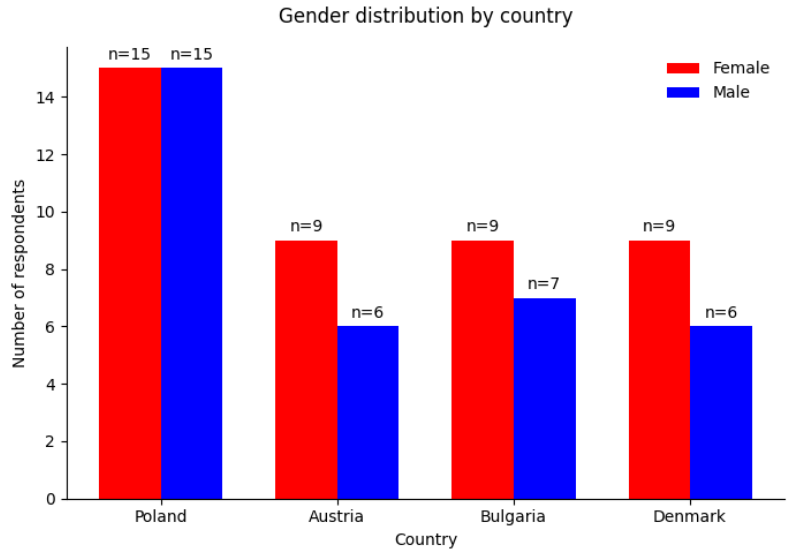
Figure 1 - Sample distribution by country



Across all countries, participant ages ranged from 18 to 39 years (mean 25.5, SD 4.4; median 25; IQR 22-29). Country-level mean ages were 26.0 years in Austria (SD 4.7), 26.0 in Bulgaria (SD 3.2), 24.5 in Denmark (SD 3.5) and 25.5 in Poland (SD 5.2).
Overall, 42 participants were female (55.3%) and 34 male (44.7%). Gender balance was approximately even in Poland (50.0% male / 50.0% female) and female-skewed in Austria and Denmark (60.0% female in each) and Bulgaria (56.2% female).

Figure 2 - Gender distribution by country



Higher education (bachelor or above) was reported by 42 participants (55.3%), while 34 (44.7%) reported non-higher education. The education mix differed across sites, with Bulgaria showing a higher share of higher-education respondents (81.2%) and Denmark showing a higher share of non-higher education respondents (60.0%).

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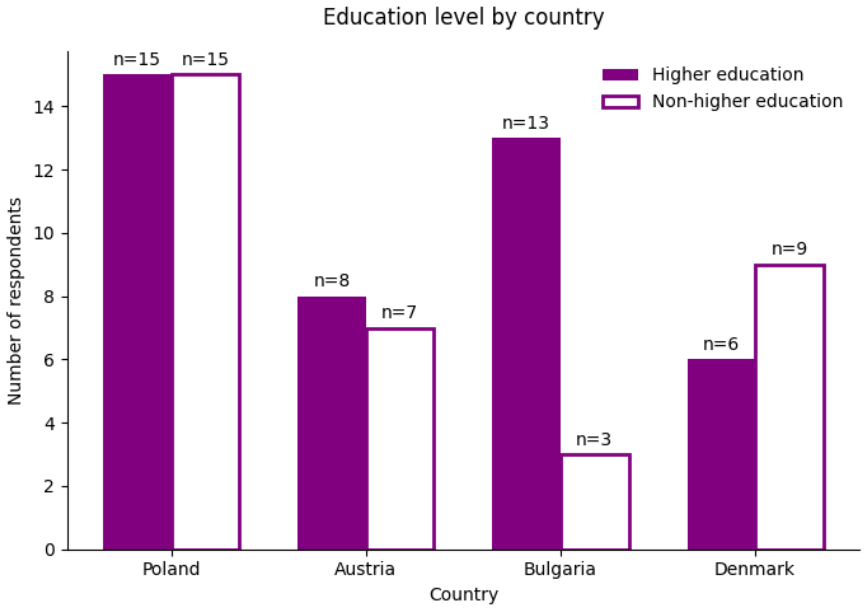
Figure 3 - Education level by country



The achieved sample is purposive and not intended to be statistically representative of national populations. It is designed to support within- and cross-country exploratory analysis of affective response profiles under a harmonised protocol.

4.4 STIMULI: FICTIONAL POLITICIANS' PROFILES AND NARRATIVE CONDITIONS

Stimuli are simulated social media environments delivered via the X platform interface. The stimulus set is built around four fictional politician profiles that combine ideological and identity cues, commonly specified as: (1) liberal pro-EU male politician, (2) liberal pro-EU female politician, (3) conservative EU-sceptic male politician, and (4) conservative EU-sceptic female politician. Each profile contains a profile picture, banner, account description, and a fixed number of posts (D4.1 specifies five posts per profile).

Table 2 - Stimuli: fictional politician profiles by country

Country	Fake politician name	Type of narrative/ politician profile	link
Austria	Lukas Gruber	liberal pro-EU male politician	https://x.com/LukasGruberGraz
	Matthias Berger	conservative EU-sceptic male politician	https://x.com/M_BergerSBG
	Anna Leitner	liberal pro-EU female politician	https://x.com/AnnaLeitnerWien

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	Sabine Hofer	conservative EU-sceptic female politician	https://x.com/SabineHoferLinz
Bulgaria	Georgi Petrov	liberal pro-EU male politician	https://x.com/GPetrov_Plovdiv
	Peter Nikolov	conservative EU-sceptic male politician	https://x.com/PNikolov_Burgas
	Elena Ivanova	liberal pro-EU female politician	https://x.com/Elena_W_Ivanova
	Desislava Stoyanova	conservative EU-sceptic female politician	https://x.com/D_Stoyanova_VRN
Denmark	Mikkel Høst	liberal pro-EU male politician	https://x.com/mikkel_aarhus
	Anders M. Hald	conservative EU-sceptic male politician	https://x.com/AndersM_Odense
	Sofie Jansen	liberal pro-EU female politician	https://x.com/sofieJ_kbh
	Camilla Nørgaard	conservative EU-sceptic female politician	https://x.com/camilla_Aalborg
Poland	Michał Zieliński	liberal pro-EU male politician	https://x.com/MZielinski_Wawa
	Piotr Kowalski	conservative EU-sceptic male politician	https://x.com/PiotrKBialystok
	Agnieszka Nowak	liberal pro-EU female politician	https://x.com/AgnieszkaNowak_
	Katarzyna Wójcik	conservative EU-sceptic female politician	https://x.com/PiotrKBialystok

The stimulus logic contrasts two narrative conditions. Current narrative stimuli reflect polarised and antagonistic patterns drawn from earlier project work (WP3). Future narrative stimuli represent an initial operationalisation of affective pluralisation principles at the message level, designed as an experimental prototype (WP2). Stimulus preparation aims to ensure comparability across conditions by controlling for topic, length, and format while varying affective framing.

Where synthetic text generation is used in stimulus development, D4.1 documents a privacy-preserving approach in which an EU-based tool with no-logging and encryption properties is used to generate country-specific posts based on anonymised text strings. In the future narrative condition, transformation prompts are used to rewrite baseline posts in line with TAP assumptions (emodiversity and pluralism in public debate) while preserving topic continuity to enable controlled comparison.

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Figure 4 - Example of the fictional politician X's profiles

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Figure 5 - Example of the posts

5 DATA GOVERNANCE AND ETHICS

5.1 GOVERNANCE PRINCIPLES

Data governance in WP4 was designed to protect participants' rights while enabling proper analysis. The study applies principles of respect for persons and human dignity, fair distribution of research burdens and benefits, and protection of privacy and confidentiality. Recruitment was conducted equitably and on a best effort basis, aiming for diversity appropriate to the research scope and avoiding discriminatory practices.

5.2 INFORMED CONSENT AND TRANSPARENCY

Participants received written and verbal information describing the study purpose, procedures, data modalities recorded, potential risks (e.g., discomfort from politically

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provocative content), and the voluntary nature of participation. Consent was obtained and signed by respondents prior to the start of the study , and participants were informed that they could withdraw at any time. Debriefing was integral: participants were informed that the social media profiles and political figures were fictional and created solely for research purposes. The informed consent template might be found in the annex 1.

5.3 GDPR COMPLIANCE AND LAWFUL BASIS

Processing of personal data follows GDPR requirements and national regulations. The lawful basis for processing biometric recordings and interview data is informed consent for research purposes. Data minimisation is applied by limiting the collection of personal identifiers; importantly, biometric recordings are not stored together with direct identifiers. Contact details required for recruitment and scheduling are stored separately and access is restricted by respected project parter responsible for the recruitment.

5.4 PSEUDONYMISATION AND SEPARATION OF IDENTIFIERS

Pseudonymisation is implemented via unique participant codes used across all datasets. The linkage key between codes and personal identifiers is stored separately under restricted access. For analysis, datasets remain pseudonymised; for reporting and dissemination, outputs are aggregated and anonymised to prevent re-identification. Audio recordings and transcripts are handled as sensitive data and are anonymised through redaction of names and identifying details.

For the research the following respondents coding was used, as example:

1) Political compass: R1_Poland
2) Biometric: R1_Poland
3) IDI: R1_Poland

This also provides a clear structure for data collection and later on for the data analysis and comparisons.

5.5 HANDLING OF BIOMETRIC IMAGES AND DISSEMINATION RESTRICTIONS

No images or videos of participants' faces are disseminated. Face-tracking outputs are stored as numerical time series and derived indices rather than as identifiable video whenever feasible. Any use of interview quotations is screened for direct and indirect identifiers, and quotations are labelled only with non-identifying metadata (e.g., country and participant code).

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6 POLITICAL COMPASS QUESTIONNAIRE: DESCRIPTIVE RESULTS AND LINKS TO AFFECTS

This chapter summarises the values and identity questionnaire administered as part of Task 4.2 and relates these measures to biometric response profiles. The intent is twofold: (i) describe the distribution of core identity/value indicators within and across countries; and (ii) test whether these indicators predict or moderate affective responses to the 'current' and 'future' narrative stimuli.

6.1 SURVEY OVERVIEW AND CONSTRUCTS

The WP4 values/identity module used in Task 4.2 builds on a Political Compass-style pre-survey to obtain an interpretable baseline of respondents' value orientations prior to biometric exposure. The purpose is contextual (not diagnostic): the scores provide a parsimonious mapping of ideological orientation that can later be used to describe the sample and to test moderation of biometric affects.

The instrument includes (i) a short demographic block (age, gender, education level) and (ii) 20 attitudinal statements—10 primarily tapping economic orientation (left–right) and 10 tapping socio-cultural orientation (libertarian–authoritarian). Items were administered in national languages using harmonised wording across countries to support cross-country comparability. Responses were recorded on an 11-point agreement scale ranging from −10 (strongly disagree) to +10 (strongly agree).

For reporting, two composite indices are derived: Economic orientation (X) and socio-cultural orientation (Y). X captures positions on the economic left-right dimension. Y captures positions on the socio-cultural libertarian-authoritarian dimension, that is, attitudes toward cultural norms, authority, order, and social regulation rather than preferences on economic redistribution or welfare policy. Negative X values indicate more economically left-leaning positions, while positive values indicate more economically right-leaning positions. Negative Y values indicate more socio-culturally libertarian positions, while positive values indicate more socio-culturally authoritarian positions. Throughout this chapter we report pooled and country-level distributions of X and Y, including disaggregation by gender, education, and age. The list of questions is available in the D4.1.

6.2 DATA PREPARATION AND SCORING

1) All questionnaire responses were exported from the field instruments and consolidated into a single dataset. Non-respondent rows (e.g., embedded calculation notes) were removed. Item directionality was harmonised so that

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higher values consistently correspond to economically right-leaning (X) and socially authoritarian (Y) positions.

2) Composite indices were computed separately for the economic and socio-cultural item sets. For each item, responses were multiplied by a directionality weight (+1 or −1) depending on whether agreement corresponded to the positive pole of the target dimension. The X and Y scores are the resulting means across items, yielding continuous coordinates suitable for descriptive and non-parametric group comparisons.
3) Completion rates were high and no substantive item-missingness was observed in the cleaned dataset (N=76). As a result, listwise deletion was not required for the analyses in this chapter. Any future updates (e.g., additional countries or extended identity batteries) should document missingness patterns and apply pre-defined completion thresholds per scale.
4) For descriptive reporting, results are summarised using robust location and spread measures (median and IQR) alongside means and standard deviations. Given the small per-country samples and potential deviations from normality, inferential comparisons use non-parametric tests (Mann–Whitney U and Kruskal–Wallis H) and rank-based correlations (Spearman's ρ).

6.3 POLITICAL COMPASS RESULTS

This section reports descriptive results from the Political Compass-style values questionnaire, focusing on (i) overall and country-level distributions of the two compass dimensions (X economic left–right; Y social libertarian–authoritarian), and (ii) stratified patterns by gender, education, and age. Other detailed figures are presented in the Annex 1 and were produced from the consolidated WP4 pre-survey dataset. In the table below there is a summary distribution of means and medians with regards the political compass on a country level.

Table 3 - Descriptive statistics of political compass coordinates (X economic left/right; Y libertarian/authoritarian) by country and pooled sample.

Country	N	X mean (SD)	X median (IQR)	Y mean (SD)	Y median (IQR)
Austria	15	-3.09 (2.34)	-3.00 (3.72)	-4.36 (1.80)	-4.60 (2.75)
Bulgaria	16	-0.39 (3.11)	-1.17 (4.47)	-2.91 (3.06)	-3.75 (4.95)
Denmark	15	-2.24 (1.78)	-2.11 (2.22)	-2.38 (3.27)	-1.33 (4.30)
Poland	30	-0.47 (2.19)	-0.39 (3.28)	-1.41 (3.25)	-1.20 (4.67)
All (pooled)	76	-1.32 (2.58)	-1.33 (4.03)	-2.50 (3.12)	-2.45 (4.85)

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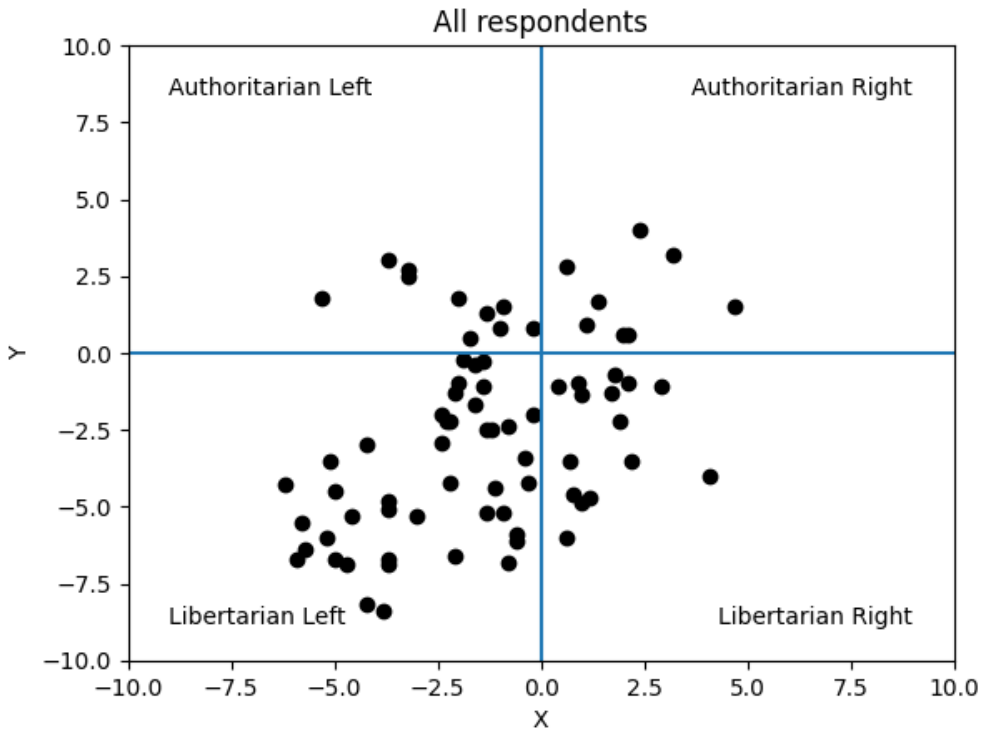
6.3.1 POOLED POSITIONING AND DISPERSION

Across the pooled sample (N=76), respondents cluster predominantly in the libertarian half of the political compass (negative Y values), with a mild overall tendency towards economically left-of-centre positions (negative X values). The pooled mean position is X = -1.32 (SD = 2.58) and Y = -2.50 (SD = 3.12), with medians X = -1.33 and Y = -2.45. This pattern indicates that, within the present study population, political self-placement is more frequently characterised by civil-libertarian orientation than by strong economic right-leaning positioning.

Quadrant-based inspection further shows that 43 of 76 respondents (56.6%) fall into the Left–Libertarian quadrant, followed by 15 (19.7%) in Right–Libertarian, 10 (13.2%) in Left–Authoritarian, and 8 (10.5%) in Right–Authoritarian. This distribution is analytically important for WP4, because it implies that subsequent biometric and interview analyses will draw on a sample where libertarian orientations are comparatively common; models linking values to affective reactions should therefore treat quadrant membership (or continuous X/Y coordinates) as potential moderators rather than assuming balanced ideological strata.

Figure 6 - Political compass positioning for all respondents



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6.3.2 CROSS-COUNTRY DIFFERENCES

Cross-country comparison indicates statistically significant variation in both economic (X) and social-cultural (Y) orientation. A Kruskal–Wallis H test across the four country samples shows significant differences for X (H = 14.30, p = 0.0025) and for Y (H = 9.20, p = 0.027), suggesting that the distributions of political compass positions are not uniform across sites. Descriptively, Austria shows the strongest shift towards economic left and social-cultural libertarian positioning (mean X = -3.09; mean Y = -4.36), while Poland and Bulgaria are, on average, closer to the economic centre (means X ≈ -0.47 and -0.39). Poland also shows the widest spread across quadrants, including a notable share of right-leaning and/or authoritarian placements. These differences matter for later WP4 analyses because they imply that any pooled modelling of affective responses should include country (and country × narrative condition interactions) to avoid conflating narrative effects with baseline ideological structure.

Figure 7 - Political compass positioning by country

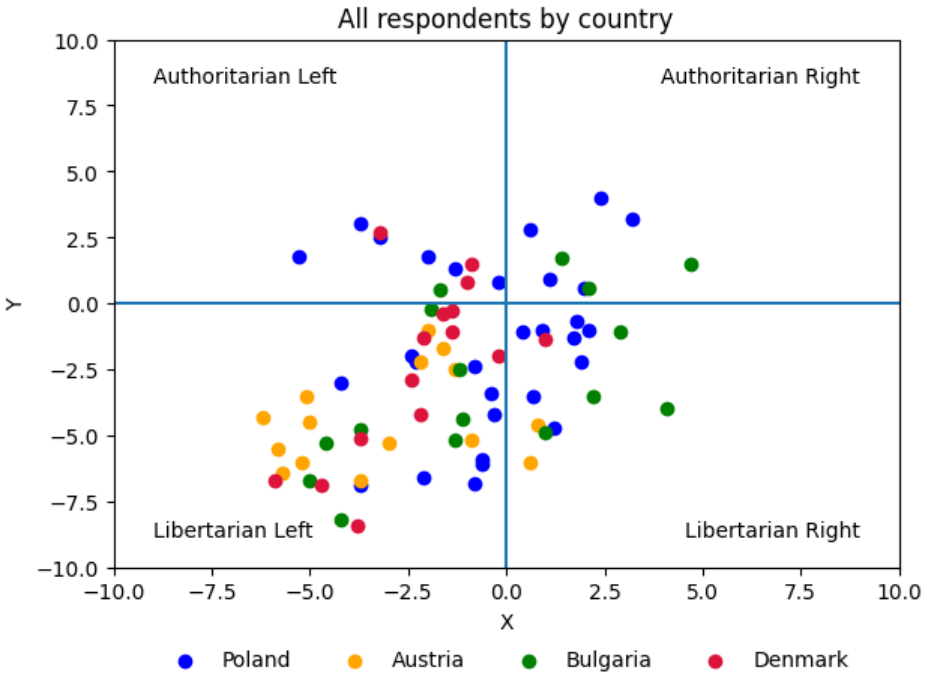

Table 4 - Quadrant membership by country (n and within-country %)

Country	Left–Libertarian	Right–Libertarian	Left–Authoritarian	Right–Authoritarian
Austria	13 (86.7%)	2 (13.3%)	0 (0.0%)	0 (0.0%)
Bulgaria	8 (50.0%)	4 (25.0%)	1 (6.2%)	3 (18.8%)
Denmark	11 (73.3%)	1 (6.7%)	3 (20.0%)	0 (0.0%)
Poland	11 (36.7%)	8 (26.7%)	6 (20.0%)	5 (16.7%)

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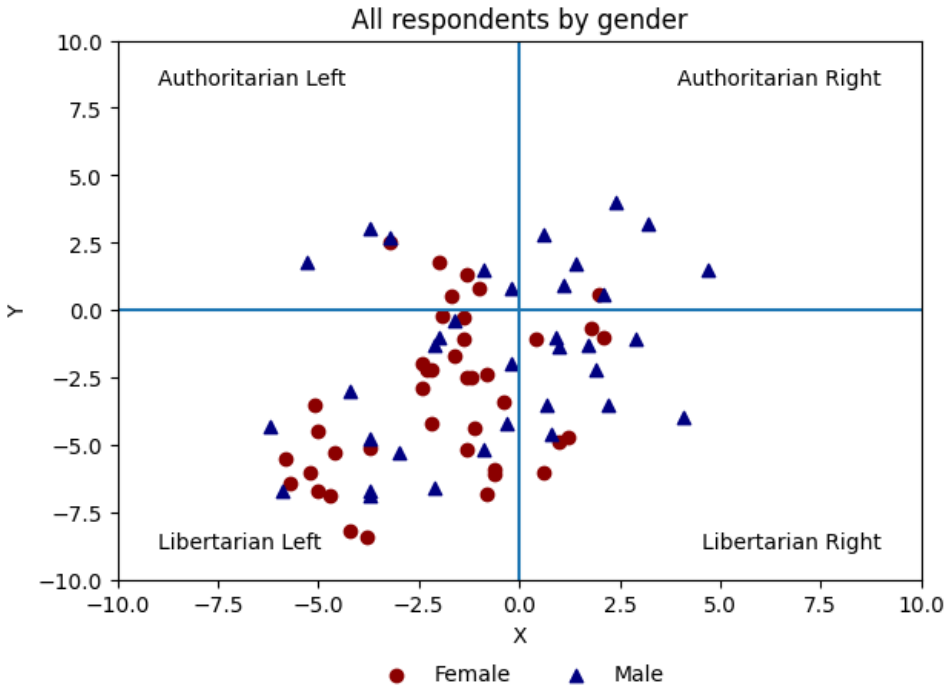
6.3.3 GENDER PATTERNS

Gender-based comparison (women vs men) does not indicate statistically significant (for this current ENCODE research sample) differences in political compass positioning in the present dataset. Mann–Whitney U tests show no detectable gender effect for X (U = 747, p = 0.134) or Y (U = 766, p = 0.181). Visual inspection suggests broadly overlapping distributions, implying that—within this sample—gender is unlikely to act as a primary confounder of narrative-driven affective reactions. Nevertheless, gender remains analytically relevant for WP4 triangulation because it may shape the interpretation of stimuli and the verbalisation of emotions during interviews; therefore gender will be retained as a covariate and used for stratified checks where sample sizes permit.

Figure 8 - Political compass positioning by gender (polled sample)



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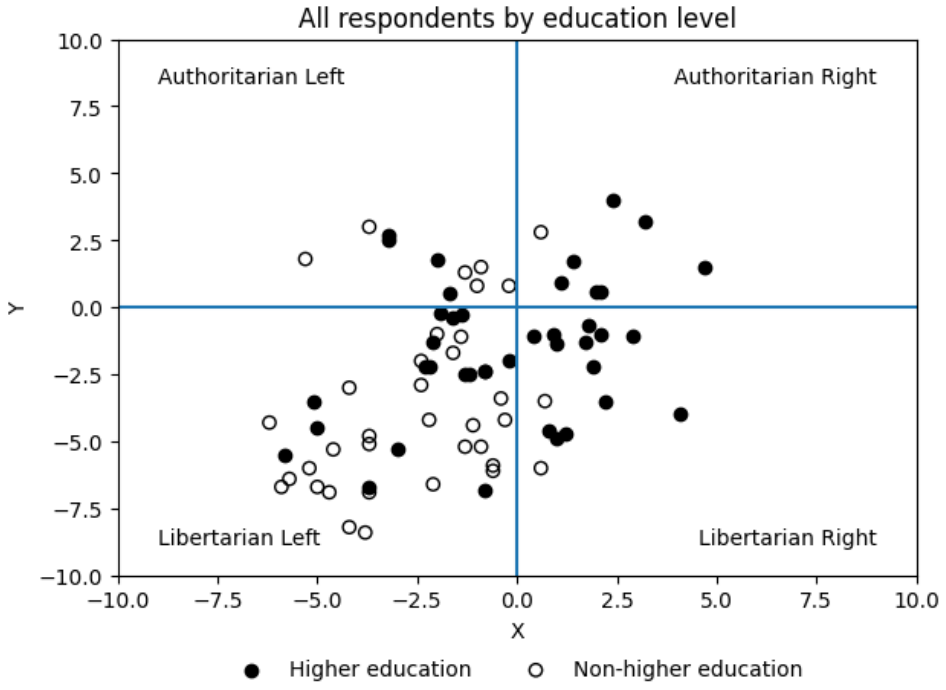
6.3.4 EDUCATION PATTERNS

Education level is associated with statistically significant differences on both dimensions. Respondents with higher education (bachelor and above) differ from respondents without higher education on the economic axis (X: U = 1105.5, p = 0.00018) and on the social axis (Y: U = 1031.0, p = 0.0028). Descriptively, higher-educated respondents tend to be closer to the economic centre/right (less negative X values), while lower-educated respondents are more frequently located in economically left positions. On the social-cultural axis, the higher-educated group shows a distribution that is, on average, less strongly libertarian than the non-higher group (i.e., Y values closer to 0). These differences are important for subsequent WP4 modelling, because they imply that education may moderate both attention allocation and affective reactions to polarising vs pluralistic narratives, particularly where narratives invoke economic policy, redistribution, or identity-linked status concerns.

Figure 9 - Political compass positioning by education level (pooled sample)



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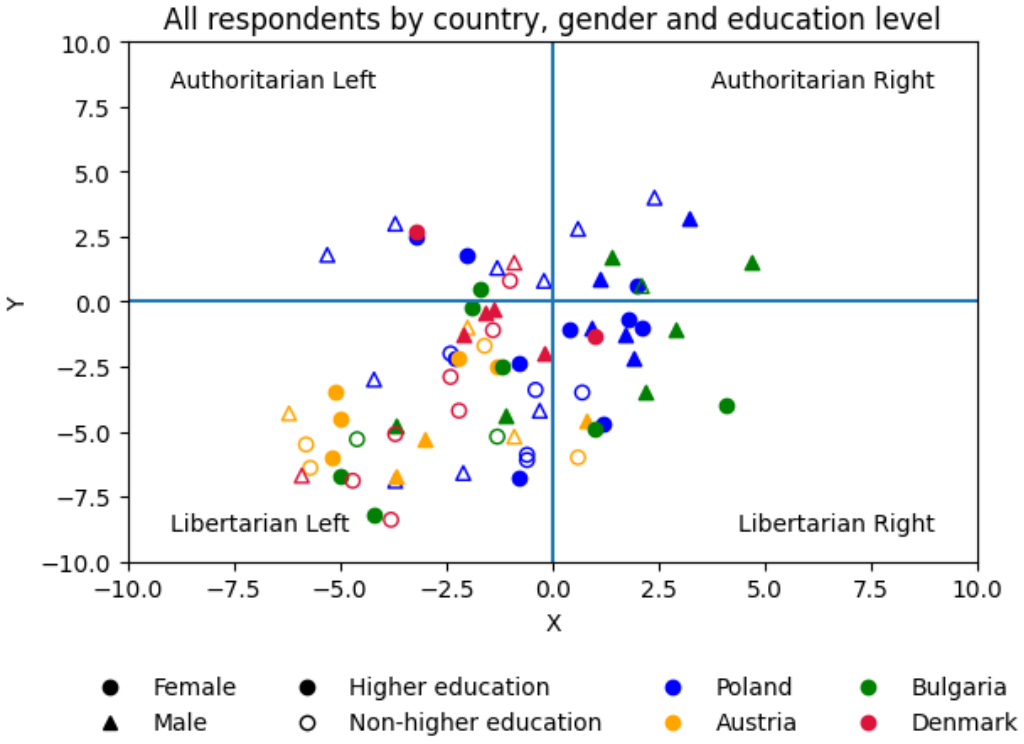
6.3.5 INTERSECTION OF GENDER AND EDUCATION (EXPLANATORY)

To explore whether values differ more strongly when gender and education are considered jointly, a Kruskal–Wallis test compared four groups (women with higher education, women without higher education, men with higher education, men without higher education). The results indicate a significant difference for X ($H = 27.34$, $p < 0.001$) and a weaker but still significant difference for Y ($H = 8.18$, $p = 0.043$). This suggests that the socio-demographic context of values/identity positioning is multi-dimensional: education appears to structure economic orientation particularly strongly, and its association may differ across genders. In later triangulation, this motivates two practical steps: (i) report biometric and interview outcomes stratified by education and, where feasible, by the combined four-group typology; and (ii) test education (and gender × education) as moderators of narrative-condition effects.

Figure 10 - Political compass positioning country, gender, and education (pooled sample)



6.3.6 AGE PATTERNS

Age shows a weak positive association with economic orientation. Spearman correlation indicates a small relationship between age and X ($\rho = 0.24$, $p = 0.034$), implying that older respondents in the sample tend to report slightly more economically right-leaning positions. No statistically significant association is observed between age and social orientation (Y: $\rho = 0.19$, $p = 0.095$). For WP4, this pattern suggests that age may contribute modestly to baseline value profiles (especially economic) but is unlikely to be the dominant driver of cross-country

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variation. Age will be retained as a covariate, and robustness checks will examine whether age-adjusted models alter the estimated effects of narrative condition on attention and affect.

Figure 11 - Relationship between age and economic orientation

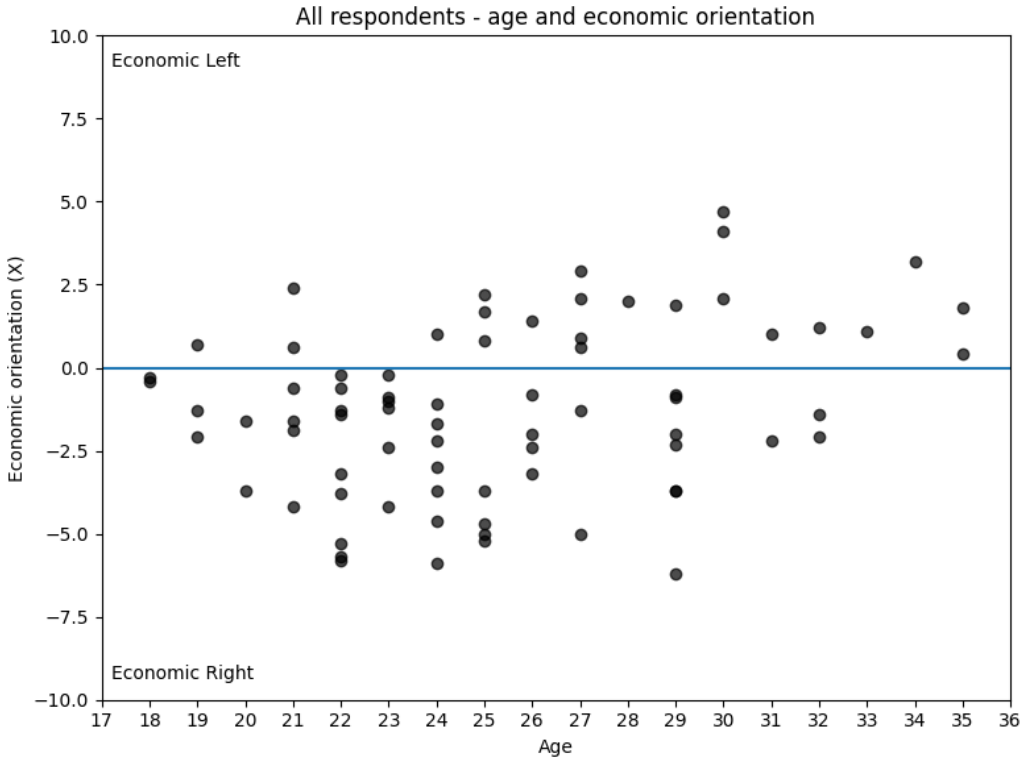
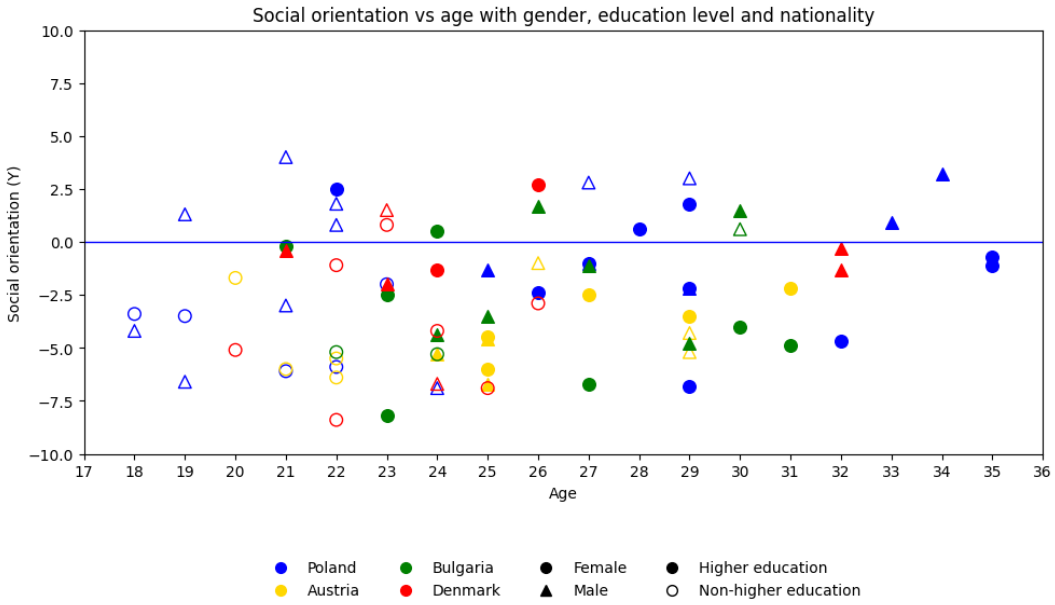


Figure 12 - Relationship between age and social orientation



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Additional country-specific plots and supplementary subgroup visualisations can be provided on demand and will be published in the on-line repositories.

7 FACE TRACKING RESULTS

This chapter reports descriptive and comparative results from biometric measurements during stimulus exposure, including face-tracking-derived affective timelines and aggregated indices.

7.1 DATA GATHERING SUMMARY

The face-tracking component of WP4 operationalised affective reaction as the dominant facially expressed emotion captured during exposure to harmonised social-media stimuli. The analytical focus is the respondent-level dominant face-tracking category aggregated from the biometric session and subsequently compared across countries, narrative variants, and selected respondent characteristics.

The core analytical sample covered four countries: Austria (n = 15), Bulgaria (n = 16), Denmark (n = 15), and Poland (n = 30), for a total of N = 76 respondents. These are the same country-level subsamples used in the uploaded statistical outputs. The pooled sample is sufficiently large for descriptive and cross-country categorical analysis, but the per-country Ns require caution for finer subgroup inference and for complex multivariable modelling.

From a reliability perspective, the face-tracking layer is scientifically usable because the dominant-emotion aggregation is based on standardised acquisition conditions, harmonised stimuli, and conservative inferential choices adapted to sparse cells. At the same time, the analytical unit remains categorical rather than continuous; therefore, the conclusions are strongest at the level of between-country structure and broad comparative patterns, not at the level of highly granular participant segmentation. The study lays a perfect background for the further studies.

7.2 FACE-TRACKING RESULTS

The strongest inferential result in the biometric layer is the statistically significant association between dominant face-tracking emotion and country. Because several expected cell counts were below five, Pearson's chi-squared assumptions were not satisfied and Fisher's exact test with Monte Carlo simulation was used. The result was highly significant (pv= 9.999e-05), indicating that dominant embodied affective reactions are distributed differently across Austria, Bulgaria, Denmark, and Poland.

The descriptive country profiles are substantively distinct. Austria is characterised by a comparatively strong surprise signature. Bulgaria exhibits a dominant sadness

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profile. Denmark is structured mainly by happiness and sadness, indicating a more bi-polar affective pattern. Poland is comparatively more happiness-oriented, although with greater within-country heterogeneity than Austria or Bulgaria. *This country-specific differentiation is one of the clearest findings in the WP4 dataset because it appears consistently across the pooled biometric outputs and in the profile- and topic-specific breakdowns.*

Figure 13 - Dominant face-tracking emotion by country in %

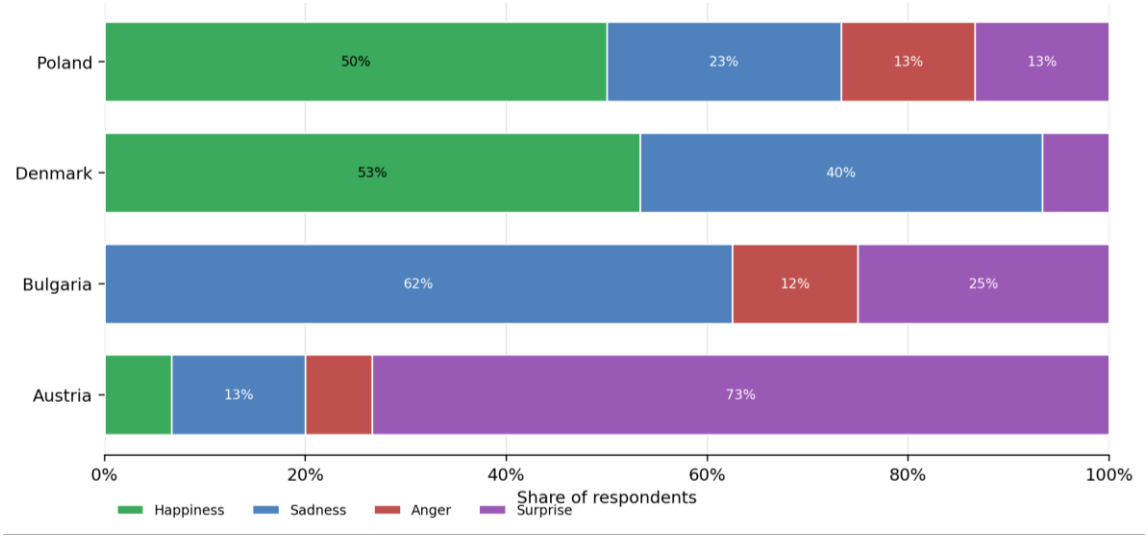
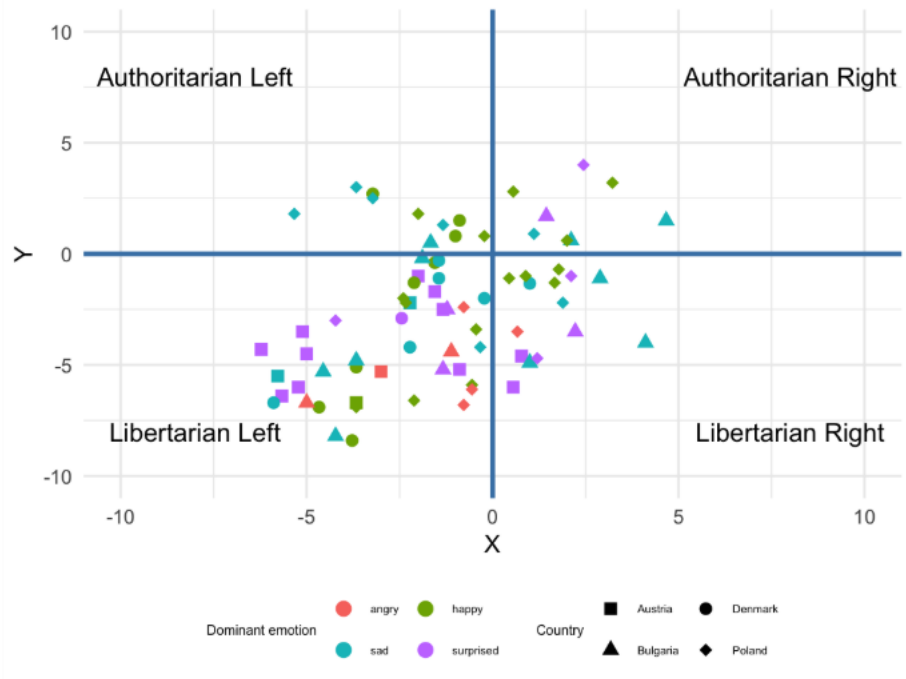


Figure 14 - Dominant face-tracking emotion by respondent, country and set on the political compass



By contrast, socio-demographic stratification is weak. Dominant face-tracking emotion does not differ significantly by gender (Fisher p = 0.7053), by education

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(Fisher p = 0.6977), or by the combined gender x education grouping (Fisher p = 0.8889). This matters analytically because it suggests that the major structure in the biometric layer is geopolitical and contextual rather than a simple artefact of the available demographic composition.

The exploratory multinomial logistic regression analysis was conducted to examine whether age, gender, education, x, and y predicted dominant_ft category. The overall model indicated that y was a significant predictor of happiness and sadness relative to anger (OR = 1,85 and p-value = 0,021, OR = 1,85 and p-value = 0,02, respectively), such that higher values of y were associated with higher odds of reporting happiness or sadness: one-unit increase of y, ceteris paribus, was associated with a 85% increase in the odds of either happiness or sadness relative to anger. No other predictors were statistically significant.. Accordingly, the deliverable treats these coefficient-level tendencies as exploratory rather than confirmatory.

Table 5 - Core inferential results for respondent level face-tracking outcomes.

Comparison	Method	p-value	Interpretation
Country vs dominant FT emotion	Fisher exact test + Monte Carlo	9.999e-05	Strong cross-country structuring of biometric affect
Gender vs dominant FT emotion	Fisher exact test	0.7053	No simple gender effect
Education vs dominant FT emotion	Fisher exact test	0.6977	No simple education effect
Gender x education vs dominant FT emotion	Fisher exact test	0.8889	No joint demographic effect
Political compass predictors (multinomial FT model)	ANOVA vs null model	0.41	Overall model not significant; interpret only exploratorily

7.3 FT COMPARISON BETWEEN "CURRENT" AND FUTURE" NARRATIVES

The current-versus-future comparison in the face-tracking layer was operationalised through the contrast between conservative profiles modelled on present-day political communication styles and liberal profiles reformulated in accordance with the Effective Pluralism framework developed in WP2. In substantive terms, this comparison makes it possible to test whether immediate embodied reactions change when the same political issues are framed through more conflictual and polarising narratives, as opposed to more pluralistic and future-oriented ones. Within the broader WP4 logic, this distinction is methodologically important because biometric measurement is intended to capture relatively direct affective

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responses before participants move into reflective verbal interpretation during the subsequent interview stage.

The statistical results indicate that biometric reactions to both future/liberal and current/conservative profiles remain strongly structured by national context. Fisher-type tests show that, for both profile types, the association between country and dominant face-tracking emotion is highly significant ($p < 0.001$). This is an important finding because it demonstrates that the country effect is not confined to only one narrative condition. Rather, it persists across both current and future framings, suggesting that cross-national variation in biometric response reflects relatively stable contextual response styles rather than isolated reactions to a single set of stimuli. Put differently, even when the ideological framing changes, respondents in different countries continue to display distinct affective signatures.

At the descriptive level, the country profiles are also notably coherent. Austria is characterised above all by surprise, which remains the dominant face-tracking outcome under both future/liberal and current/conservative conditions. This suggests a mode of reaction marked less by straightforward positive or negative valence and more by heightened alertness, novelty recognition, or affective discontinuity. Bulgaria, by contrast, is dominated by sadness in both profile types, indicating a more consistently negative and possibly burdened affective orientation toward the political material. Denmark presents the most balanced pattern, with biometric responses divided mainly between happiness and sadness, which points to ambivalent but still structured engagement rather than a single prevailing affect. Poland differs again, as happiness is the most frequent reaction in both conditions, although the Polish pattern is more pluralised than the Austrian or Bulgarian one and includes a more visible contribution of anger.

At the same time, the comparison between current and future narratives remains analytically meaningful, because stability at the country level does not imply complete invariance at the profile level. The country effect remains dominant, but the internal composition of emotions within countries can still shift when the framing changes. In Austria, surprise remains overwhelmingly central under both framings, indicating that ideological transformation alone does not fundamentally alter the embodied response profile. In Bulgaria, sadness also remains dominant across both conditions, which suggests that the framing contrast is filtered through a broader country-specific affective context. Denmark and Poland, however, show somewhat more differentiated distributions. In Denmark, the balance between happiness and sadness remains visible across both conditions, pointing to a mixed affective field with limited anger. In Poland, happiness continues to dominate, but anger is more clearly present than in Austria or Denmark, indicating that the same stimuli provoke a somewhat more conflict-sensitive embodied response. The main implication is therefore not that future narratives fully replace current affective patterns, but that they operate within country-specific emotional environments that shape how they are received.

This interpretation is fully consistent with the triangulation logic of ENCODE WP4. The biometric layer captures a relatively stable affective baseline against which the more discursive and reflective IDI layer can later be compared. The current-versus-future contrast therefore does not eliminate country differences; rather, it reveals that pluralistic narrative reformulation is received through already existing national

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emotional repertoires. In this sense, face-tracking does not simply indicate whether one narrative is more positive or more negative in absolute terms. Its analytical value lies in showing how alternative framings are filtered through patterned national affective environments that remain visible even when the narrative style changes.

Figure 15 - Distribution of respondents' dominant face-tracking emotions toward liberal and conservative profiles, by country (respondent-level aggregation; 'no emotion' excluded; ties resolved by lowest coded mode)

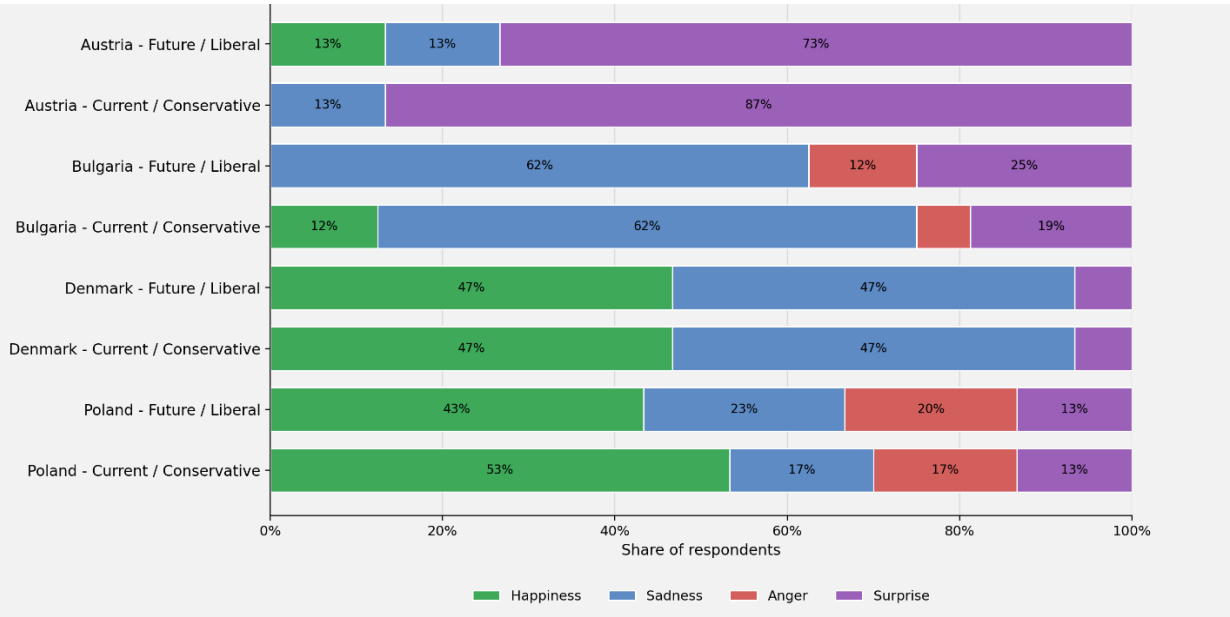

Figure 16 - Respondents reactions during face-tracking to posts on liberal profiles, all countries placed on political compass

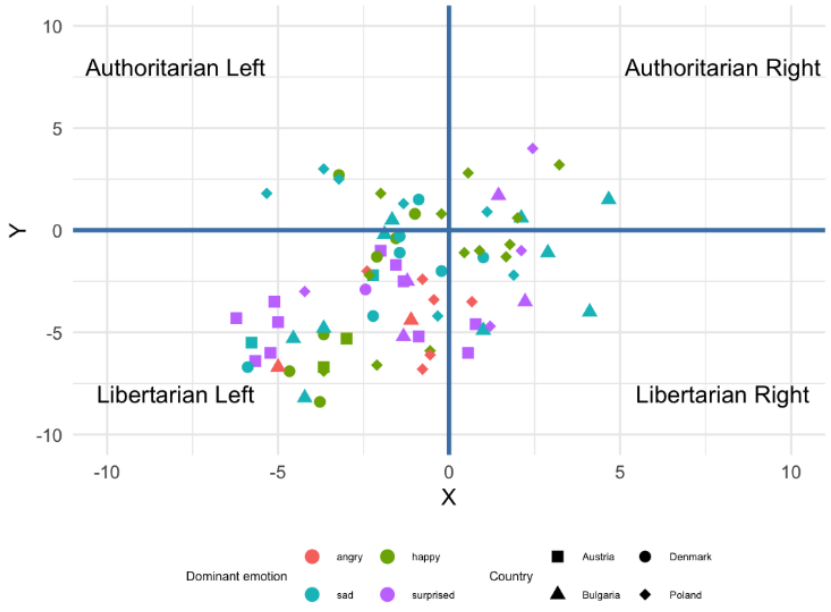

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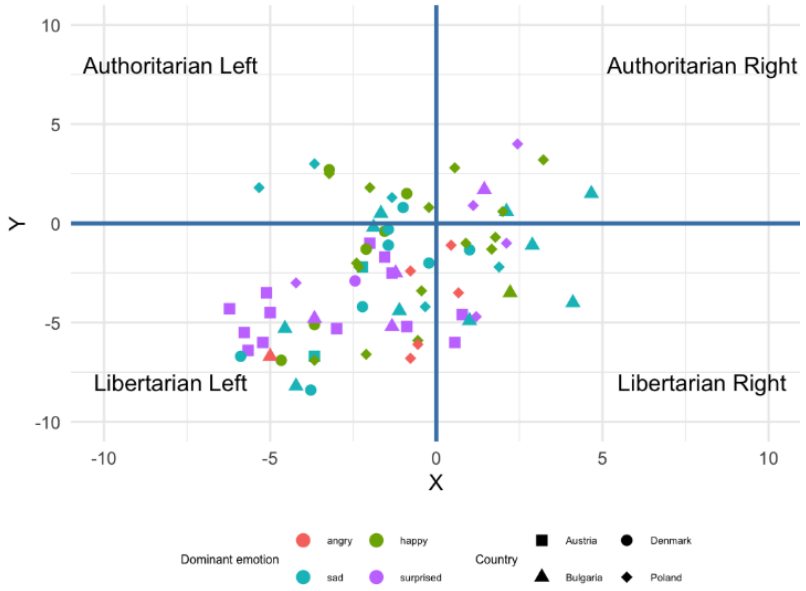
Figure 17 - Respondents reactions during face-tracking to posts on conservative profiles, all countries placed on political compass



The comparison between reactions on liberal vs. conservative posts are statistically insignificant on a respondent level.

8 IDI ANALYSIS: CODEBOOK AND THEMATIC RESULTS

This chapter presents the analysis of in-depth interviews conducted immediately after biometric exposure. It reports the codebook development process, coding quality assurance, and thematic results capturing participants' explicit emotions, appraisals, and meaning-making in relation to the stimuli.

8.1 DATA GATHERING SUMMARY

The IDI stage followed immediately after biometric exposure and was designed to capture conscious emotional interpretation, evaluative framing, and meaning-making. Interviews did not function as a simple repetition of what the biometric system had already measured. Instead, they provided a second analytical layer in which respondents verbalised what they thought, felt, approved of, rejected, or found difficult to articulate.

This distinction is methodologically crucial. Whereas face-tracking captures the output of ongoing affective processing during exposure, IDIs capture a post-hoc interpretive reconstruction. The verbal layer therefore mixes affective recall with political judgement, narrative rationalisation, distancing, and sometimes avoidance. This is precisely why the ENCODE design requires triangulation rather than substitution between modalities.

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8.2 CODEBOOK AND CODING PROCEDURE

IDI outputs were coded into dominant verbal emotion categories compatible with cross-modal comparison to face-tracking while also allowing broader interpretive categories such as scepticism, fear, empathy, criticism, indifference, or non-classifiable reactions. In practice, the final analytical variable collapses a larger thematic coding space into a respondent-level dominant IDI emotion category for comparative testing.

The coding procedure should be read as a theory-guided harmonisation rather than a purely lexical coding exercise. Interview statements were interpreted in context; for example, sadness might be expressed directly, indirectly, or through morally loaded descriptions of injustice, threat, or resignation. Likewise, anger could appear as explicit anger, indignation, irritation, or strong evaluative rejection. The coding frame therefore linked semantic content to the conceptual logic of D4.1 rather than simply counting words.

From the point of view of data reliability, two issues are especially important. First, a substantial share of the interview material contains non-response, avoidance, or diffuse formulations, especially in relation to crisis stimuli. Second, because dominant IDI coding is again categorical and some categories are relatively rare, conservative exact-testing logic remains necessary.

8.3 IDI RESULTS

In contrast to face-tracking, dominant self-declared emotion does not vary significantly across countries. Fisher's exact test yields $p = 0.4958$. This is one of the most important findings in the entire deliverable because it demonstrates a systematic asymmetry between the embodied and verbal layers: countries differ clearly in biometric affect, but not in any equally strong way in the verbal emotion category used here.

The absence of a significant country effect in the IDI layer does not mean that the interviews are uninformative. On the contrary, they reveal country-specific tendencies that are visible descriptively but not strong enough to generate robust categorical differences at the available sample size. Austria combines positive verbal reactions to liberal profiles with anger toward conservative profiles. Denmark shows comparatively strong positivity toward some profile types but also issue-sensitive sadness. Bulgaria shows more negative evaluative responses, especially anger toward some conservative-profile stimuli. Poland displays the greatest verbal plurality, with reactions distributed across happiness, sadness, anger, and broader evaluative categories.

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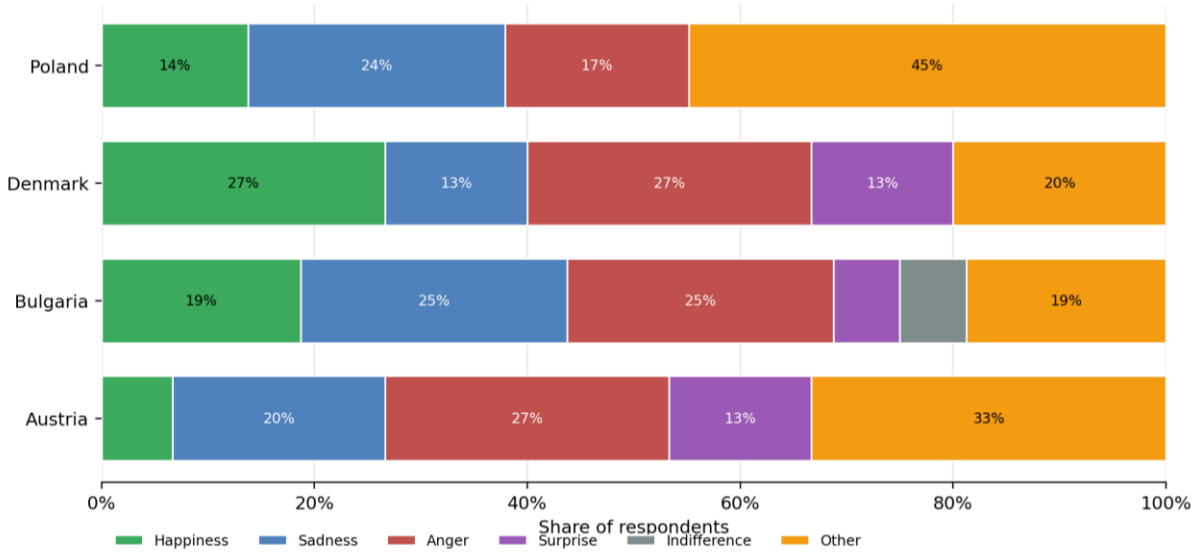
Figure 18 - Dominant self-declared emotion by country (respondent-level modes)



The country-specific narratives still exhibit meaningful descriptive tendencies, but the common inferential result is non-significance. This combination of visible descriptive variation and inferential caution is typical of modest-N categorical qualitative coding outputs and should be interpreted as evidence of heterogeneity rather than as evidence of no process at all.

Figure 19 - Distribution of coded IDI emotions by country (usable coded segments)

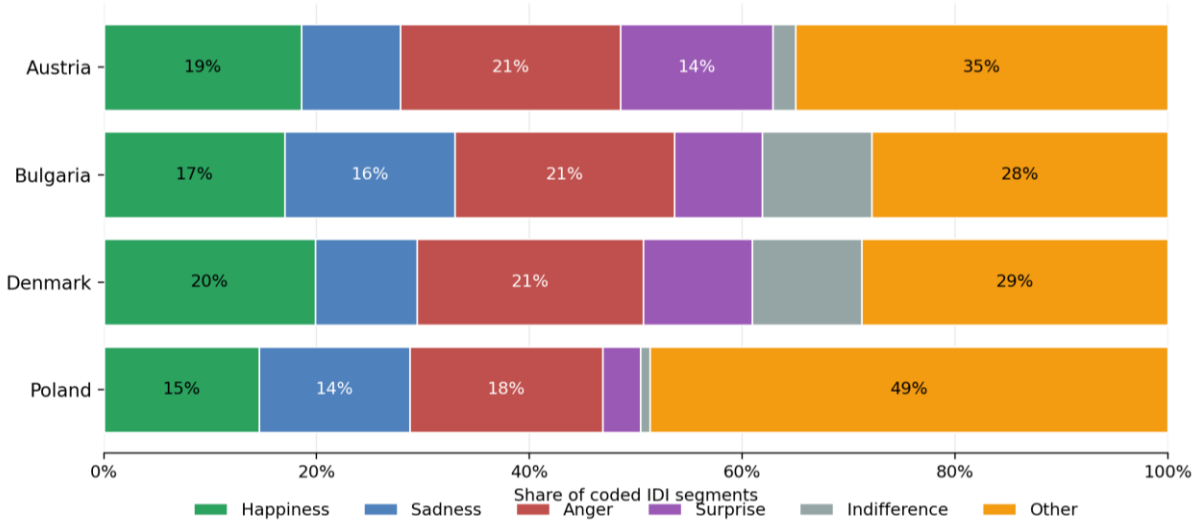


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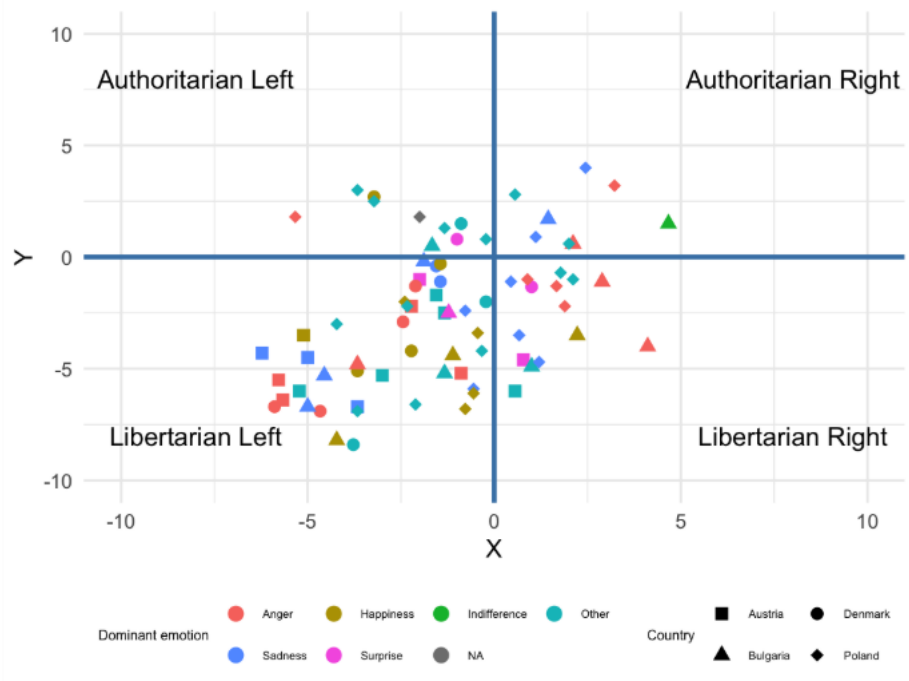
Figure 20 - Dominant face-tracking emotion by respondent, country and set on the political compass



To assess whether age, gender, education, and the variables *x* and *y* were associated with the type of dominant emotion expressed in the IDIs, a multinomial logistic regression model was estimated using anger as the reference category. The analysis shows that age was a statistically significant predictor of whether respondents expressed "other" emotions rather than anger. More specifically, the odds ratio for age was 0.799 ($p = 0.02$), which indicates that with each one-unit increase in age, the odds of expressing emotions classified as "other" — such as scepticism, worry, disapproval, fear, or empathy — decreased by around 20% relative to anger, all else being equal.

The model also indicates that men and respondents with lower than bachelor-level education were significantly more likely to express indifference rather than anger when discussing the stimuli in the interviews. A similar pattern was observed for higher values of x, which were likewise associated with greater odds of indifference relative to anger. At the same time, these results should be interpreted with caution, because the estimated odds ratios for indifference were extremely small (OR < 0.001; p < 0.001), which may reflect the very low number of indifference cases in the sample and, consequently, statistical instability in this category.
No statistically significant effects were found for the remaining predictors. Overall, the regression suggests that most socio-demographic and positional variables did not systematically structure the dominant emotions expressed in the interviews, with the main exceptions being the negative association between age and the

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"other emotions" category, and the limited but noteworthy evidence that indifference may be more common among specific respondent groups.

The multinomial regression of dominant IDI category offers some nuance but must still be interpreted cautiously because the overall model is not significant (ANOVA comparison to null model p = 0.325). Within this non-significant model, age appears related to some "other" reaction patterns, but these coefficients are best read as signals for future hypothesis development rather than as established effects.

8.4 IDI COMPARISON BETWEEN "CURRENT" AND FUTURE" NARRATIVES

The current-versus-future comparison in the IDI layer was operationalised through the contrast between conservative profiles based on current political communication styles and liberal profiles reformulated in line with the Effective Pluralism framework developed in WP2. Analytically, this comparison makes it possible to assess whether verbally expressed emotions remain stable when the narrative framing changes, or whether respondents articulate different emotional interpretations depending on whether the stimulus reflects current polarising discourse or a more future-oriented and pluralistic style.

When ideological profiles are compared, country does not significantly structure verbal reactions to either liberal or conservative profiles (p = 0.8085 and p = 0.5603 respectively). This stands in clear contrast to the biometric layer, where country differences remain strong. Verbal reporting is therefore more weakly tied to country context than embodied affective response, or alternatively more constrained by discursive norms and available interpretive repertoires.

This means that dominant self-declared emotions toward future/liberal and current/conservative profiles are more weakly structured by country than biometric reactions. Substantively, this suggests that the interview layer captures a more interpretive and discursive dimension of emotional response: respondents do not merely react, but also explain, qualify, and reframe what they feel. For that reason, the absence of strong country effects in the IDI layer should not be treated as a lack of pattern, but rather as evidence of greater heterogeneity and a weaker anchoring of verbalised emotions in national response styles.

At the descriptive level, however, the comparison reveals a meaningful shift in the type of emotions articulated by respondents. Future/liberal profiles are more often associated with happiness and, in some country cases, with sadness understood as reflective concern, while current/conservative profiles more often elicit anger and the broader "other" category, which includes reactions such as scepticism, disapproval, worry, fear, discomfort, or empathy. The pattern is especially visible in Bulgaria and Denmark, where liberal/future profiles are clearly more strongly linked to happiness, whereas conservative/current profiles shift toward anger. Austria and Poland show a somewhat different configuration: in both countries the "other" category remains large, indicating that respondents frequently articulated nuanced or mixed reactions rather than only basic discrete emotions. Even so, the direction of change is consistent: future/liberal narratives are relatively more positive, whereas

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current/conservative narratives are more conflictual, critical, or emotionally ambivalent.

A closer country-level reading reinforces this interpretation. Austria displays a plural emotional configuration for future/liberal profiles, with happiness, sadness, and "other" reactions each accounting for a substantial share, while current/conservative profiles move more clearly toward anger and "other", indicating a shift toward critical and uneasy verbal responses. Bulgaria presents the clearest polarity: future/liberal profiles are dominated by happiness, whereas current/conservative profiles are dominated by anger. Denmark also shows a marked contrast, with future/liberal profiles linked primarily to happiness and current/conservative profiles to anger, although both framings retain a visible share of "other" reactions. Poland is the most heterogeneous case: "other" is the largest category under both framings, but future/liberal narratives still generate more happiness, whereas current/conservative narratives display a stronger anger component and a weaker positive response. Overall, the IDI comparison suggests that future-oriented pluralistic narratives do not simply reproduce the emotional profile of current political discourse but tend to shift verbalised responses toward more positive or at least less adversarial emotional framing.

Figure 21 - Distribution of respondents' dominant IDI emotions toward liberal and conservative profiles, by country (respondent-level aggregation; 'no emotion' excluded; ties resolved by lowest coded mode)

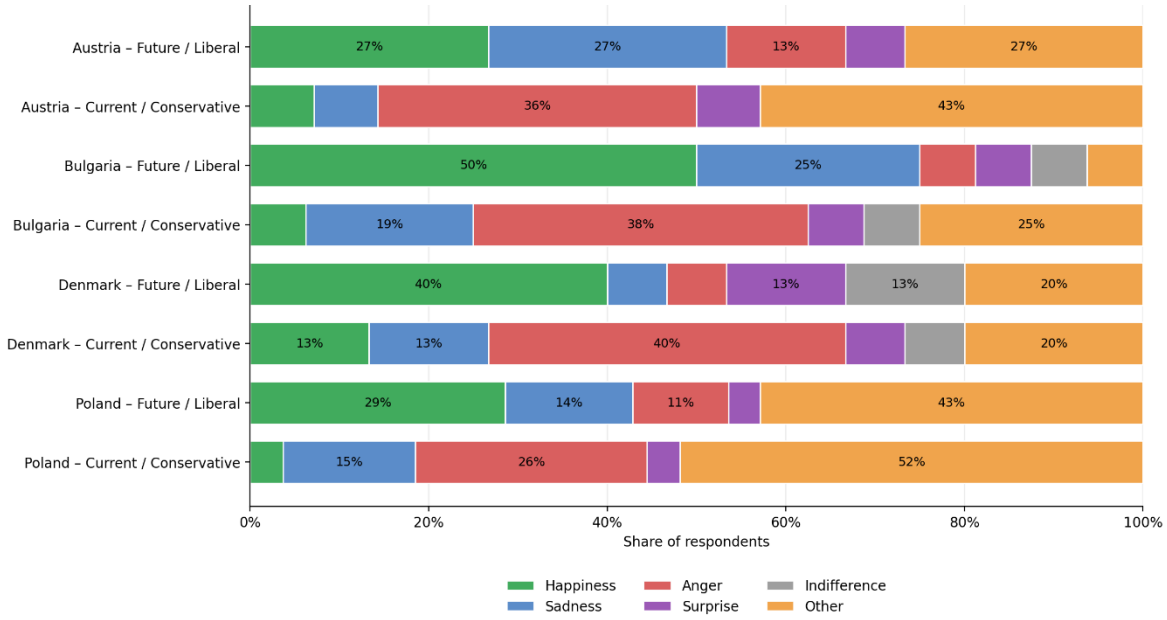

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Figure 22 - Respondents reactions during IDI to posts on liberal profiles, all countries placed on political compass

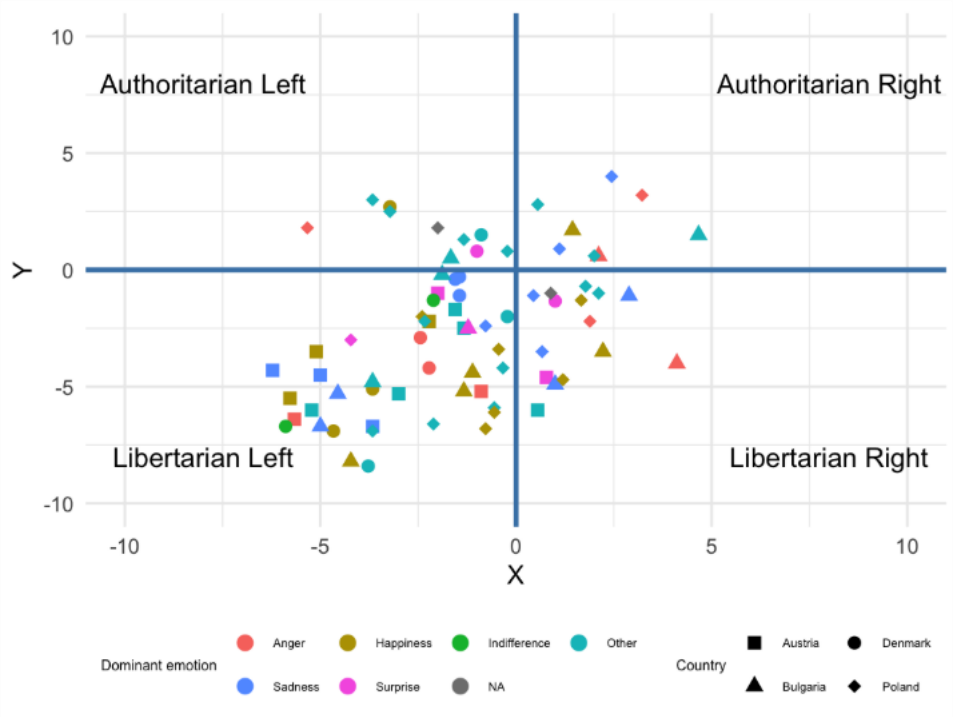
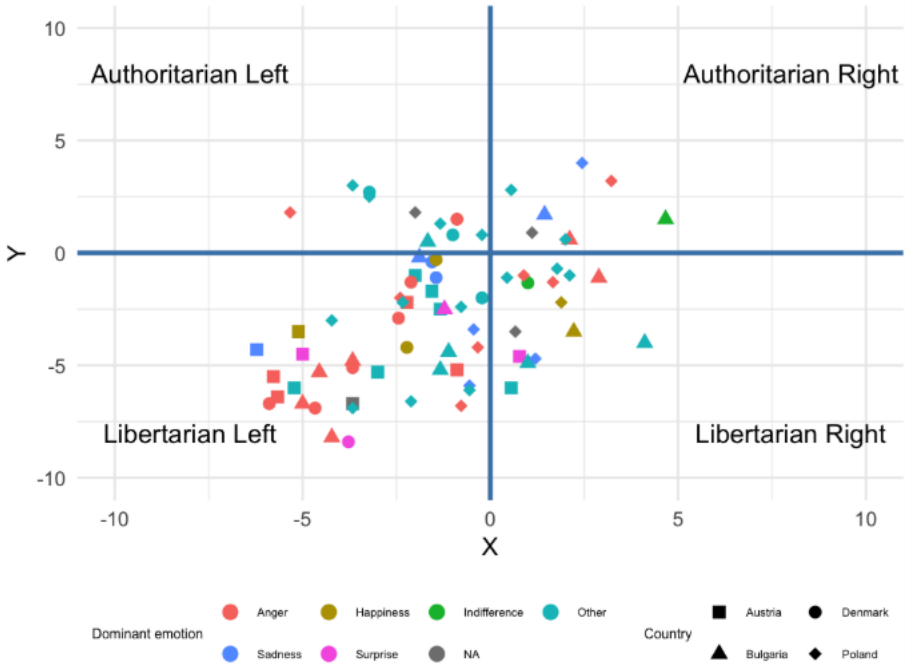


Figure 23 - Respondents reactions during IDI to posts on conservative profiles, all countries placed on political compass



The comparison between reactions on liberal vs. conservative posts are statistically insignificant on a respondent level.

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9 INTEGRATION OF BIOMETRIC AND QUALITATIVE FINDINGS

This chapter integrates biometric and qualitative findings to identify convergence and divergence between face-tracking-derived affects and verbally expressed emotions in interviews. The focus is on systematic mismatch patterns and their interpretive mechanisms.

9.1 CONCEPTUALISING CONVERGENCE AND MISMATCH

9.1.1 WHY CONVERGENCE SHOULD NOT BE ASSUMED

In WP4, "affects" refer to biometric indicators derived from face-tracking (and, where used, attention-related indicators), while "emotions" refer to consciously articulated feelings and appraisals elicited in post-stimulus IDIs. A critical methodological premise is that these response systems may covary only imperfectly. Contemporary emotion science widely treats emotions as multi-component processes involving at least (i) subjective experience, (ii) physiological/expressive responding, and (iii) action tendencies/behavioural outputs. Empirically, coherence across these systems is often moderate or weak and depends on context, measurement reliability, and emotion regulation processes.

Therefore, in ENCODE WP4, *mismatch is not treated as "measurement error" by default*, but as a potentially meaningful phenomenon that can reveal: (a) regulation (suppression, reappraisal), (b) ambivalence or mixed affect, (c) uncertainty and post-hoc rationalisation, (d) social desirability constraints in political talk, or (e) limitations of emotional awareness and verbalisation.

9.1.2 CONCEPTUAL LAYERS

A practical way to conceptualise the relationship between biometric "affect" and reported "emotion" is to distinguish three layers:

1. Core affective reactions: relatively fast changes in valence/arousal that may manifest in facial activity patterns, attention shifts, and micro-expression dynamics (captured here via face-tracking outputs).

2. Emotion construction / categorisation: how individuals interpret affective signals in context and map them onto emotion categories (e.g., anger vs disgust vs contempt), a process that is influenced by learned concepts, cultural scripts, and situational meaning.

3. Verbalisation and narrative justification: what participants choose and can say in an interview setting, shaped by social norms, conversational goals, and political identity management.

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Theories emphasising "constructed emotion" highlight that emotion categories are not simple read-outs of fixed biological signatures; rather, they are context-sensitive conceptualisations built from bodily signals and situational inference. This provides a strong theoretical rationale for the WP4 triangulation strategy: divergence between facial affect indicators and spoken emotion labels can reflect differences in categorisation, meaning-making, and communicative framing, not merely noise.

9.1.3 MECHANISMS GENERATING MISMATCH

Mismatch between biometric affect and self-reported emotion may occur in several ways. These are:

1. Emotion regulation: Gross's process model of emotion regulation identifies early-acting regulation strategies (e.g., attention deployment, cognitive reappraisal) and late-acting regulation strategies (e.g., expressive suppression). Such regulation strategies may lead to a dissociation between the two types of measurement: an individual may display a high level of affective activation but suppress the display of emotion; or an individual may cognitively reappraise the emotional stimulus and report a low level of emotionality despite a high level of affective activation.

2. Social desirability and identity management: Political issues are highly normative. Respondents may report low levels of disapproved emotions (e.g., contempt, hostility) or overreport approved emotions (e.g., 'concern') in the face of polarizing content. Social desirability has a long tradition in methodology. It is clearly relevant in the measurement of values and attitudes.

3. Lack of emotional awareness/labelling: Respondents may have difficulties in recognising or verbally defining their emotional states. This phenomenon is related to alexithymia. In this case, there is a dissociation between face-tracking activation and interview-based emotion report.

4. Non-'read-out' function of expressive behaviour: Some theoretical work suggests that expressive behaviour may have a function other than 'reading out' internal states. In fact, there is a growing body of research indicating that face-tracking activation may function as a social tool. This suggests a dissociation between face-tracking activation and interview-based report.

5. Non-equivalence: Measurement types are non-equivalent. Face-tracking activation measures short-term fluctuations in emotions; interview-based report measures longer-term evaluation, moral judgment, and interpretation. Low correlation between measurement types is a common phenomenon in psychological research.

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9.1.4 CONVERGENCE ASSUMPTIONS IN WP4

WP4 treats "convergence" as compatible directionality and timing between biometric patterns and verbalised emotion narratives. Convergence is defined at two levels:

Directional convergence (valence-compatible): biometric affect features indicate predominantly positive/negative response and interview content aligns (e.g., negative affect + reported anger/disgust/concern).

Narrative convergence (interpretation-compatible): beyond valence, the participant's explanation of why the stimulus triggered a reaction matches the observed attention/affect pattern (e.g., strong reaction occurs when viewing identity cues; IDI references those cues as salient and emotionally provocative).

Convergence is thus not reduced to "same emotion label," but framed as multi-modal coherence across affects, and interpretive meaning-making.

9.1.5 TYPOLOGY OF MISMATCH ASSUMPTION IN ENCODE ANALYSIS

To translate the concept of mismatch into an analysable framework, ENCODE WP4 uses a pragmatic typology. Each case (participant × stimulus segment) may be coded as:

1. Masked affect (high biometric / low verbal): Clear affective peaks or sustained negative affect indicators, but the IDI report is flat, minimising ("not much"), or non-emotional. Likely mechanisms: suppression, social desirability, limited awareness, avoidance.

2. Amplified report (low biometric / high verbal): Low affective activation in the biometric stream, but strong verbal emotional claims. Possible mechanisms: narrative identity performance, post-hoc moral reasoning, memory biases, demand characteristics.

3. Valence mismatch (biometric positive / verbal negative, or vice versa): Opposing signs between streams. Possible mechanisms: mixed affect/ambivalence, ironic appraisal, conflicted identity, measurement timing differences.

4. Category mismatch (same valence, different emotion meaning): Both streams suggest negativity, but verbal category differs from what the biometric dynamics might imply (e.g., irritation vs fear vs disgust). This is interpreted cautiously because facial-expression classification is not a perfect discrete-emotion detector; the main analytic value is in identifying cases where participants' *meaning-making* diverges from their *affect dynamics*, not in "diagnosing" a correct label.

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9.2 OPERATIONALISATION OF THE AFFECT-EMOTION GAP

Operationally, the affect-emotion gap was treated in two complementary ways. First, the analysis used respondents' dominant face-tracking emotion and dominant IDI emotion as paired categorical indicators in order to test whether the two layers converged directly. Second, a numerical gap indicator summarised the degree of divergence between the two measurements, allowing the research team to test whether mismatch magnitude varied by political orientation or basic socio-demographic characteristics. This dual strategy matters because convergence is not only a matter of exact emotional identity; it can also vary in intensity and in the extent to which respondents move away from embodied affect toward diffuse or recoded verbal emotion.

The numerical gap was subsequently analysed in relation to respondents' political compass scores, age, gender, and education. Spearman correlations show no relationship between gap magnitude and economic orientation (rho = 0.0597, p = 0.6107), social orientation (p = 0.916), or age (p = 0.797). Mann-Whitney tests also indicate no significant differences by gender (p = 0.7214) or education (p = 0.9321), while the joint four-group comparison by gender x education is likewise non-significant (Kruskal-Wallis p = 0.5195). These null findings are analytically important because they show that mismatch is not concentrated at one ideological pole or within one narrow socio-demographic subgroup. In other words, the affect-emotion gap appears to be a general property of how respondents process the political content used in the study rather than an artefact of a specific category of participants.

9.3 ANALYTICAL OUTPUTS

At the pooled level, there is no statistically significant direct association between dominant face-tracking emotion and dominant IDI emotion (Fisher p = 0.4268). This is the clearest quantitative confirmation of the mismatch thesis. If verbal emotion were simply a transparent verbal restatement of embodied affect, a statistically significant relationship would be expected. Instead, the absence of such a link indicates that respondents frequently transform, recode, diffuse, or fail to verbalise their embodied response.

Two kinds of analytical outputs are therefore needed. The first is a direct category-to-category comparison between dominant FT and dominant IDI emotions. The second is a broader descriptive account of how this mismatch is distributed across countries and how it manifests in practice. In ENCODE, both were used: a numerical gap indicator summarised divergence in absolute terms, and a typology of convergence versus mismatch clarified the qualitative forms that this divergence took in the empirical material.

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Figure 24 - Distribution of the absolute affect-emotion gap by country

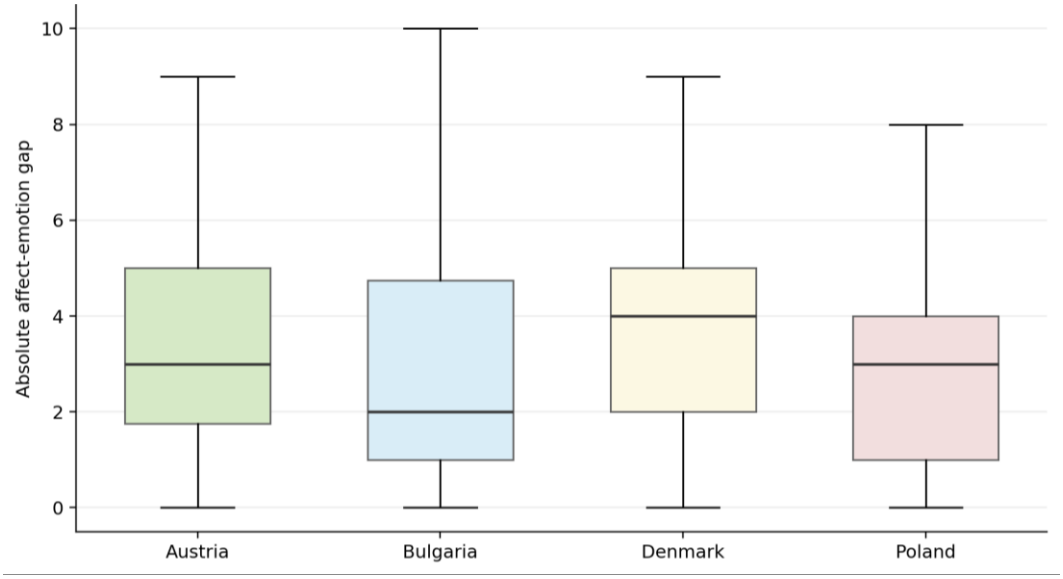

Figure 24 complements this interpretation by showing the distribution of the absolute affect-emotion gap by country. The distributions overlap considerably, which is consistent with the inferential result that the size of the gap is not strongly structured by respondents' ideological coordinates or socio-demographic characteristics. Descriptively, Denmark appears somewhat higher in median mismatch, Bulgaria somewhat tighter, and Poland more dispersed, but these differences should be interpreted cautiously. The available inferential evidence does not support the conclusion that one national case systematically exhibits a larger gap than the others.

The mismatch typology provides a more substantively interpretable picture than a simple match/non-match proportion. In Austria, Denmark, and Poland, a large share of cases falls into the "no verbal emotion coded" category, indicating that the biometric signal is often clearer than the verbal follow-up. Bulgaria shows somewhat more explicit verbal coding, but even there the movement from biometric affect to articulated emotion frequently involves recoding rather than direct translation. The broader implication is that respondents often shift from basic affect into evaluative, interpretive, or diffuse language when talking about political stimuli. This is especially visible in the substantial "other" category in the IDI layer, which captures scepticism, worry, empathy, disapproval, discomfort, and other complex reactions that cannot be reduced to one basic emotion label.

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Figure 25 - Mismatch typology

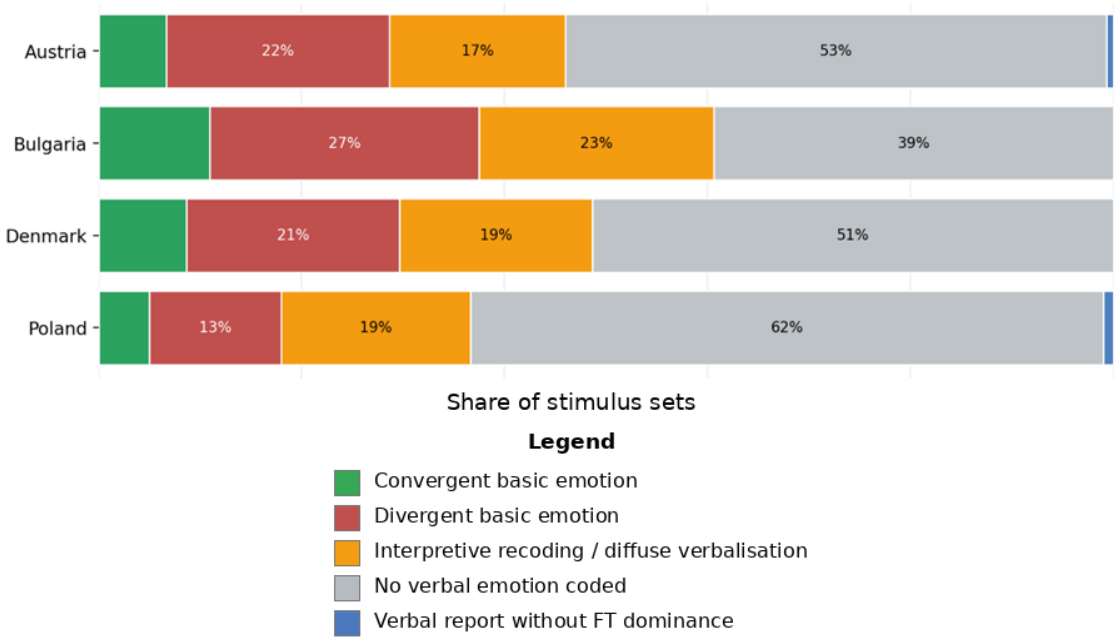

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Table 6 - Key tests for the mismatch

Comparison	Statistical basis	Result	Interpretation
Dominant FT vs dominant IDI (overall)	Fisher exact test	p = 0.4268	No significant direct association; verbal emotion is not a simple restatement of biometric affect.
Gap magnitude vs economic x-position	Spearman correlation	rho = 0.0597; p = 0.6107	Mismatch is not concentrated at one economic-ideological pole.
Gap magnitude vs social y-position	Spearman correlation	p = 0.916	No evidence that mismatch increases with authoritarian-libertarian orientation.
Gap magnitude vs age	Spearman correlation	p = 0.797	Mismatch does not systematically vary by age.

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Gap magnitude by gender	Mann-Whitney test	p = 0.7214	No gender difference in the size of the affect-emotion gap.
Gap magnitude by education	Mann-Whitney test	p = 0.9321	No education difference in gap magnitude.
Gap magnitude by gender x education	Kruskal-Wallis test	p = 0.5195	Mismatch is not concentrated in one demographic subgroup.

Face-tracking and interview data should not be expected to converge mechanically, because emotional responding is only partially coherent across physiological, expressive, and self-reported systems. Empirical research shows that the experiential, behavioural, and physiological components of emotion often align only modestly rather than producing a single uniform response pattern, and that such coherence may differ across automatic and reflective response systems. In addition, the interview layer should not be treated as a simple verbal mirror of biometric affect, since self-reports are shaped by appraisal, categorisation, decision processes, and language use. The act of reporting emotion may itself modify ongoing emotional processing, which means that IDI material adds reflective interpretation, moral evaluation, and discursive positioning rather than merely reproducing immediate embodied reaction. For this reason, divergence between face-tracking outputs and later verbalised emotions in WP4 should be understood not as measurement error in itself, but as an analytically meaningful feature of how affective reactions are transformed into conscious interpretation and report.

10 CROSS-COUNTRY AND INTRA-COUNTRY COMPARISON

This chapter compares patterns within countries (intra-country: current vs future narratives; profile contrasts) and between countries (cross-country differences in affect profiles,, values distributions, and mismatch mechanisms).

10.1 CROSS-COUNTRY COMPARISON

The comparative logic of WP4 requires the country-level findings from the face-tracking and IDI components to be interpreted together rather than as separate descriptive layers. Cross-country comparison makes it possible to identify whether the same political material is received through stable national affective repertoires and whether those repertoires survive the transition from immediate embodied reaction to reflective verbalisation. Intra-country comparison, by contrast, reveals whether the two layers converge within the same national context or whether they diverge in patterned ways. Taken together, these perspectives help establish whether mismatch is random noise or a country-specific feature of political emotion processing.

The statistical pattern is clear. At the overall level, country is significantly associated with respondents' dominant face-tracking emotion, whereas no equivalent country effect is observed for dominant IDI emotion. The same asymmetry remains visible

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when liberal/future and conservative/current profiles are analysed separately: biometric reactions remain significantly country-structured, but verbalised emotions do not. Methodologically, this means that macro-context influences embodied response more strongly than it shapes the explicit language respondents use to describe their feelings. The verbal layer is therefore more standardised, more diffuse, or more constrained by discourse conventions than the

Table 7 - Statistical summary of cross-country structuring in WP4 emotional outcomes

Comparison	Statistical basis	Result	Interpretation
Dominant FT by country (all posts)	Fisher-type exact test, source R output	$p < 0.001$	Country significantly structures biometric outcomes.
Dominant IDI by country (all posts)	Fisher exact test, source R output	$p = 0.4958$	No significant country structuring of verbally declared dominant emotion.
Dominant FT by country for liberal/future vs conservative/current profiles	Fisher-type exact tests, source R output	Both $p < 0.001$	Country effect remains robust across alternative ideological framings.
Dominant IDI by country for liberal/future vs conservative/current profiles	Fisher exact tests, source R output	$p = 0.8085$ (liberal), $p = 0.5603$ (conservative)	IDI reactions remain heterogeneous and not significantly country-structured.

10.1.1 COVID 19 CASE STUDY

Seen comparatively, the strongest and most consistent cross-country differences appear in the face-tracking layer. Austria is repeatedly characterised by surprise, Bulgaria by sadness, Denmark by a mixed happiness-sadness profile, and Poland by happiness with a more visible anger component than in Austria or Denmark. The IDI layer does not reproduce these biometric structures with the same consistency. Instead, the interviews introduce broader "other" categories, more ambivalence, and more country-level heterogeneity in the way respondents narrate their feelings. The analytical value of the cross-country comparison therefore lies not only in identifying which countries differ, but also in showing that the two measurement layers differ in the extent to which they are nationally structured.

The topic-specific case studies below illustrate this difference in greater detail. In both cases, the biometric and interview layers are compared at the respondent level, which makes it possible to see not only what emotion is most common in a given country, but also how topic salience reconfigures the balance between affective reaction and verbal interpretation.

Figure below shows that the COVID-19 case study generated clearly differentiated national affective profiles in the face-tracking layer. Austria is dominated by surprise (60%), Bulgaria by sadness (81.3%), Denmark by happiness (60%), and Poland by a

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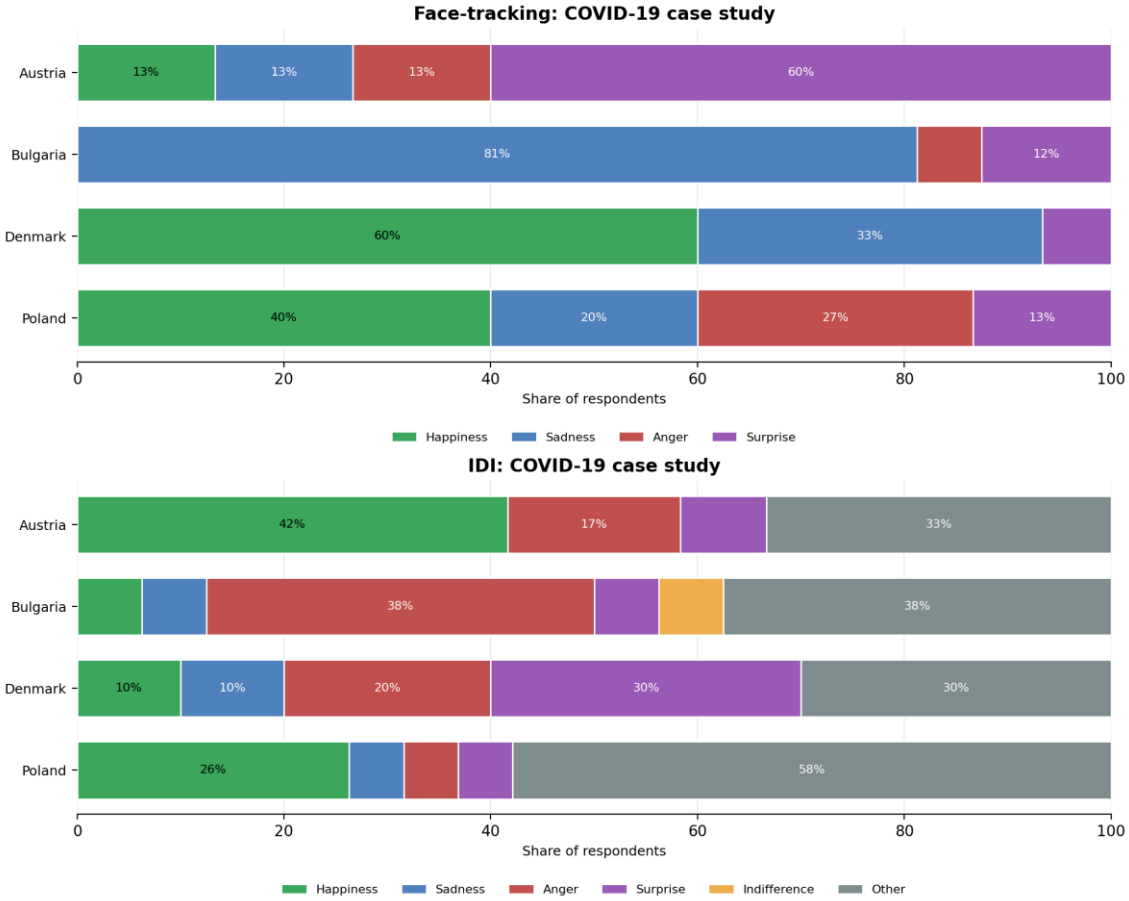
more pluralised pattern in which happiness remains the largest category, but anger and sadness are also visible. This replicates the broader country pattern already identified in earlier chapters, while also showing that issue framing does not remove the national structure of biometric response.

The IDI layer is markedly less uniform. In Austria, COVID-19 posts most often elicited happiness (41.7%) and other complex reactions (33.3%), with anger present but secondary. In Bulgaria, anger and "other" each account for 37.5%, while sadness is relatively rare despite being dominant in the FT layer. Denmark shows a split between happiness and "other", and Poland is especially heterogeneous, with a large "other" category and a relatively weak direct sadness response. The substantive implication is that COVID-19 remains a topic on which embodied affect is more structured than verbal articulation. Participants often move away from immediate affect and toward interpretive, evaluative, or diffuse language once the interview begins.

Figure 26 - Cross-country comparison for the COVID-19 case study. Dominant face tracking emotion and dominant IDI emotion by country



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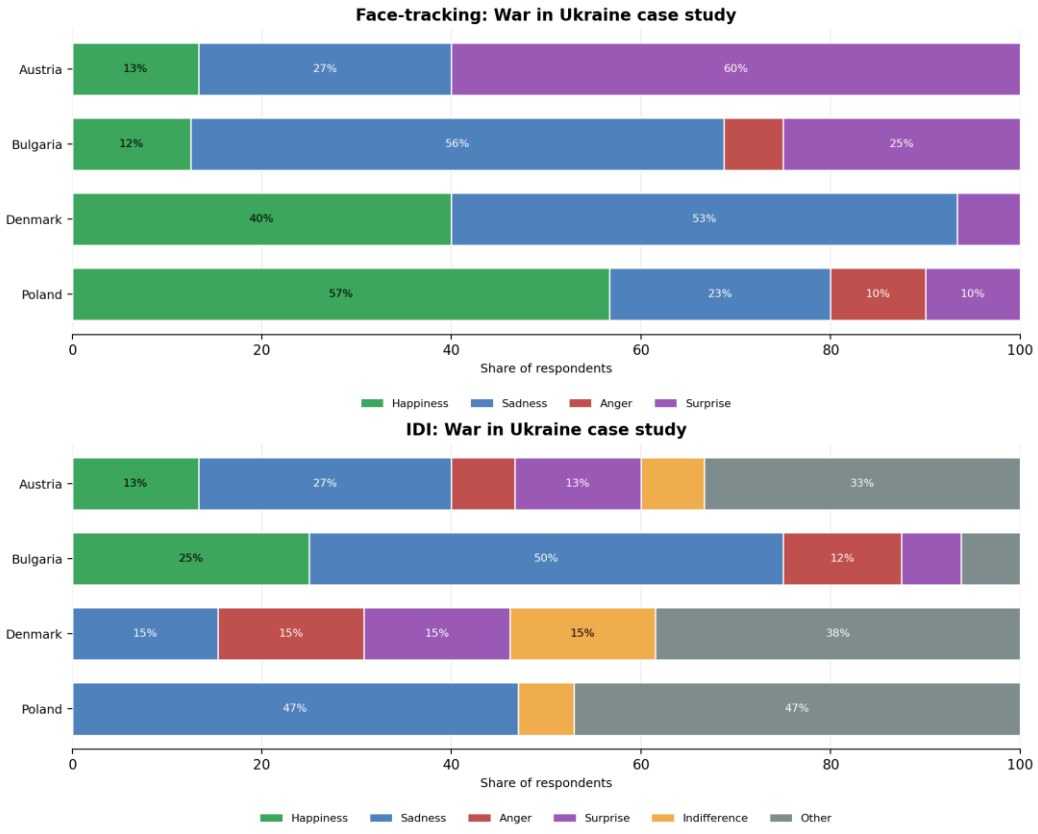
10.1.2 WAR IN UKRAINE CASE STUDY

The war in Ukraine case study preserves some of the same biometric country signatures but also reveals meaningful shifts. Austria remains strongly surprise-dominant (60%), which suggests that the issue continues to be processed through a pattern of heightened alertness rather than a straightforward positive or negative valence. Bulgaria again shows sadness as the dominant biometric response, while Denmark and Poland remain more mixed, with happiness and sadness both visibly present. This means that the crisis-topic framing does not erase the national FT signatures identified earlier; instead, it reworks them within a more issue-specific context.

The interview layer again shows a more reflective and heterogeneous pattern. In Austria, "other" (33.3%) and sadness (26.7%) dominate the verbal responses, indicating a shift away from the surprise-dominant biometric profile toward more interpretive or empathic reactions. Bulgaria displays the strongest cross-layer alignment, as sadness remains the central verbal category as well. Denmark shows a mixed verbal pattern with sadness, anger, and "other" all remaining visible, which points to continued reinterpretation rather than exact convergence. Poland combines a positive FT profile with a much more diffuse verbal one, including a very high proportion of "other" or uncoded responses, indicating that the issue triggers narrative processing that is only partly reducible to one discrete emotion.

Figure 27 Cross-country comparison for the War in Ukraine case study. Dominant face tracking emotion and dominant IDI emotion by country



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10.2 INTRA-COUNTRY COMPARISON

Intra-country comparison addresses a different question: not whether countries differ from one another, but whether the two measurement layers converge within the same national setting. Figure *xxx* therefore reports the percentage of respondents for whom the dominant FT emotion and the dominant IDI emotion are identical within a given topic. This is a stricter indicator than the general mismatch framework because it counts only exact category agreement, yet precisely for that reason it is useful for comparing countries on a common metric. In combination with the broader mismatch analysis in Chapter 9, it helps distinguish between countries where verbalised emotion tends to remain closer to biometric affect and countries where it more often shifts toward recoding, diffusion, or non-classification.

The overall pattern is one of limited convergence. Exact match rates are low in all countries, which confirms that immediate face-tracking reactions and later verbalised emotions should not be assumed to overlap automatically. The topic-specific distribution, however, is informative. Austria shows very low exact convergence for COVID-19 but a substantially higher level for the war in Ukraine, which suggests that some issues are easier to verbalise in ways that remain close to the biometric layer. Bulgaria displays the highest war-related convergence rate, consistent with the strong sadness profile visible in both the FT and IDI materials for that topic. Denmark remains low on both topics, indicating a particularly strong tendency toward verbal reinterpretation. Poland also shows limited exact convergence overall, despite a relatively positive FT profile in several conditions, which further supports the interpretation that the verbal layer is more plural and discursively filtered than the biometric one.

This interpretation is consistent with the gap-based analyses reported in the source statistical file. Spearman tests did not show significant associations between the emotion-gap indicator and respondents' x-position, y-position, or age, while Wilcoxon and Kruskal-Wallis tests likewise found no significant gender- or education-based structuring. The analytical implication is that the observed country differences in convergence rates should not be misunderstood as evidence that mismatch is driven by one simple socio-demographic subgroup. Rather, the convergence patterns appear to arise from how specific country contexts and issue framings shape the translation from embodied affect to articulated emotion.

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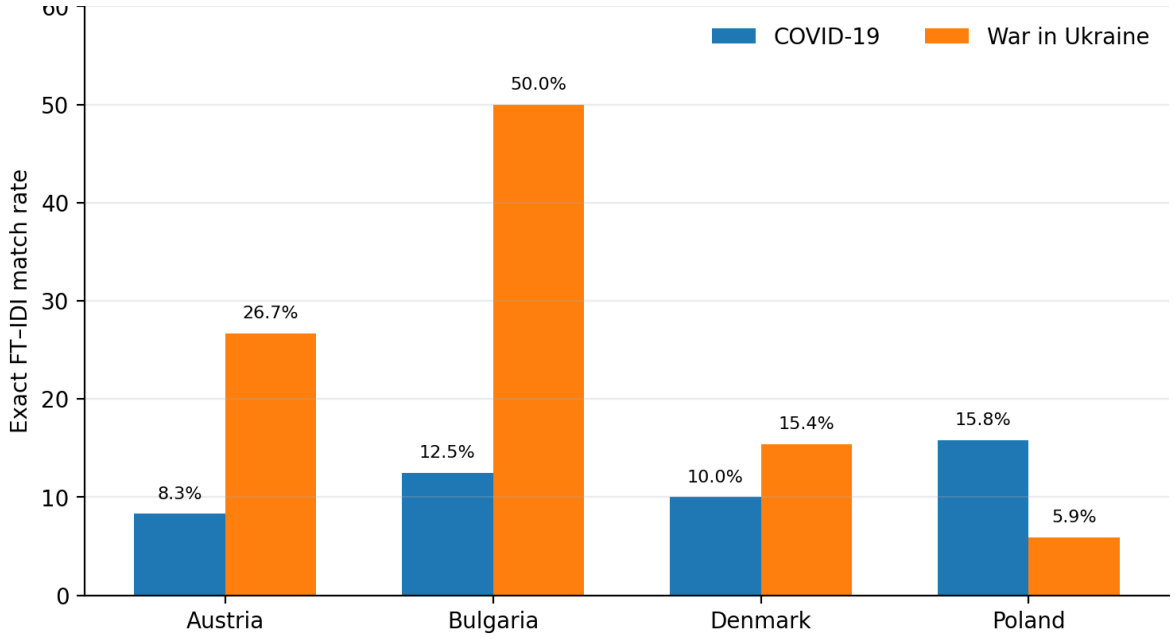
Figure 28 - Topic-specific exact FT-IDI convergence by country.



Note: the chart reports the share of respondents for whom the dominant face-tracking emotion and the dominant IDI emotion are identical within a given topic. Topic-specific percentages use valid FT-IDI pairs only.

Table 8 - Descriptive intra-country convergence indicators.

Country	Respondents (n)	Overall exact FT-IDI match	COVID-19 exact match	War in Ukraine exact match
Austria	15	13.3%	8.3%	26.7%
Bulgaria	16	18.8%	12.5%	50.0%
Denmark	15	20.0%	10.0%	15.4%
Poland	30	10.0%	15.8%	5.9%

11 INTERPRETATION SUMMARY

The analysis confirms the central WP4 proposition that emotional responses to political narratives are internally complex and cannot be reduced to self-report alone. Face-tracking results show strong cross-country differentiation in embodied affective reaction, whereas interview-based dominant emotions are far less strongly structured by country. This asymmetry is not a methodological contradiction; it is a substantive result demonstrating that embodied reactivity and verbalised interpretation capture different phases and components of emotional processing.

From the perspective of scientific validity, three conclusions follow. First, the face-tracking results are strong enough to support claims about cross-country

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differentiation in the affective layer. Second, the IDI layer is analytically indispensable because it reveals interpretive recoding, evaluative framing, and non-response, even when simple country-level categorical differences are not significant. Third, the absence of a stable one-to-one association between dominant FT and dominant IDI categories confirms that mismatch should be treated as evidence about political emotion processing rather than dismissed as measurement noise.

For later ENCODE activities, this means that communication effects should not be assessed using one modality only. Narrative designs that appear to trigger desirable verbal reactions may still produce very different embodied reactions during exposure. Conversely, emotionally strong biometric responses may later be softened, moralised, or left unarticulated in interviews. A multimodal evidence base is therefore essential for any robust account of citizens' responses to democratic or polarising political narratives.

At the same time, the cross-country differentiation observed in the face-tracking layer should be interpreted cautiously and as a basis for further explanation rather than as a closed causal conclusion. The present design does not allow strong claims about why Austria, Bulgaria, Denmark and Poland differ, but several plausible mechanisms merit future investigation: differences in national political culture and media environments, historically sedimented experiences of crisis and trust, country-specific cleavage structures, and smaller compositional differences in the achieved samples. Future research should therefore test these mechanisms more directly by combining larger samples, repeated measurements, and richer contextual indicators such as institutional trust, partisan attachment, media consumption, and issue salience. Such an extension would allow ENCODE to move from the present multimodal mapping of affective response styles toward more explicit explanatory models of how democratic context shapes emotional processing.

Table 9 - Key takeaways

Key takeaways
Biometric affect is significantly structured by country, whereas verbally declared emotion is not.
The pooled dataset shows no significant direct association between dominant face-tracking and dominant IDI categories.
Mismatch is not random noise: it reflects interpretive recoding, diffuse verbalisation, and strategic or issue-specific avoidance.
Simple socio-demographic variables do not explain much of the variation in either dominant face-tracking or dominant verbal emotion.
The reported inferential strategy is conservative and methodologically aligned with D4.1, which strengthens the evidential value of the conclusions.

Note: A final reliability point is especially important. The uploaded analyses are appropriately conservative. Sparse categorical cells are handled with Fisher-type tests and Monte Carlo simulation; exploratory model outputs are clearly separated from confirmatory findings; and null results are reported explicitly rather than hidden. This strengthens the credibility of the deliverable because it demonstrates analytical discipline rather than over-claiming.

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12 LIMITATIONS, ROBUSTNESS CHECK AND FURTHER STEPS

12.1 LIMITATIONS

- Biometric inference limits: facial expression classification may not perfectly capture internal affect, and cultural display rules may vary.
- Context validity: lab-based exposure differs from naturalistic social media browsing.
- Sample size and representativeness: small n per country limits subgroup inference and generalisability.
- Translation effects: subtle differences in language may affect emotional resonance and comparability.

12.2 ROBUSTNESS CHECK

The following robustness checks were performed to assess the stability of the analytical findings reported in Chapters 7-11. These checks align with the conservative statistical logic adopted throughout the deliverable.

- Small-cell correction strategy: Pearson's chi-squared tests were avoided when expected counts were low; Fisher's exact tests with Monte Carlo simulation (10,000 replicates) were applied for country and subgroup comparisons of dominant emotion categories.
- Demographic sensitivity (dominant emotions): No significant associations were found between dominant FT and gender ($p = 0.7053$) or education ($p = 0.6977$), nor between dominant IDI and gender ($p = 0.2746$) or education ($p = 0.9047$). Joint gender×education tests were also non-significant for FT ($p = 0.8889$) and IDI ($p = 0.1381$).
- Emotion-gap correlates: Spearman correlations showed no significant association between the emotion gap and political compass position on X ($p = 0.6107$) or Y ($p = 0.916$), nor with age ($p = 0.797$).
- Emotion-gap group differences: Mann–Whitney tests indicated no significant differences in emotion gap by gender ($p = 0.7214$) or by education ($p = 0.9321$). The Kruskal–Wallis test for the four-group gender×education interaction was also non-significant ($p = 0.5195$).
- Multivariable checks (exploratory): Multinomial logistic regression models tested whether age, gender, education, and political compass (X, Y) jointly predict dominant FT and dominant IDI. While some coefficients reached nominal significance (e.g., Y predicting Happiness/Sadness vs Anger for FT; age and X predicting selected IDI contrasts), the overall model comparisons to null models were not significant (FT model $p = 0.41$; IDI model $p = 0.325$). These results are treated as exploratory due to small category counts.

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Additional analyses recommended for future iterations (subject to data availability) include: (i) mixed-effects models at the post/segment level with respondent random intercepts; (ii) pairwise post-hoc country contrasts with multiplicity correction; and (iii) reporting effect sizes for contingency analyses (e.g., Cramer's V) alongside p-values.

12.2 FURTHER STPES

It is highly recommended to push the research and analysis further by preparing additional publications and/or research reports. Within the task 4.2 we were able to collect lot of data, apart from the political compass, face-tracking biometric part and results of IDI, more biometric data can be extracted, mainly the whole eye-tracking results (including setting up area of interests (AOI). All raw anonymised data is going to be available in the opensource repositories.

CONCLUSIONS

Deliverable D4.2 fulfils the core objective of Task 4.2 by providing a final analytical report that contrasts biometric and qualitative evidence in order to explain how citizens respond emotionally to political narratives. The report demonstrates that the ENCODE WP4 design is methodologically productive because it does not treat emotions as a single measurable phenomenon, but as a multi-layered process unfolding across embodied reaction, conscious interpretation, and verbal expression. In this sense, D4.2 provides the empirical bridge between D4.1, which established the methodological framework, and D4.3, which will visualise country-level affect–emotion discrepancies in the form of emotional maps.

The main analytical finding is that emotional responses to political content cannot be reduced to self-report alone. Face-tracking results show clear and statistically robust cross-country structuring, whereas interview-based dominant emotions are much less strongly patterned by country. This asymmetry is one of the most important substantive outcomes of the study. It indicates that embodied affective responses and verbally declared emotions capture different components of political emotion processing rather than duplicate the same response. The biometric layer reflects immediate affective reception, while the interview layer reflects interpretation, discursive reframing, and selective verbalisation.

The deliverable also confirms the analytical relevance of the affect–emotion gap. The lack of a significant direct association between dominant face-tracking and dominant IDI categories shows that mismatch should not be understood as simple methodological noise. Instead, it points to processes such as interpretive recoding, ambivalence, diffuse verbalisation, and issue-specific or norm-driven regulation. Equally important, mismatch is not strongly explained by basic socio-demographic variables or by respondents' political-compass coordinates. This suggests that the gap is not confined to one narrow subgroup, but reflects a broader feature of how political stimuli are emotionally processed and later narrated.

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From a comparative perspective, the study shows that national context remains a strong organiser of biometric affect. Austria is characterised mainly by surprise, Bulgaria by sadness, Denmark by a mixed happiness–sadness pattern, and Poland by a more happiness-oriented but internally more pluralised profile. These national affective repertoires remain visible across different narrative framings, including both future/liberal and current/conservative profiles, which suggests that political communication is filtered through relatively stable contextual emotional environments. By contrast, the IDI layer is more heterogeneous and less tightly country-structured, indicating that verbal responses are more strongly shaped by interpretation and discursive norms than by immediate embodied affect.

Overall, D4.2 provides a strong empirical foundation for subsequent ENCODE activities. Its findings show that democratic and polarising narratives should not be assessed using one modality only, because what participants say they feel may differ substantially from how they react during exposure. For WP5 and later narrative-development tasks, this means that a multimodal evidence base is essential if ENCODE is to understand how citizens receive, transform, and communicate political emotions. The deliverable therefore does not only report results; it establishes the analytical logic needed for future experimentation, cross-country comparison, and the development of emotionally resonant democratic narratives.

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ANNEX 1

INFORMED CONSENT FORM

Study title:
Emotional Responses to Political Narratives in Digital Environments (ENCODE Project)

Principal Investigator:
[Insert Researcher Name]
[Insert Institution Name]
[Insert Contact Information]

Project funded by:
European Commission – Horizon Europe Programme (ENCODE Project)

Introduction

You are invited to take part in a research study that investigates how people perceive and emotionally respond to political narratives on social media. This study is part of the ENCODE project, which aims to support democratic resilience in Europe through the study of emotional communication.
Your participation in this study is entirely voluntary. There will no relation to your name in the study, you will be given a specific code, just to corelate results of all part of studies. Please read the following information carefully before deciding whether to participate.

Purpose of the study

The purpose of this study is to understand how individuals respond to various political narratives, using a combination of surveys, biometric measurements, and interviews. The study involves three stages:

1. Pre-study online questionnaire (approx. 10 minutes)

You will complete a short, anonymous questionnaire that includes questions about your political opinions and values. This data will be used to position you on a political compass and will be anonymously.

2. Biometric testing session (approx. 10 minutes)

You will take part in a session where your eye movements and facial expressions will be recorded while you view simulated social media profiles of fictional political figures. This will include:

- Eye-tracking: to measure what parts of the screen you focus on.
- Face-tracking: to detect your emotional reactions through facial expressions.

All data will be captured anonymously using a participant code.

3. Post-session interview (approx. up to 30 minutes)

You will be invited to take part in a one-on-one interview. The purpose is to understand your thoughts and feelings about the content you viewed during the biometric session. With your permission, the interview will be audio and/or video recorded.

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Data handling and confidentiality

- All data will be anonymized using a unique participant code.
- No personally identifying information will be linked to your responses or recordings.
- Data will be stored securely on encrypted devices or servers accessible only to the research team.
- Recordings may be transcribed for analysis but will be stripped of identifying details.
- Your data will be used solely for scientific research and may be included in academic publications, always in anonymized form.

Voluntary participation and right to withdraw

- Participation is entirely voluntary.
- You may withdraw at any point without giving a reason and without any consequences.
- You may also request that any of your data be deleted up to the point of anonymized aggregation.

Risks and benefits

- There are no known physical risks associated with this study.
- Some questions or political content may be emotionally sensitive. You are free to skip any question or stop the session at any time.
- Although you may not directly benefit, your participation will contribute to important research on political communication and emotional processing.

Consent statement

By signing this form, I confirm that:

- I have read and understood the information provided above.
- I have had the opportunity to ask questions and have received satisfactory answers.
- I understand that my participation is voluntary and that I can withdraw at any time.
- I consent to the anonymous use of my data for academic and research purposes.
- I agree to participate in all three stages of the study (pre-survey, biometric test, post-interview).

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ACRONYM	FULL NAME
CAWI	Computer Assisted Web Interview
D	Deliverable
DQA	Data Quality Assurance
EC	European Commission
EB	Executive Board
EU	European Union
GA	General Assembly
GDPR	General Data Protection Regulation
KoM	Kick-off meeting
M	Month
M&E	Monitoring and Evaluation
PC	Project Coordinator
PO	Project Officer
SES	Socioeconomic status
WP	Work Package

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