

MS9 ELSI GUIDELINES DRAFT POLICY FOR RESEARCH AND DEVELOPMENT - SOCIAL IMPLEMENTATION

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MS9 ELSI Working Group

This guideline has been prepared to present the fundamental concept and specific policies on ethical, legal, and social issues of the entire moonshot R&D program of the Moonshot Goal 9: “Realization of a mentally healthy and dynamic society by increasing peace of mind and vitality by 2050.”

0. BACKGROUND

The Moonshot Goal 9 “Realization of a mentally healthy and dynamic society by increasing peace of mind and vitality by 2050” program (hereafter MS9) aims to “establish technologies to increase peace of mind and vitality and achieve a spiritually rich state of mind” and to solve social issues related to “happiness,” “economy,” and “mental health” in Japan and around the world.

The development of technologies to understand the human mental states and to promote changes in them, which will be implemented in MS9, is expected to produce innovations to support people in difficult situations. On

the other hand, there are concerns about potential impacts of technologies that deal with the mind, such as neurotechnology, on freedom of thought and belief, and these concerns are prompting the formation of international regulatory frameworks. Thus, while each project within MS9 constitutes a public science and technology development program operated to solve social issues based on current values, we recognize that there are risks related to ELSI (Ethical, Legal, and Social Issues). Therefore, from the outset, MS9 has also set as a major pillar of its research and development a broad examination of issues related to research and development and social implementation, and the clarification of the direction of solutions that will be broadly acceptable to society. More specifically, MS9 establishes guidelines, taking into account the various stakeholders, that address the values emphasized throughout the MS9, the considerations and recommendations pertinent to research and development, and the potential risks of abuse in the societal implementation of R&D results. Through this approach, we aim to develop MS9 as a whole in a better direction while interacting with appropriate social implementations of R&D results.

1. INTRODUCTION

Objective of this guideline: The main purpose of this guideline is to provide MS9 as a whole with a policy on ELSI-compliant R&D and social implementation. The guidelines are designed to enable MS9 researchers to easily and clearly determine that their research and development activities do not violate the MS9 ELSI policy, and to state that they are based on the MS9 standards in response to ELSI-related comments from outside the MS9. In addition, the guidelines are designed to address concerns that may arise when the MS9 research results are implemented in society, and to help envision more appropriate social implementation. The guidelines are also intended to be widely publicized to promote understanding among all parties involved in MS9 projects, including participants in experiments, and to enable public participation in discussions of the topics covered by the guidelines.

Fundamental Principles: The guidelines are established based on the diverse discussions that have been held on research ethics, specifically international guidelines such as the Declaration of Helsinki, as well as domestic laws and guidelines, while also taking into consideration the special nature of MS9 research. In addition, based on the universal principles contained in the Universal Declaration of Human Rights and the Constitution of Japan, such as democracy, fundamental human rights, freedom of speech and expression, respect for social values such as law and order, and the desire for peace, the basic spirit of the guidelines shall be that research activities and social implementation that violate these principles shall not take place.

Target Audience: These guidelines are primarily intended for those who conduct research and development in MS9 and for those who plan and are in charge of social implementation of the results.

Scope: These guidelines cover the ethical, legal, and social issues that are likely to arise in the process of MS9 research and development to social implementation.¹

¹ In addition to the items to be complied with in the research and development process, the guideline also provides anticipations and considerations for potential abuse risks that may be of concern at the social implementation stage. Although MS9 assumes social implementations in the future, the results of such implementations are indeterminate at this stage, and we believe that it is essential for appropriate application to have policy guidelines based on anticipation of issues to be considered when the research results are actually implemented in society as business projects, social systems, policies, etc.

Operation Method: It is assumed that an operational system will be in place that enables R&D personnel involved in MS9 to conduct a self-assessment (checklist) on the status of compliance with these Guidelines in the formulation and execution of their own research plans, and to consult with the MS9ELSI General Review Committee:² . It should be noted that the Guidelines are subject to review and revision based on domestic and international technological research and development, ethical, legal, and social trends.

Attitude toward Risk and Uncertainty: Since the science and technology covered in MS9 is an area that is expected to develop in the future, we believe that it is currently fraught with many uncertainties that are difficult to assume and weigh. Under such circumstances, the basic stance of these guidelines is to emphasize that researchers should be able to assume potential risks and benefits that may arise in future implementations, and to address issues of concern. In addition, we strongly encourage the sharing of assessments and case studies of uncertain impacts as R&D results emerge, and we will continue to improve these guidelines as new issues arise that cannot be addressed by the current guidelines. This guideline does not overly discourage R&D with potential risks in the social implementation phase, but rather takes the attitude of not excluding such research from the perspective of implementing the necessary risk management to prevent the occurrence of problems.

Position of these Guidelines: These Guidelines are not legally binding and do not restrict the freedom of negotiation or contract between the parties.

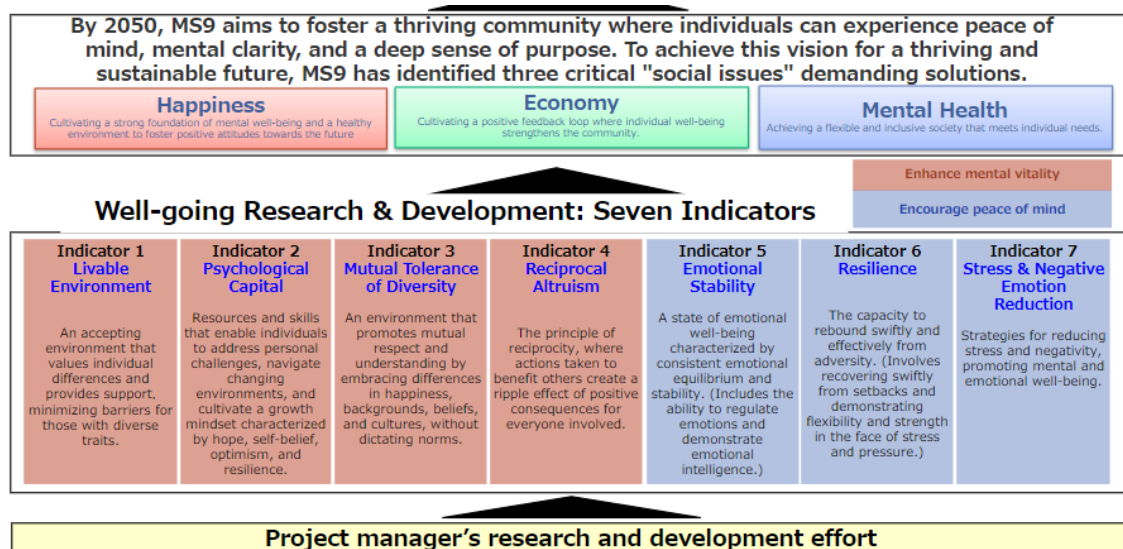
The version released at this time is a tentative plan, and it is assumed that it will be continuously improved by making modifications as necessary during actual operation in the future.

²MS9ELSI Plenary Review Committee members: consisting of program directors, subprogram directors, advisors, project managers, and the JST Secretariat.

2. PURPOSE AND OVERALL VISION OF MS9

The moonshot R&D program is a public R&D program that aims to solve social issues in the first place, and at MS9, Kumagai PD has established a vision of “Well-going society to be passed on to the next generation” (formulated as MS9 Vision '24).

The goal of MS9 is to go beyond the conventional concept of “Well-being,” which focuses on a healthy and happy state, and to advance to the idea of “Well-going,” which emphasizes smooth progress in achieving one’s goals. This involves enhancing environmental support and individuals’ psychological resources, enabling people to pursue their dreams while leveraging their unique characteristics, and fostering a society where people can mutually support one another.



The MS9 research and development program has identified eight specific societal challenges across three key areas that it aims to address and contribute to solving or improving. These challenges represent both current and future issues facing Japan, and there are high expectations from both the public and the government for MS9’s contributions towards resolving them.

SOCIAL ISSUES AND TARGET INDICATORS THAT MS9 SPECIFICALLY SEEKS TO RESOLVE/IMPROVE.

SOCIAL ISSUE ①HAPPINESS-RELATED AREA: DEVELOPMENT OF PSYCHOLOGICAL AND ENVIRONMENTAL CAPITAL BASE FOR POSITIVE ATTITUDES TOWARD THE FUTURE.

Improving Hope, Dreams, and Positive Attitudes Among the Youth:

Compared to other countries, Japanese youth tend to have lower self-esteem.³ Addressing psychological factors such as individuals' perceptions of themselves and their hopes for the future is considered effective for its improvement. MS9 will explore support measures to nurture hope, dreams, and positive attitudes among the younger generation.

Improving International Happiness Indicators:In the world happiness rankings by international organizations, Japan has an advantage in healthy life expectancy and GDP per capita, but has low levels of freedom of life choice and tolerance, with tolerance in particular being notably lower than other countries in the same ranking.⁴ It is important to note that the research goals of MS9 do not fully cover all components of these international happiness indicators, and the values reflected in these indicators may not always align with what MS9 aims to achieve. MS9 places importance on not only "Well-being" but also "Well-going." Even if the current level of well-being is low, people should be able to have hopes and dreams, be willing to take on the challenge of achieving them, and have an abundance of environmental support to do so. Thus, the MS9 emphasizes the enrichment of the process of pursuing happiness in terms of both individual and environmental resources, and one of its goals is to improve the happiness index as a result.

SOCIAL ISSUE ②ECONOMIC AREA: VIRTUOUS CIRCLE IN WHICH DIVERSE PURSUIT OF HAPPINESS ENHANCE THE PUBLIC WELFARE

Increasing productivity and entrepreneurship and reducing NEETs: Japan's labor productivity ranks 37th in the world (23rd among OECD countries)⁵, a

³ Survey of the Attitudes of 18-Year-Olds "62nd -Attitudes Toward Country and Society (Six-Country Survey) -" Report Nippon Foundation, April 3, 2024

⁴ The World Happiness Report "World Happiness Report 2023 (11th ed.)." Sustainable Development Solutions Network.

⁵ Productivity - Labour productivity and utilisation OECD Data

trend that has barely increased since 2005⁶, and the density of new businesses (the number of newly registered production methods per 1,000 working-age population) is 0.5, ranking 131 out of 191 countries⁷. The number of NEETs in Japan, on the other hand, has been increasing. On the other hand, the number of NEETs in Japan remains high with approximately 530,000 in the 15-34 age group nationwide⁸. Innovation that can solve social issues is essential to achieving economic growth, but first it is necessary to lower the psychological hurdles for people to take on the challenge of starting a business, etc. We believe that a psychological approach, such as low self-esteem and optimistic attitudes, will be effective in this regard. In the future, we will contribute to the creation of an environment and society in which everyone can take on challenges without fear of failure.

Promoting diversity acceptance and reducing disparities: Japan's international indicators for tolerance are low, and the Inclusiveness Index ranks Japan 98th (2022) out of 136 countries for gender equality, remaining in the high 90s⁹, with disparities particularly noticeable in the categories of political representation and working population. In recent years, attention has been paid to the diversity of developmental characteristics, such as neurodiversity, and the number of such children is increasing in reality.¹⁰ In addition to the issues to be addressed by society as a whole in accepting diversity and correcting the disparities as described above, it is necessary to reduce preconceptions and biases existing in each individual at the micro life level, and to develop an open-minded attitude, MS9 aims to increase the level of tolerance toward people of various backgrounds through the realization of a society that is adaptive to diverse individuals.

⁶ Annual Report on Economic and Fiscal Performance for the Fiscal Year 2022, Chapter 1, Section 3, "Labor Shortages and Trends in Productivity, Wages, and Prices," Cabinet Office, Government of Japan, July 2019.

⁷ "New business density (new registrations per 1,000 people ages 15-64)-Japan" WORD BANK GROUP

⁸ 2015 White Paper on Children and Youth (Whole Edition) Section 2 "Young unemployed, freeters, and social withdrawal" Cabinet Office, Government of Japan

⁹ Inclusiveness Index - Othering & Belonging Institute

¹⁰ The Ministry of Education, Culture, Sports, Science and Technology, Elementary and Secondary Education Bureau, Special Needs Education Division, 2023.

Improving social capital (social participation and interpersonal support behaviors): International indicators of social capital in Japan are low (ranked 113th in the world as of 2023 in terms of relationships with friends and family, 165th in terms of social networks, and 116th in terms of trust in others)¹¹, and interpersonal support behaviors at the individual level tend to be low as well, suggesting that society as a whole needs to increase fulfilling relationships between people. Through the resolution of these issues, MS9 aims to realize a society in which each individual can enhance their sense of mutual trust and support each other in their daily lives.

SOCIAL ISSUE ③ MENTAL HEALTH AREA: REALIZATION OF A SOCIETY ADAPTIVE TO DIVERSE INDIVIDUALS

Reducing Suicide Rates: Japan's suicide rate is as high as 24th¹² in the world and 4th¹³ within OECD countries. Of course, there are factors behind suicide that make it difficult to intervene, such as unemployment and other economic factors, and the effects of serious illness. However, in many cases, the cause is mental distress, and we believe that appropriate interventions are possible to address these issues, such as providing a supportive environment and resources to consider options other than suicide. In fact, about 70% of suicides are caused by mental problems, excluding economic and lifestyle problems and physical illnesses.¹⁴ We believe that a precise approach to these factors can contribute to reducing the overall number of suicides, and MS9 aims to provide support mainly to people with such backgrounds.

Reducing Adjustment Disorders and Absenteeism: The number of people with adjustment disorder and leave of absence in Japan is on the increase, and the fundamental solution is not yet clear. MS9 recognizes that behind these problems is not "individual mental weakness" but the inability of society and the environment to respond flexibly to individual characteristics. Therefore, MS9 hopes to reduce adjustment disorders and leaves of absence by eliminating people who are closed to social participation because of their difficulty in living in their current

¹¹ The 2023 Legatum Prosperity Index™ "Japan: Prosperity score 78.2 (16th)" LEGATUM INSTITUTE

¹² Suicide Rate by Country 2024 World Population Review

¹³ Suicide rates OECD

¹⁴ Suicide Prevention Office, Ministry of Health, Labour and Welfare Suicide Prevention Office, Life Safety Planning Division, Community Safety Bureau, National Police Agency, March 14, 2023

environment. To this end, we aim to develop technologies that support appropriate environmental support and the acquisition of individual psychological resources so that people with diverse personalities can play an active role in society.

Reducing Bullying and Social Withdrawal(Hikikomori): In Japan, bullying in educational settings and withdrawal are on the rise¹⁵¹⁶, and there is an urgent need to provide counseling and support to people of all ages and to create places for them to stay. MS9 aims to contribute to reducing bullying and withdrawal by creating a society that is adaptive to diverse individuals.

MS9 WELL-GOING R&D INDICATORS AND INDICATOR DEVELOPMENT

In order to contribute to solving the social issues listed above, MS9 has established “Well-going R&D Indicators” as specific R&D target indicators. The following seven indicators have been established and the development of new indicators is planned (as of FY2024). By producing R&D results related to these indicators, we expect that the “well-going” of people, as stated in the MS9, will become an important policy perspective, be introduced into education, become a target for corporate investment (e.g., ESG, human capital), be implemented in society as a new mental support industry, be marketed as a new mental health care industry. The individual indicators are outlined below.

Indicator 1: Comfortable living environment: A state in which individuals with various characteristics can adapt without facing obstacles due to their surroundings (e.g., just as they are, a sense of being original, school climate, and comfort of the environment)

Indicator 2: Psychological capital: An individual’s ability to address life’s challenges and proactively change or adapt to the environment (e.g., autonomy, self-actualization, self-efficacy, achievement motivation, vitality, social competence, problem solving)

Indicator 3: Mutual tolerance for diversity: A state of mutual respect for diverse pursuits of happiness without imposing norms (e.g., open-

¹⁵ Results of the 2023 Survey on Problematic Behavior, Truancy, and Other Student Guidance Issues for Children Children Children’s Division, Elementary and Secondary Education Bureau, Ministry of Education, Culture, Sports, Science and Technology

¹⁶ 2022 Survey on the Attitudes and Lifestyles of Children and Youth Cabinet Office

mindfulness, acceptance of others, mutual understanding, empathy, recognition of cultural acceptance)

Indicator 4: Reciprocal altruistic behavior: The ripple effects/chain effects from altruistic pursuit of happiness (e.g., prosocial behavior, gratitude, caring, cooperative behavior, contribution to team, organizational citizenship behavior)

Indicator 5: Mood stability (e.g., emotional control, coping self-efficacy, emotional intelligence, emotion regulation, emotional stability)

Indicator 6: Resilience (e.g., stress tolerance and resilience)

Indicator 7: Stress/negative emotions (e.g., depression, stress, anxiety, anger, aggressive behavior, discrimination, loneliness)

Well-being indicator development: Development of a new concept of measurement (evaluation) indicators related to “mental vitality and peace of mind” that will contribute to solving social issues that MS9 aims to address.

3. “VALUES TO BE RESPECTED” AND “PRINCIPLES TO BE UPHOLD ” IN MS9 R&D AND SOCIAL IMPLEMENTATION

As introduced earlier, MS9 is a program that aims to solve social issues related to the human mind, and to achieve this goal, it is important that the program be widely accepted by society. Therefore, we first established the six values that MS9 as a whole emphasizes, with the aim of envisioning ethical, legal, and social issues in research and development and social implementation and providing specific policies on how to address them. In addition, seven principles that should be observed when research results are actually implemented in society and items that should be avoided in the social implementation stage were also established.

ESTABLISHMENT OF SIX GUIDING VALUES TO BE RESPECTED IN MS9 R&D AND SOCIAL IMPLEMENTATION

- (1) **Priority of the interests of the parties concerned:** The needs and experiences of the people targeted by MS9 projects shall be emphasized, and the interests of those who are facing difficulties shall be given top priority. To this end, care will be taken not to conduct research and development that ignores the concerns and needs of the people involved in various mental health-related problems.
- (2) **The mind in comprehensive relationships:** Rather than considering the mind as an isolated object and manipulating it from the outside, the goal is to consider the mind as embedded in various relationships with the environment and other minds, and to use technology to adjust these relationships in a better direction.
- (3) **Listening to the silent voices and supporting the exercise of autonomy:** In MS9, we listen to the small voices of people who have difficulty in giving active consent, expressing their will, asserting themselves, and expressing their desire for assistance, and we support them in exercising their autonomy. To this end, the emphasis is not on assuming an ideal individual, but on understanding and respecting

those who face realistic difficulties and incorporating their perspectives in providing support.

- (4) Consideration for various states of mind: MS9 emphasizes the overall health of diverse mental states and their relationships with various surrounding factors. Rather than imposing a “positive and happy” state predefined by researchers, MS9 will develop technologies that help people achieve a state of well-going that is comfortable for each individual.
- (5) Addressing Diverse Populations: MS9 takes into account the diverse populations to which it seeks to contribute. Specifically, the technology should consider people with different demographics, such as children - aged, urban dwellers - rural dwellers, majorities - minorities, etc. The scale of the target population (individual - group - society) will also be taken into account. Avoid research and development based on data that unreasonably burdens specific groups..
- (6) Revising R&D policies based on the fallibilism¹⁷ : In aiming to solve social issues in 2050, which is the goal of MS9, it is expected that technologies, social conditions, and values may change over time. MS9 will always monitor from inside and outside whether the current technological development and R&D policies are in line with society at the time, and will emphasize an attitude of updating them as necessary.

PRINCIPLES TO BE FOLLOWED DURING THE SOCIAL IMPLEMENTATION PHASE OF MS9 RESEARCH OUTCOMES

In addition to the above values, we believe that it is important to establish in advance the **principles to be followed** not only in the current research and development, but also when the research results are implemented in society in the future, given that MS9 is a project aimed at social implementation. These principles are expected to be respected not only by those involved in research and development in MS9, but also by external parties involved in the social implementation of the technology to be developed in the future.

¹⁷ An attitude of progressively correcting errors, given that all knowledge claims are fallible in principle

MS9 Principle #1: Pursuit of Well-going

MS9 will take care to ensure that its research outcomes are applied, whether through environmental support or the empowerment of individual psychological resources, in such a manner that facilitates individuals to achieve their goals in line with their own wishes while leveraging their unique characteristics (a state of well-going). In this way, it is expected that the rise in Well-going of the entire environment, including oneself and one's surroundings, will be enjoyed as a kind of resource. However, this should be done to the extent that it does not have a negative impact on the Well-going of others.

MS9 Principle #2: Privacy and data protection of the mind and brain

In accordance with the Personal Information Protection Law and the Ethical Guidelines for Life Sciences and Medical Research Involving Human Subjects, MS9 will ensure that the provider of data on the brain and mind is informed of the user, purpose, content, and use of his/her data. Additionally, a system will be implemented to ensure that the donor is promptly notified of any access, modification, deletion, or infringement of the data, and that the data is securely managed and operated as highly confidential information with security ensured.

MS9 Principle #3: High transparency and prevention of potential impacts

Technologies that help people understand their mental states or generate transitions in their mental states have the potential to influence their subconscious mind without their awareness. In the context of employing such technologies, MS9 is committed to providing an opportunity for comprehensive explanation of the purpose of the technology and its expected benefits and risks to the target audience and obtain their consent to the application of the technology, or the user shall use the technology with their consent.

Principle #4: Ensure credibility and promote understanding

MS9 aims to facilitate comprehension among users regarding the impact of emerging technologies on the brain and mind, as well as the reliability of these technologies, prior to their utilization. Providers are encouraged to acknowledge the inherently unpredictable nature of these nascent technologies and to prioritize user education to ensure comprehension. Furthermore, providers should ensure that users are informed of the most recent risk projections and are capable of taking action when potential risks are identified.

MS9 Principle #5: Avoiding imposition of specific ideals on the mind and brain

By using MS9 techniques, we do not entail the imposition of a particular scale of evaluation of brain/mental characteristics on any individual, nor does it necessitate the unilateral alteration of behavior in a "perfect/ ideal" direction.

MS9 Principle #6: Fair application of technologies related to the mind and brain

MS9 does not discriminate against individuals on the basis of race, age, gender, mental or physical disability, or any other attribute based on brain-mind information. MS9 does not exclude any individual on the basis of such attributes, but applies technology equitably based on the needs of each individual.

MS9 Principle #7: Protection of the interests of future generations and continued research and development

The MS9 is a project aimed at solving social issues in 2050, and care will be taken to protect the interests of future generations. To this end, the initiative will prioritize the safeguarding of the interests of these generations. In pursuit of this objective, the provider will be committed to the pursuit of novel insights and technological innovations that are responsive to the evolving societal values. This commitment will be realized through the ongoing pursuit of relevant research and development.

4.MS9 ELSI GUIDELINES

This chapter provides **specific recommendations for the R&D phase as a guideline** based on the “Values to be respected” of MS9, as well as the “Principles to be followed” that should be avoided in future social implementations. It is expected that all MS9 research and development, as well as social implementation, will be based on these guidelines. A toolkit (checklist) will also be made available separately for use by interested parties in the R&D process.

1. TOP PRIORITY ON THE INTERESTS OF THE PARTIES

Focus on the needs and experiences of the people targeted by MS9 projects and give top priority to the interests of those who are facing difficulties. To this end, care will be taken not to create uniform regulations that ignore the concerns and needs of the people involved in various mental health issues.

Possible actions in research phase

- 1: Specifying the groups of people who will eventually be the users of the research results.
- 2: Constantly evaluating the relevance and anticipated impact of planned or ongoing R&D on the users through needs assessments with the them.
- 3: Evaluating the impact of the use of the R&D results on non-users

Prohibitions to avoid (implementation phase)

- Promoting social implementation that is not based on the issues and needs of the parties and stakeholders ([MS9 Principle #1:Pursuit of Well-going](#)).
- Forcing parties to provide data that they do not want to provide, in particular without providing information and obtaining consent regarding the compatibility of the enjoyment of interests and the protection of privacy ([MS9 Principle #2:Privacy and data protection of the mind and brain](#)).
- Imposing uniform regulations that fail to provide technologies despite the needs of the parties involved. In cases where the ability to consent is limited and there is a possibility of disadvantage for the person concerned and others, it is recommended that experts and relevant parties jointly discuss appropriate objectives and measures, and that involuntary commitment be taken into account. ([MS9 Principle #6:Fair application of technologies related to the mind and brain](#))

Specific cases to be considered

Anticipated R&D: *To develop sensing technology for children and adults with developmental tendencies who have difficulty recognizing their own emotions and stress states, in order to facilitate their awareness.*

Potential Issues: *Revealing an individual's internal state that is not superficially expressed through brain sensing or other means raises concerns from the point of view of privacy protection. On the other hand, ignoring the benefits that the technology can bring to that person is contrary to respect for that person.*

Recommended Action: *(Recommendation to conduct a needs assessment and provide information toward active consent)*

Implement a process in which the risks and benefits of revealing one's emotions are presented to the person involved, and the person decides whether or not to use the technology based on a balance of these risks and benefits. In cases where the individual's ability to consent is limited due to serious disability or other reasons, family members, medical professionals, or other relevant parties who can take into consideration the best interest of the individual should receive the information and make a decision on implementation after consultation.

2. THE MIND IN COMPREHENSIVE RELATIONSHIPS

Rather than considering the mind as an isolated object and manipulating it from the outside, we consider that the mind is embedded in various relationships with the environment and other minds and conduct research and development with the goal of using technology to adjust these relationships in a better direction.

Possible actions in research phase

-1: Be careful not to focus only on a specific part of the “mental state to aim for” (e.g., to raise only the well-being of the individual) or to enforce a biased ideal image of the brain and the mind.

-2: Conduct research and development that considers comprehensive relationships. Conduct research and development plans that take into consideration the entire relationship with the body, environment, and others, so that evaluation and intervention will not be limited to specific parts or functions of the brain.

-3: Overarching future projections and risk assessments of the impact of research and development. Specifically, based on the assumption that brain, neurological, and psychological phenomena are complex and in diverse relationships, risk assumptions and countermeasures are to be made based on the assumption that even localized interventions can have an impact in multiple areas

Prohibitions to avoid (implementation phase)

-Expanding capabilities in ways that could harm oneself and surroundings, even when there may be local and short-term benefits. (MS9 principle#1 Pursuit of Well-going) ([MS9 Principle #1:Pursuit of Well-going](#)).

-Normalizing by creating reductionist local indicators that ignore inclusiveness ([MS9 principle#5:Avoiding imposition of specific ideals on the mind and brain](#))

Specific cases to be considered

Anticipated R&D: Development of indicators and intervention techniques that assume it is good to always have strong positive emotions.

Anticipated challenge: Constantly raising motivation to constantly increase positive emotion will lead to physical exhaustion. Motivation is not necessarily something that should be maximized. If a measure is developed which assumes that it is always good to have strong positive emotions, making the high score on the measure an ideal, there is a risk that individuals with lower scores on such a measure will be seen as needing improvement.

Recommended Action: Considering various emotions other than motivation, the body, the external environment, relationships with others, and interactions of these elements, strive to conduct R&D planning and evaluation based on a comprehensive understanding.

3. LISTENING TO THE VOICELESS AND SUPPORTING THE EXERCISE OF AUTONOMY

In MS9, we listen to the small voices of people who have difficulty in giving active consent, expressing their will, asserting themselves, and expressing their desire for assistance, and we support them in exercising their autonomy. To this end, the emphasis is not on assuming an ideal individual, but on understanding and respecting those who face realistic difficulties and incorporating their perspectives in providing support.

Possible actions in research phase

-1: Identify and characterize groups with vulnerabilities (understanding that there are many forms of voicelessness, including cases where not being Well-going itself makes it difficult to speak up, and cases where the small numbers of people make it difficult to raise their voices effectively). (Based on this understanding, we aim to develop more inclusive research and identify needs that are often overlooked.)

-2: Continue to listen to the needs of parties, families, professionals, and others in vulnerable groups to understand what can be done to help them live Well-going lives.

Prohibitions to avoid (implementation phase)

- Failure to provide an opportunity to pursue [well-going \(MS9 Principle #1 Pursuit of Well--going\)](#) solely because the individual lacks the capacity to consent or has not voiced it.

- Only assume individuals with a clear need at the current stage (not consider any individuals other than those with clear needs at the current stage) [\(MS9 Principle #7 Protection of the interests of future generations and continuing R&D\).](#)

Specific cases to be considered

Anticipated R&D: Research and policy targeting children and people who are not in a Well-going state of mind.

Potential Issues: It is expected that many people who voluntarily participate in interviews and research are those who are in a well-going state of mind and have space in their daily lives. In this case, without identifying and taking into account those who are in need but could not express their

opinions in a positive way, the opinions of those who should be considered in MS9 research (e.g., those who have experienced adversity and very rarely make an explicit request for assistance, but could benefit from the R&D results) will be overlooked.

Recommended action: *Proactively pick up the “voice of the voiceless” of the parties, taking into account their physical condition and capacity. Research and development and social implementation should be carried out by proactively approaching the parties concerned, including experts who can take their rights and interests into account, and by imagining as much as possible their circumstances.*

4. CONSIDERATION FOR DIVERSE MENTAL STYLES

MS9 emphasizes the overall health of various mental states and their relationships with various surrounding factors. Rather than imposing on people a “positive and happy” state predefined by researchers, MS9 will develop technologies that help people achieve a state of well-going that is comfortable for each individual.

Possible actions in research phase

1: Development of an intra-individual evaluation index that can support and visualize growth over time according to each person’s characteristics, and intervention research using this index.

2: Intervention research and the development of indices for comparison which enable respect for individual diversity and evaluation of group’s well-going, rather than the evaluation of the superiority or inferiority of individual characteristics and attributes based on one-sided values.

3: Development of indices that do not absolutely fix a particular perspective on “well-going” but assume various perspectives and their updating.

Prohibitions to avoid (implementation phase)

-Guiding a person in a particular direction without his/her consent regarding his/her thoughts and beliefs ([MS9 Principle #3: High transparency and prevention of potential impacts](#)).

-Evaluating the superiority or inferiority of psychological states within an individual or differences in characteristics and attributes between individuals using indices established based on one-sided values, and intervening accordingly (e.g., interventions that assume developmental characteristics as mere targets for treatment and require only the individual to overcome them through effort) ([MS9 Principle#5: Avoiding imposition of specific ideals on the mind and brain](#))

Specific cases to be considered

Anticipated R&D: Research aimed at reducing the rate of school refusal among children.

Potential issues: Equating school refusal with “a condition that must be corrected” may lead to ignoring the possibility of improving the situation without attending school (e.g., through transfer to another school or other

environmental interventions), which may be contrary to the interests of the parties concerned. Specifically, by promoting interventions and training to reduce school refusal rates, there is the potential to send children back to school without improving their mental health or to destroy the “well-going” of children who are already maintaining a healthy mental condition while continuing their studies by means other than attending school.

Recommended Action: *When addressing school refusal rates among children, consider the possibility of targeting improvements in essential mental health conditions that lead to improving school refusal rates, rather than setting the specific research goal of reducing school refusal rates themselves.*

5. RESPONDING TO DIVERSE POPULATIONS

MS9 takes into account the diverse populations to which it seeks to contribute. Specifically, consider people with different demographics, such as children - elderly, urban dwellers - rural dwellers, majorities - minorities. The scale of the target population (individual - group - society) will also be taken into account. Avoid research and development based on data that unreasonably burdens specific groups.

Possible actions in research phase

- 1: During the research phase, care should be taken to avoid bias in the population under study as far as possible.
- 2: Focusing on a specific population is fine in the initial stages, but conduct research and development with an eye toward expanding the research findings to a broader population.

Prohibitions to avoid (implementation phase)

- Implementing new technologies in society without communicating the unpredictable nature of new technologies and their current risks and benefits to children, the elderly, people who are not familiar with technology, users with different cultural and linguistic backgrounds, etc. ([MS9 principle #4: Ensure credibility and promote understanding](#))
- Ignoring people with diverse backgrounds, making social implementations that can only be applied to certain groups of people, and not daring to provide technology to certain groups of people ([MS9 Principle #6: Fair application of technologies related to the mind and brain](#)).
- Social implementation of technologies based on the brain and psychological data that lead to discrimination and prejudice ([MS9 Principle #6: Fair application of technologies related to the mind and brain](#))

Specific cases to be considered

Anticipated R&D: Research and Practice on Supporting Ease of Living for Young Adults

Potential issues: If the research participants are a group of young urban residents recruited from the general public, their psychological difficulties may be different from those of other groups. Specifically, there is a possibility that the technology developed in this way may be inadequate for

application to groups such as rural residents, the elderly, and those who really need support but are not picked up for research, and that the ease-of-living support derived from the original research may be disadvantageous to other groups.

Recommended Action: In collecting data and devising intervention methods in research and development, pay attention to the characteristics of the target population, and make efforts to pick up the voices of those who need it, bearing in mind “3. Listening to the voiceless and supporting autonomy” to enable a wide range of responses. Repeat evaluation and adjustment, as necessary, paying attention to targets not included at the time of research and development.

6. REVISING R&D POLICIES BASED ON FALLIBILISM

In aiming to solve social issues in 2050, which is the goal of MS9, it is expected that technologies, social conditions, and values may change over time. MS9 will always monitor from inside and outside whether the current technological development and R&D policies are in line with society at the time, and will emphasize an attitude of updating them as necessary.

Possible actions in research phase

- 1: Recognizing the unpredictable nature of new technologies, regular risk monitoring and improvement should be undertaken to ensure that experimental participants are not disadvantaged.
- 2: Strive to provide new insights and technological innovations that respond to the changing values of society by continuing appropriate evaluation-based research and development so that the benefits of future generations can be maximized.

Prohibitions to avoid (implementation phase)

-Continuing to provide fixed technologies without risk assessment or monitoring (MS9 [Principle #4: Ensure credibility and promote understanding](#)).

-Fixing values at a specific point in time and providing technologies based on those values ([MS9 Principle #7: Protection of the interests of future generations and continued research and development](#))

Specific cases to be considered

Anticipated R&D: Childcare Support R&D

Potential Issues: The working styles of men and women have been rapidly changing in recent years, and the use of maternity leave by men is becoming more widespread. These social trends will continue to change in the future, and consistency with the public values and social systems including policies at the time can be an important perspective in the social implementation of research and development. There is a risk that childcare support services created on the premise of old values will not be viable or useful under future values.

Recommended action: Always keep an eye on relevant social changes, and promote research and development through repeated hearings and pilot implementations to make the product acceptable to society at the time.

5. LIST OF PERSONS INVOLVED IN THE MS9 ELSI WORKING GROUP

MS9 ELSI Working Group Members (titles omitted)

Name	PJ (*)	Affiliation
Seiji Kumagai	PD (*)	Professor, Institute for the Future of Human Society, Kyoto University
Akira Morita (Chair)	SPD (*)	Professor Emeritus, University of Tokyo
Shigeru Taguchi (Chair)	Yamada PJ	Professor (Director of the Center for Human Nature, Artificial Intelligence, and Neuroscience), Faculty of Humanities and Human Sciences, Hokkaido University
Masaru Honjo	Imamizu PJ	Research Administrator Team for PM Activity Support, KDDI Research, Inc.
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Saku Hara		Associate Professor, Graduate School Faculty of Arts and Letters, Division of Department of Integrated Human Sciences, Philosophy and Ethics Course
Tatsuhiko Yamamoto	Hashida PJ	Professor, Graduate School of Law, Keio University; Vice President, Keio Global Research Institute (KGRI), Keio University
Kyoichi Iida		Research Fellow, Graduate School of Law, Keio University; Visiting Fellow, Keio Global Research Institute (KGRI), Keio University, Attorney
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