GUIDELINE ON THE RESPONSIBLE AND RELIABLE USE OF GENERATIVE ARTIFICIAL INTELLIGENCE (GEN AI) IN RESEARCH FUNDING PROCESSES

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Introduction

Generative Artificial Intelligence (GenAI), particularly with rapid advancements in technologies like Large Language Models (LLMs), is becoming an integral part of daily life and scientific research. These technologies have the capacity to generate text, code, images, data, and other types of content with human-like proficiency. They offer significant promises in areas such as accelerating scientific discovery processes, enhancing research efficiency, supporting text generation in different languages, summarizing large information sets, and coding.

This transformative power of GenAI opens new horizons for research and development activities. However, alongside these bright opportunities offered by GenAI, there are also significant risks and ethical challenges that must be considered. International organizations such as the OECD and UNESCO have expressed serious concerns regarding issues like the misuse of GenAI, erroneous or misleading outputs (hallucinations/confabulations), the reinforcement of biases, violation of intellectual and industrial property rights, data privacy and security problems, and the generation of disinformation. In the context of research, the uncontrolled use of GenAI carries the potential to undermine the originality, quality, validity of the scientific studies as well as trust in science. This situation necessitates the protection of fundamental ethical values such as transparency, fairness, and accountability, especially in support processes. The Scientific and Technological Research Council of Türkiye (TÜBİTAK) acknowledges the value that GenAI can add to the research ecosystem, while also being aware of the risks that may arise from the use of this technology. The rapid development and proliferation of GenAI technologies have created an urgent need for clear guidance at the institutional level. In this regard, these guidelines, prepared to ensure the responsible and ethical use of GenAI in TÜBİTAK's proposal and award processes:

- Reflect TÜBİTAK's commitment to protecting research integrity, ethical standards, intellectual and industrial property rights, legal obligations regarding the protection of personal data, and the confidentiality of its processes. This approach is also in alignment with the goals set forth in Türkiye's National Artificial Intelligence Strategy (NAIS) and with the international principles and best practices established by organizations such as the OECD, UNESCO, and the European Commission.
- Constitute a proactive step to prevent potential ethical violations and to maintain trust in research processes.

- Define specific rules, recommendations, responsibilities, limitations, and prohibitions regarding the use of GenAI for applicants (project teams, partners, and advisors) and reviewers.

In the subsequent sections of the guidelines, fundamental ethical principles, legal frameworks, and implementation mechanisms are discussed in detail.

1. Purpose and Scope of the Guidelines

- **Purpose:** The primary purpose of this guideline is to provide a comprehensive handbook for the ethical, responsible, and legally compliant use of Generative Artificial Intelligence (GenAI) tools for individuals and teams who apply to TÜBİTAK funding programs and participate in processes such as review/monitoring. The guidelines aim to protect research integrity, ensure fairness and transparency in review processes, safeguard the confidentiality of application and review processes, protect intellectual and industrial property rights, ensure full compliance with relevant laws, primarily the Law on the Protection of Personal Data (KVKK), and promote responsible innovation.
- **Scope:**

  Processes Covered: The guideline covers all stages of the processes for all funding programs conducted by TÜBİTAK, including the preparation, submission, preliminary review, scientific evaluation (including referee evaluations, peer-reviews, panel meetings, and reporting), monitoring, and finishing of completed projects.

  Stakeholders Covered: The guideline applies to all researchers, students, project teams, and institutions/organizations applying to TÜBİTAK funding programs ("Applicants"); and to peer-reviewers, referees, panelists, observers, rapporteurs, and relevant committee/board members who evaluate, comment on, or monitor applications and projects ("Reviewers" and "Decision-Makers").

  Technologies Covered: The guideline primarily focuses on Generative Artificial Intelligence systems capable of producing new and original content such as text, computer code, images, audio, and synthetic data based on user inputs. The covered technologies include Large Language Models (LLMs), text-to-image models, and similar foundational models. The scope is kept broad to focus on functionality rather than specific model names, considering the rapid evolution of technology. Traditional, non-generative artificial

intelligence tools (e.g., standard statistical analysis software) are not the direct focus of this guideline, although the principles of data privacy and ethical use are generally applicable to the use of any type of technology.

Topics Covered: The guideline details the permitted and restricted uses of GenAI, the obligation and methods for declaring its use, the responsibilities of stakeholders, potential risks (misinformation, bias, intellectual and industrial property rights infringement, data privacy). It further covers the measures to be taken against the aforementioned risks, fundamental ethical principles, data privacy and security obligations, especially under the KVKK. Matters, concerning the protection of intellectual and industrial property rights, strict confidentiality rules applicable to evaluators, processes for handling violations and sanctions (including the role of the TÜBİTAK Research and Publication Ethics Committee - AYEK), and the mechanisms for updating the guideline, are also in the scope of this guideline. The integration of these guidelines into TÜBİTAK's unique structure and processes ensures the provision of an institution-specific and applicable framework that distinguishes itself from generic AI ethics documents [1].

2. Definitions

- **Generative Artificial Intelligence (GenAI):** Artificial intelligence systems that can generate new content such as text, computer code, visual material, and synthetic data in response to given commands (prompts), typically using complex models (e.g., Large Language Models or Diffusion Models) trained on large datasets. Tools like GPT, Google Gemini, Claude, Imagen, and Veo are examples in this category. Its key distinguishing feature is the capacity to create new content not directly found in its training data.
- **Applicant:** Any individual (researcher, project manager, student, etc.), research group, or legal entity (university, research center, company, etc.) that apply to TÜBİTAK grants (project, scholarship, scientific event, etc.) or submits a document (interim/final report, request form, etc.) related to an ongoing or completed support.
- **Reviewer:** Encompasses all individuals involved in the scientific, technical, or administrative evaluation, review, monitoring, or reporting of project proposals, applications, or funded projects submitted to TÜBİTAK. This definition includes peer-reviewers, referees, panelists, observers, rapporteurs, and members of committees or

boards involved in review processes.

- **Personal Data:** As defined in Article 3, Section 1, Clause (d) of the Law on the Protection of Personal Data (KVKK) No. 6698, "any information relating to an identified or identifiable natural person" is personal data [2]. In the context of TÜBİTAK processes, this definition may include the names, contact information, curricula vitae, and academic records of applicants, project team members, and reviewers, and, if applicable, data belonging to identifiable natural persons processed within the scope of the research (e.g., survey participant information, patient data). Information belonging to legal entities (company name, address, etc.) is not considered personal data on its own.
- **Intellectual and Industrial Property (IIP):** A broad concept covering any mental product that arises during the execution of or as a result of a project, which may or may not be subject to protection by registration under special legislation and/or general provisions. These intellectual products, also referred to as "intellectual works" in literature, include various elements such as inventions, patents, utility models, designs, works of authorship, integrated circuit topographies, technical information, trade secrets, and "know-how." "Work of authorship," in particular, refers to any right to an intellectual product within the scope of the Law on Intellectual and Artistic Works No. 5846, the Industrial Property Law No. 6769, the Turkish Commercial Code No. 6102, and other relevant legislation. "Intellectual and industrial rights" are the legal rights that arise in relation to these intellectual products and can be subject to ownership. The management, sharing, protection, and commercialization of such intellectual and industrial property rights that may arise in project processes are regulated by texts such as project agreements and the Technology Acquisition Roadmap (TKYH) [3].
- **Data Processing Agreements (DPA):** Mandatory agreements signed with selected third-party service providers in full compliance with the provisions of the KVKK. These agreements explicitly regulate the types of data to be processed, the purposes and duration of processing, the obligations of the data controller and data processor, the technical and administrative security measures to be taken, commitments that the data will not be used for other purposes, conditions for the use of sub-processors, data breach notification processes, provisions for the return or deletion of data upon contract termination, and TÜBİTAK's audit rights.

- **Data Controller:** Pursuant to Article 3/1-ı of the KVKK, "the natural or legal person who determines the purposes and means of the processing of personal data and is responsible for the establishment and management of the data filing system" [2]. TÜBİTAK is the primary data controller for the personal data it collects and processes within the scope of its own funding processes. Applicants and their institutions are also data controllers with respect to the data they collect and process.
- **Data Processor:** Pursuant to Article 3/1-ğ of the KVKK, "the natural or legal person who processes personal data on behalf of the data controller upon his authorization" [2]. Third-party providers with whom TÜBİTAK has agreements for specific services (e.g., cloud computing, custom software services) can be considered within this scope.
- **Explicit Consent:** Pursuant to Article 3/1-a of the KVKK, "freely given, specific and informed consent" [2]. For explicit consent to be valid, the person must know what she/he is consenting to (unambiguous information), the consent must be limited to a specific transaction or purpose, and the person must give consent of her/his own free will without any coercion. General or pre-given consents are not valid.
- **Research Integrity:** Adherence to fundamental scientific and ethical values such as honesty, accuracy, objectivity, impartiality, and accountability in the processes of proposing, conducting, evaluating, and publishing research. It includes avoiding acts of scientific misconduct such as fabrication, falsification, and plagiarism.
- **Plagiarism:** As defined in Article 9/1, c of the TÜBİTAK Research and Publication Ethics Committee (AYEK) Regulation, "Using the ideas, methods, data, writings, and figures of others as one's own without duly citing the owners or, where necessary, without obtaining permission from the owners" [1].
- **Generation of Misinformation (Hallucination/Confabulation):** Outputs generated by GenAI systems that sound plausible but are in fact incorrect, nonsensical, or fabricated, due to insufficient information in the training data or the model's internal limitations.
- **Algorithmic Bias:** A situation where an artificial intelligence system reflects existing societal biases present in its training data or, due to flaws in the algorithm's design, systematically produces erroneous and unfair results in favor of or against certain groups.

These definitions provide a legal and institutional basis for the rules and recommendations in the

subsequent sections of the guidelines. In particular, the definitions taken from the KVKK and the AYEK Regulation ensure that the guidelines are consistent with the existing legal and ethical framework in Türkiye [1]. The clear distinction between the roles of Applicant and Evaluator is crucial for the correct understanding of the differing rules and responsibilities for each group.

3. Fundamental Principles Underlying the Guideline

The rules and recommendations in this guideline are based on fundamental principles that are internationally accepted in the fields of artificial intelligence ethics and research ethics. These principles have been interpreted within the framework of Türkiye's legal regulations and TÜBİTAK's corporate values and legislation, and have been adapted to the specific context of TÜBİTAK's support processes. All articles of the guidelines should be understood and applied in light of the following fundamental principles:

- **Responsibility and Accountability:** Regardless of how advanced GenAI tools are, humans are ultimately responsible for the generated content, the decisions made, and their consequences. Applicants bear full responsibility for the project proposals they submit, and reviewers for the evaluations they conduct. Artificial intelligence systems are tools and cannot be held legally or ethically responsible. This principle forms the basis for rules such as declaring the use of GenAI, verifying outputs, and maintaining human oversight. The TÜBİTAK AYEK Regulation also holds individuals accountable for their actions [1].
- **Transparency and Explainability:** A policy of openness regarding the use of GenAI in support processes should be adopted. Applicants are expected to declare their use of GenAI as requested by TÜBİTAK in the relevant funding process and to enter this information into the systems designated by TÜBİTAK (such as application systems or other interfaces) in the appropriate format. Where possible, the aim is to ensure that the contribution of GenAI to processes or outputs is understandable. Transparency supports accountability and increases trust in the processes.
- **Fairness and Non-Discrimination:** When using GenAI, the potential algorithmic biases of GenAI tools must be considered, and measures should be taken to mitigate these risks. The impartiality of review processes must be preserved, and the use of GenAI should not provide an unfair advantage to certain individuals or groups.
- **Privacy and Data Protection:** Research proposals, review reports, and all other

information and documents related to the process are confidential. The protection of this confidentiality is essential. Sharing confidential information and documents with third-party GenAI applications poses the risk of this information being learned by the platform operators and used for other purposes. The use of GenAI tools must not violate this confidentiality. In particular, personal data contained in application or evaluation materials must be processed and protected in accordance with the provisions of the KVKK [2] and TÜBİTAK's data protection policies. Entering sensitive or confidential information into GenAI tools must be strictly prevented.

- **Security and Robustness:** The GenAI tools used and the related processes are intended to be technically secure, resilient against cyber-attacks, and robust enough to perform their intended function correctly. Security measures must be taken to prevent data leaks and unauthorized access. Security risks of LLMs are often referred to as membership inference attacks, model evasion attacks, or even model inversion attacks. For example, numerous studies have shown that large language models tend to "memorize" specific textual elements they were trained on (last name, first name, address, phone number, credit card number, etc.). The possibility of carrying out such attacks and obtaining information from them questions the nature of these new objects introduced by artificial intelligence. Therefore, both technical and organizational measures must be implemented to minimize the risks.
- **Research Integrity and Originality:** The use of GenAI must not conflict with the fundamental values of scientific research: honesty, accuracy, and originality. GenAI tools should not be used in a way that leads to acts of scientific misconduct such as plagiarism, data fabrication, or falsification. The intellectual originality of the content presented in applications and reports must be preserved.
- **Human-Centricity and Oversight:** GenAI systems should be used to support and enhance human capabilities, not to eliminate the human role in decision-making processes or ultimate responsibility. Meaningful human oversight and the possibility of intervention must always be maintained, especially in critical decision-making processes (e.g., funding decisions, ethical reviews).

These principles are closely interrelated and should be considered as a whole. For example, it is difficult to ensure accountability without transparency; privacy and security breaches can

undermine the principle of fairness. At the core of all these principles is the understanding that even when GenAI is used as a tool, human responsibility and judgment are fundamental in all processes. This is the most emphasized point internationally, as artificial intelligence itself cannot be a legal or ethical agent. Therefore, every individual in TÜBİTAK processes is obliged to act in accordance with these principles.

Part 1: Rules and Recommendations for Applicants

This section details the rules, permissible situations, responsibilities, risks, limitations, and prohibitions regarding the use of GenAI for researchers, students, and institutions applying to TÜBİTAK funding programs. The fundamental principle is that the applicant is fully responsible for the accuracy, originality, and ethical appropriateness of the submitted content, even when using GenAI as a tool.

All matters detailed in this section of the guidelines, specific to applications, are also valid for the preparation stages of interim/progress/final reports and other monitoring/finalization forms/documents related to ongoing supports.

1.1. Permissible Situations and Purposes for GenAI Use

GenAI tools can play a supportive role in increasing efficiency and facilitating certain tasks during the application process. However, this use should not replace the applicant's intellectual contribution and ultimate responsibility. The declaration requirement and details for all GenAI use are specified in Section "1.2. Declaring the Use of GenAI" of the Guidelines.

1.1.1. Supportive Uses

The use of GenAI for the following purposes is generally acceptable, provided that the applicant exercises careful supervision and verification:

- **Literature Review and Summarization:** GenAI is used for finding academic publications on a specific topic and summarizing the main ideas of large texts or groups of articles. However, the accuracy, completeness, and potential biases of summaries made by GenAI must be checked, and original sources must be consulted. References generated by GenAI should be verified with particular care, as they may produce incorrect or fabricated references.
- **Language and Style Improvement:** GenAI is used for grammar and spelling checks, rephrasing sentences, improving fluency and clarity, and providing translation support, especially for applicants whose native language is not Turkish. Such uses should not alter the meaning or original idea of the text. Furthermore, before providing content to GenAI for these operations, personal data or content that infringes upon another's IIP must be

removed.

- **Coding Assistance:** GenAI is used for generating code snippets for software to be used in research, debugging existing code, and explaining the function of the code. The accuracy, efficiency, security, and potential licensing issues of the generated code must be carefully checked by the applicant.
- **Idea Development and Brainstorming:** GenAI is used like a discussion partner to generate ideas for new research questions, hypotheses, or methodological approaches. However, in such uses, the generated ideas must be filtered through the applicant's own expertise and critical evaluation. The project content must carry the applicant's specificity and originality, and GenAI should not be used in a way that eliminates this specificity and originality.
- **Data Visualization Suggestions:** GenAI provides suggestions for appropriate graph or visualization types for existing data. GenAI's visual generation capabilities (text-to-image generation) should be used with care, ensuring that the generated visuals are accurate and not misleading. It must be stated that the visuals and content were created with artificial intelligence, and the artificial intelligence tool used must be specified.

Even in these supportive uses, the applicant should not accept the generated output as is but should critically evaluate the content, confirm its accuracy, and revise it to reflect their own intellectual contribution.

1.1.2. Uses Requiring Close Attention

The following areas of use involve a more central role for GenAI and therefore carry higher risks. Although the use of GenAI in these areas is not prohibited, it requires the applicant to exercise extraordinary care and diligence, conduct comprehensive verification, and clearly demonstrate their original contribution:

- **Drafting Sections of a Project Proposal:** Having GenAI write the initial drafts of proposal sections such as introduction, literature review, methodology, original value, and widespread impact. This use carries serious risks:
    - **Risks:** The generated texts may contain superficial, generic statements and may not reflect the specific context of the project. They may contain incorrect or fabricated information and erroneous citations. Plagiarism may occur unintentionally.

    - **Requirement:** Drafts generated in this way should never be considered final text. The applicant must see these drafts only as a starting point, create the content entirely with their own knowledge and analysis in an original manner, and verify all claims and references.
- **Data Analysis and Interpretation:** Using GenAI to perform statistical analyses, interpret analysis results, identify patterns in datasets, or generate synthetic data to complete missing data.
    - **Risks:** GenAI can make statistical errors, misinterpret data, or unwittingly reinforce biases in the data. Synthetic data generation can lead to misleading results if not done carefully.
    - **Requirement:** Any data analysis performed with GenAI must be supervised by an expert researcher in the field, the results must be verified with traditional methods, and the limitations of the GenAI tool used must be clearly stated.
- **Generating Figures and Illustrations:** Creating figures, graphs, or other visual materials for the project proposal using GenAI tools that generate images from text.
    - **Risks:** The generated visuals may be technically incorrect, present misleading information, or unknowingly imitate other copyrighted images.
    - **Requirement:** The accuracy, scientific validity, and originality of all generated visuals must be carefully checked and, if necessary, manually corrected or recreated. It must be transparently stated that the visuals were generated with artificial intelligence.

These "uses requiring close attention" have the potential to blur the line between assistance and authorship. Applicants should minimize the role of GenAI in such uses and ensure that their own intellectual contributions are indisputably at the forefront.

1.2. Declaring the Use of GenAI

In line with the principles of transparency and accountability, applicants are required to declare if they have made significant use of GenAI tools in the process of preparing their project proposal.

1.2.1. Declaration Requirement and Scope

- **Requirement:** It is mandatory to declare the use of GenAI tools in the preparation of the

project proposal.

- **Definition of "Significant Use":** This term covers situations that go beyond basic uses such as simple grammar or spelling checks. Specifically, situations such as drafting any part of the proposal (introduction, methodology, literature summary, etc.), generating code for analysis, performing data analysis, creating visuals, or generating content that supports the main arguments of the proposal are considered "significant use" and must be declared.
- **Rationale:** This declaration ensures transparency in the grant review process, confirms the applicant's responsibility, and allows TÜBİTAK to track trends in GenAI usage.

1.2.2. Declaration Method (e.g., dedicated section in the application form)

- **Method:** The GenAI use declaration must be made in the dedicated section for this purpose in TÜBİTAK's online application systems.
- **Content of Declaration:** The applicant must clearly state the following information in this section:
    - The name and version of the GenAI tool(s) used.
    - In which stages or sections of the proposal preparation process GenAI was used (e.g., "in creating the first draft of the literature summary," "in generating Python codes in the methodology section," "for grammar and style check," "in translating sources").
    - A brief description of the nature and extent of the use (e.g., "initial draft creation," "text improvement," "code snippet generation").

1.3. Applicant's Responsibilities

The use of GenAI tools does not eliminate the applicant's fundamental responsibilities. On the contrary, it imposes an additional duty of care and diligence when using these tools.

1.3.1. Accuracy and Scientific Validity of Content

- **Ultimate Responsibility:** The applicant is solely and fully responsible for the accuracy, currency, and scientific validity of all information, data, analyses, claims, and references contained in the project proposal. The use of GenAI does not diminish, eliminate, or transfer this responsibility.

- **Verification Obligation:** Given the tendency of GenAI tools to produce incorrect or fabricated information, known as hallucination/confabulation, the applicant is obliged to meticulously verify all types of output generated by GenAI (text, data, code, references, etc.). In case of doubt or when critical information is involved, reliable primary sources must be consulted and expert confirmation obtained. The applicant is responsible for ensuring that the generated outputs do not infringe on the intellectual and industrial property rights and personal data of others. The submitted information and documents must be accountable in this respect.

1.3.2. Originality and Plagiarism Check

- **Original Contribution:** The project proposal must reflect the original intellectual work, specificity, and originality of the applicant(s). Content generated by GenAI, if used directly, must be properly cited like a quotation. Content generated by GenAI may present results from the copyrighted content of others. This aspect should be investigated, and if necessary, a link should be provided to the original sources that constitute the result along with the GenAI.
- **Plagiarism Risk and Control:** GenAI tools may copy or reproduce texts from their training data in a very similar manner. This situation can lead to the emergence of intellectual property infringement. The applicant is responsible for checking the originality of the text before submitting the final version of the proposal to TÜBİTAK. It is essential to avoid the act of "Plagiarism" as defined in the TÜBİTAK AYEK Regulation (Article 9/1, c) [1].

1.3.3. Compliance with Ethical Principles and Research Integrity

- **Ethical Compliance:** The applicant is obliged to ensure that both the manner of GenAI use and the content produced with GenAI assistance comply with the fundamental ethical principles stated in this guideline (fairness, non-discrimination, privacy, etc.) and general standards of research integrity.
- **Avoiding Scientific Misconduct:** Acts such as deliberately fabricating data, falsifying existing data or results, or plagiarizing using GenAI tools are considered ethical violations and scientific misconduct under the TÜBİTAK AYEK Regulation and are strictly

prohibited [1]. The applicant must take all necessary measures to avoid such actions.

1.4. Risks to Consider and Precautions

The use of GenAI, alongside its conveniences, also harbors significant risks. Applicants are expected to be aware of these risks and take proactive measures.

1.4.1. Risk of Misinformation Generation (Hallucination/Confabulation) and Fabricated Data

- **Risk:** GenAI systems, especially when faced with information that is not in their training data or is contradictory, can generate highly convincing but completely false or nonsensical information, fake references, or data that does not actually exist. This can weaken the scientific foundation of the project proposal and undermine its credibility.
- **Precaution:** All information obtained from GenAI (especially factual claims, numbers, dates, references) must be carefully checked against reliable and independent sources. Any data or analysis produced by GenAI should be verified with domain expertise and, if possible, alternative methods. GenAI outputs should never be trusted without questioning.

1.4.2. Risk of Algorithmic Bias

- **Risk:** GenAI models can learn existing societal biases (based on gender, race, ethnicity, age, etc.) from the massive datasets they are trained on and may unknowingly reflect or even amplify these biases in the content they produce. This can lead to the emergence of unfair or discriminatory elements in the language of the project proposal, the proposed methodology, or the expected impacts.
- **Precaution:** Texts and suggestions produced by GenAI should be examined from a critical perspective, potential biases should be identified, the project language should be inclusive and impartial, team members with different perspectives should review GenAI-assisted content if possible, and the ethical consequences of the approaches suggested by GenAI should be carefully evaluated.

1.4.3. Risk of Intellectual and Industrial Property Infringement

- **Risk:** Some of the data used in the training of GenAI models may be protected by the

intellectual and industrial property (IIP) rights of others, and it is possible that this material is used by GenAI without permission. Consequently, text, code, or images generated by GenAI may infringe on the IIP rights of others. Furthermore, the originality of content produced by GenAI and who owns the IIP rights to this content is legally unclear.

- **Precaution:** Direct copying of content produced by GenAI (especially long text blocks, codes, visuals) should be avoided and recontextualized. The license conditions for used code libraries or visual elements should be checked. For intellectual products resulting from the project that include GenAI contributions, notifications must be made in accordance with TÜBİTAK's relevant legislation regulating IIP rights, and ownership processes must be followed [3].

1.4.4. Risk to Data Privacy and Security

- **Risk:** Information entered into GenAI tools used during the project proposal preparation process, especially public and third-party tools (web-based chatbots, etc.), including prompts and uploaded files, may be stored, analyzed, shared with other users, or used in the training of future models by these service providers. This poses the following serious risks:
    - **Breach of Confidentiality:** Disclosure of unpublished original research ideas, methodologies, preliminary results, or project strategies.
    - **Loss of Intellectual and Industrial Property:** Loss of control over information related to all intellectual and industrial property rights or any information of commercial value.
    - **KVKK Violation:** Unauthorized processing or transfer abroad of personal data belonging to the applicant or project team members (CV, contact information, etc.) or sensitive personal data collected within the scope of the research (even if thought to be anonymized). In particular, transferring data to countries that do not provide adequate protection may constitute a violation of Article 9 of the KVKK.
- **Precaution:** The project team must under no circumstances enter or upload non-public, confidential, trade secret, unpublished research data or ideas, personal data (under the KVKK), or confidential information belonging to third parties into GenAI tools. GenAI tools should only be used with public information or completely anonymized/synthetic

data. The privacy policy and terms of use of the tool to be used should be carefully reviewed.

The following table summarizes the main risks that applicants may face and the measures that should be taken against them:

Table 1 - GenAI Usage Risks for Applicants and Preventive Measures

Risk Category	Description	Preventive Measures
Misinformation Generation	GenAI producing convincing but false information, fake references, or fabricated data.	Carefully check all GenAI outputs (information, data, references) against reliable sources. Obtain expert confirmation.
Algorithmic Bias	GenAI reflecting societal biases from its training data, producing unfair or discriminatory content.	Critically review outputs, identify potential biases. Use inclusive language. Ensure review from different perspectives.
Intellectual and Industrial Property (IIP) Infringement	GenAI outputs (text, code, visual) infringing on existing IIP rights of others, or ambiguity in the ownership of the output.	Avoid direct copying, originalize the content. Check licenses. Comply with TÜBİTAK IIP regulations and procedures, conduct a preliminary assessment of IIP ownership [3].
Data Privacy/ Security Breach	Disclosure of data and KVKK violation by entering confidential, personal, or unpublished data into insecure GenAI tools.	Do not enter confidential, personal, or unpublished data into GenAI tools.

1.5. Prohibited Uses

The following forms of GenAI use are strictly prohibited as they are contrary to ethical principles, research integrity, and TÜBİTAK procedures and legislation:

1.5.1. Unauthorized Use of Other Works or Plagiarism

- **Prohibition:** Using GenAI tools to copy, paraphrase, or present the ideas, texts, data, methods, or visuals of others as one's own work without citation or permission. This constitutes the offense of "Plagiarism" under Article 9/1, c of the TÜBİTAK AYEK Regulation and is strictly prohibited [1].

1.5.2. Generating Misleading or False Information

- **Prohibition:** It is strictly forbidden to use GenAI tools to deliberately generate false data (fabrication), alter existing data or research results (falsification), or create fake or misleading references to make a project proposal appear more convincing. These actions constitute unethical behaviors such as "Fabrication" and "Falsification" under Articles 9/1, a and 9/1, b of the TÜBİTAK AYEK Regulation and are ethical violations [1].

1.5.3. Entering Confidential or Sensitive Data into GenAI Tools

- **Prohibition:** As detailed in Section 1.4.4, it is strictly forbidden to enter or upload confidential details related to the project proposal to be submitted to TÜBİTAK, unpublished research data, personal data protected under the KVKK, or private/commercial information belonging to third parties into GenAI tools. This constitutes a violation of both confidentiality commitments and legal obligations.

Failure to comply with these prohibitions will undermine the applicant's credibility with TÜBİTAK, may lead to ethical investigations, and could result in sanctions within the framework of the relevant legislation. Applicants should only use GenAI as a supportive tool within responsible, ethical, and legal limits.

Part 2: Rules and Recommendations for Reviewers

This section explains the rules and the rationale behind these rules regarding the use of GenAI for all reviewers (peer-reviewers, referees, panelists, observers, etc.) who evaluate, review, or monitor project proposals, applications, or supported projects submitted to TÜBİTAK funding programs. As a fundamental rule, GenAI tools **must never be used** in order to protect the confidentiality and integrity of the review processes.

2.1. Restriction on GenAI Use

2.1.1. Scope of Restriction

- **Restriction:** It is strictly forbidden for TÜBİTAK Reviewers to use GenAI tools (e.g., web-based or API-accessed models like GPT, Gemini, Claude, Imagen, Veo) for any purpose related to their review task.
- **Rationale:** This restriction is in full alignment with the policies adopted by the world's leading funding organizations, including primarily the Council of Higher Education's Ethical Guidelines on the Use of Generative Artificial Intelligence in Scientific Research and Publication Activities [8], the National Institutes of Health (NIH) [4], the National Science Foundation (NSF) [5], and the European Research Council (ERC) / European Commission [6][7]. All of these organizations have prohibited the use of external GenAI in their review processes, particularly due to privacy and data security risks. This international consensus provides a solid foundation for TÜBİTAK to adopt a similar approach.

2.1.2. All Stages of the Review Process (Individual evaluation, panel meetings, reporting)

- **Comprehensive Prohibition:** This prohibition applies to every stage of the review and monitoring process. Reviewers may not use prohibited GenAI tools at any stage, including but not limited to the following:
  - To analyze, understand, or summarize any text related to the project.
  - To identify the strengths or weaknesses of the proposal.
  - To write or draft individual review reports or critiques.
  - To prepare notes for panel meetings or to use for assistance during panel

discussions.

- To create drafts of or generate content for reports to be prepared after monitoring visits.
- To create any text related to the review (e.g., email drafts).

2.2. Legal and Ethical Justifications for the Prohibition

The prohibition of external GenAI use in the review process is based on strong legal and ethical justifications:

2.2.1. Confidentiality Obligation

- **Breach of Confidentiality:** Confidentiality is the cornerstone of the peer review process. Project proposals contain highly sensitive and confidential information such as unpublished original ideas, methodologies, potential inventions, and personal data of applicants and team members. Uploading or entering any part of this content into GenAI tools is a breach of the confidentiality obligation undertaken by the evaluator under TÜBİTAK Legislation [3]. Contracts or declarations of acceptance between TÜBİTAK and evaluators typically state this confidentiality obligation explicitly.
- **Potential for Data Security Breach:** Uploading personal data such as the names, contact information, and curricula vitae of researchers included in project proposals to external GenAI tools is considered data processing under the KVKK. For this processing to be lawful, one of the conditions in Articles 5 and 6 of the KVKK must be met [2]. Furthermore, the transfer of this data to GenAI tools hosted on servers abroad is subject to the rules on data transfer abroad in Article 9 of the KVKK. A transfer to a country without an adequacy decision or without providing appropriate safeguards (standard contractual clauses, etc.) would be unlawful, even with explicit consent (which is not practical in the grant review process). This situation could place the evaluator under legal liability. These legal requirements show that the prohibition is not just an ethical choice but also a legal necessity.

2.2.2. Data Security and Protection of Intellectual and Industrial Property Rights

- **Data Security Vulnerability:** External GenAI service providers generally lack sufficient

transparency and assurance regarding how they store the data uploaded to them, who can access it, for how long it is retained, and for what other purposes it is used. The encryption of data, protection against unauthorized access, or its secure deletion is not guaranteed. This entails the risk of sensitive project information being stolen, leaked, or misused.

- **Risk of Infringement of Intellectual and Industrial Property Rights:** The original ideas in project proposals and inventions for which registration applications have not yet been filed, whether or not their protection is subject to registration, are the most valuable assets of the intellectual and industrial property right holder. The uncontrolled transfer of this information to external systems carries the risk of these ideas being learned by others or becoming public domain indirectly by being included in the GenAI model's training data. This situation can jeopardize all intellectual and industrial property rights and commercialization rights.

2.2.3. Integrity and Impartiality of the Review Process

- **GenAI Tools Cannot Replace Expert Judgment:** The TÜBİTAK grant review process relies on the in-depth knowledge, experience, and critical reasoning skills of expert evaluators in their fields. GenAI tools cannot replace this expert judgment and nuanced assessment.
- **Risk of Bias and Error:** GenAI tools may contain biases originating from their training data or inherent in their algorithmic structure, or they may produce erroneous outputs. The use of GenAI in the grant review process carries the risk that these biases or errors will be reflected in the review results, thus leading to unfair decisions.
- **Decline in Review Quality:** Texts produced by GenAI can often be standard and superficial. Evaluators becoming overly dependent on GenAI could reduce the depth, originality, and critical nature of review reports, lower the quality of reviews, and potentially lead to the unfair negative evaluation of innovative or unconventional projects.

2.2.4. Accountability

- **Blurring of Responsibility:** Not knowing the extent to which GenAI was influential in the creation of a review report or decision weakens accountability. The reviewer may have to take responsibility for an error or a biased statement produced by GenAI, or may show a

tendency to evade responsibility. The responsibility for the final decision always lies with the human, and GenAI cannot share this responsibility.

2.3. Procedures and Sanctions to be Applied in Case of Violation

The use of GenAI tools in the grant review process, contrary to the restrictions specified in Article 2.1 of this guideline, is a breach of the confidentiality obligation undertaken by the reviewer under TÜBİTAK Legislation [3]. Furthermore, Article 9/1, ı of the TÜBİTAK AYEK Regulation defines the acts of "neglect or abuse of duty" by those involved in review processes as an ethical violation [1]. Using prohibited GenAI tools in a way that violates the confidentiality obligation or jeopardizes the integrity of the review will be assessed under this article, and in the event of a violation, the necessary sanctions will be applied within the framework of the AYEK Regulation.

Part 3: Implementation, Monitoring and Updating of the Guidelines

For this guideline to achieve its purpose, it must be effectively implemented, its implementation must be carefully monitored, the potential violations must be addressed, and the guideline should be regularly updated to adapt to changing conditions. This section sets out the principles for these processes.

3.1. Implementation of the Guidelines

- **Assignment of Responsibility:** The responsibility for ensuring the consistent implementation of the rules and recommendations specified in these guidelines throughout TÜBİTAK, coordinating the relevant processes, and monitoring the effectiveness of the guidelines will be carried out through cooperation and coordination among the Directorate for Research Funding Programmes (ARDEB), Directorate for Technology and Innovation Funding Programmes (TEYDEB), Directorate for Science Fellowships and Grant Programmes (BİDEB), Directorate for Science and Society (BİTO), Directorate of International Cooperation (UİDB), Office of Legal Affairs (HHB), Department of Information Technology and the TÜBİTAK Research and Publication Ethics Committee (AYEK) (on ethical violations), under a Vice Presidency to be deemed appropriate by the President of TÜBİTAK. The TÜBİTAK Artificial Intelligence Institute (YZE) will also provide expertise and coordination support in this process.
- **Job Descriptions:** The duties of the responsible units include announcing the guidelines to all stakeholders (applicants and reviewers), planning and providing necessary training, making the necessary technical arrangements in application and review systems, operating the violation notification mechanism, and periodically reviewing the guidelines.

3.2. Regular Updating of the Guidelines

- **Dynamic Approach:** GenAI technologies, their areas of use, potential risks, and the related legal/ethical regulations are changing very rapidly. Therefore, these guidelines will not remain a static document; they will be treated as a living framework that needs to be regularly updated.
- **Update Triggers:** The following situations may require the review and update of the

guidelines:

  - Significant developments in GenAI technologies (new models, capabilities, risks).
  - Changes in national legislation such as that from the Council of Higher Education (YÖK), KVKK or other relevant areas.
  - Relevant international regulations and their potential effects on Türkiye.
  - Significant changes in the policies of international funding organizations.
  - Difficulties, uncertainties, or newly emerging ethical issues encountered during the implementation of the guidelines.
  - Feedback and suggestions from stakeholders.

- **Update Process:** The responsibility for the review and update process of the guidelines will be undertaken by the unit(s) responsible for coordination as specified in Section 3.1. During the update process, the opinions of relevant TÜBİTAK units will be sought.

Conclusion

While Generative Artificial Intelligence offers significant opportunities for scientific research and development processes, it also brings with it ethical, legal, and practical challenges that must be carefully managed. These guidelines present a comprehensive framework aimed at harnessing the potential of GenAI responsibly in TÜBİTAK's support processes, while protecting research integrity, the confidentiality of processes, data security, and legal compliance. The rules set for applicants permit the use of GenAI as a supportive tool, while emphasizing that the ultimate responsibility for the accuracy, originality, and ethical appropriateness of the content lies with the applicant. It is of critical importance that confidential or personal data is not entered into insecure tools and that usage is transparently declared.

The usage restrictions imposed on evaluators primarily aim to protect confidentiality and intellectual/industrial property rights, which are indispensable elements of the grant review processes. These restrictions are also in harmony with the established practices of international funding agencies. The legal bases for these restrictions are supported by national legislation, primarily the KVKK. The success of these guidelines depends on the adoption of the stated principles and rules by all stakeholders, the effective coordination of responsible units, the rigorous handling of violations, and the regular updating of the guidelines to adapt to the rapidly changing technological and legal environment. It is intended that these guidelines will contribute to TÜBİTAK's continuation of its leading role in shaping science and technology on an ethical and responsible foundation in the age of artificial intelligence.

Bibliography

[1] TÜBİTAK AYEK Yönetmeliği, https://tubitak.gov.tr/sites/default/files/2024-06/tubitak_arastirma_ve_yayin_kurulu_yonetmeligi.pdf, Access Date: 04.06.2025.

[2] Kişisel Verilerin Korunması Kanunu, https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6698&MevzuatTur=1&MevzuatTertip=5, Access Date: 04.06.2025.

[3] TÜBİTAK Regulations, https://tubitak.gov.tr/tr/kurumsal/hakkimizda/mevzuat, Access Date: 14.06.2025.

[4] The Use of Generative Artificial Intelligence Technologies is Prohibited for the NIH Peer Review Process, https://grants.nih.gov/grants/guide/notice-files/NOT-OD-23-149.html, Access Date: 14.06.2025.

[5] Notice to research community: Use of generative artificial intelligence technology in the NSF merit review process, https://www.nsf.gov/news/notice-to-the-research-community-on-ai, Access Date: 16.06.2025.

[6] European Commission, Living Guidelines on the Responsible Use of Generative AI In Research 2024, https://research-and-innovation.ec.europa.eu/document/download/2b6cf7e5-36ac-41cb-aab5-0d32050143dc_en?filename=ec_rtd_ai-guidelines.pdf, Access Date: 16.06.2025.

[7] European Commission, Horizon Europe Programme Standard Application Form, https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/temp-form/af/af_he-csa_en.pdf, Access Date: 16.06.2025.

[8] Yükseköğretim Kurumları Bilimsel Araştırma ve Yayın Faaliyetlerinde Üretken Yapay Zekâ Kullanımına Dair Etik Rehber, https://eski.yok.gov.tr/Documents/2024/yapay-zeka-kullanimina-dair-etik-rehber.pdf, Access Date: 04.09.2025.