

Immersive Music Player Project

...MUSICO

Humanising the Care
Environment with
Immersive
Music Therapy &
Personalised
Biofeedback

PARTNERS & ECOSYSTEM

St. Stefano Hospital, Prato

Nuclear Medicine Dept. – Prof. Sestini

MUSI-CO Ecosystem

musi-co.com

Super AI Studio

superaistudio.com

K-ARRAY

Sound System Partner

Fondazione Metastasio

Content Manager (with MUSI-CO)

MINDKESTRA

Biofeedback Protocol – mindkestra.com

ALT

Compliance – assistivelawtech.com

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1. Introduction

:::MUSICO

The primary objective is to transform the perception of clinical space, reshaping the experience of prolonged exposure to hospital environments.

Through the integration of music — and in future, other perceptual modalities — we aim to create a mental space conducive to care, where patients feel welcomed and part of a system that inspires trust and collaboration.

A symbiosis between the patient's emotional wellbeing and the clinical team's methodological efforts — a first step towards universal medicine.

3. The MUSI-CO Ecosystem

An integrated partner network for immersive care

St. Stefano Hospital, Prato

Nuclear Medicine Dept.
Prof. Sestini's Team

MUSI-CO

musi-co.com
Ecosystem Hub & Content Co-
Manager

K-ARRAY

Sound System Partner
Professional immersive audio

ALT

assistivelawtech.com
Compliance: AI Act & GDPR

Fondazione Metastasio

Content Manager (with MUSI-CO)
Music, theatre & storytelling archives

MINDKESTRA

mindkestra.com
Biofeedback Protocol

Super AI Studio

superaistudio.com
AI Engine & Personalisation

2. Vision: Revolutionising the Care Space



Virtuous Space

Transforming the physical care environment into a virtuous space through the strategic use of music to stimulate the mind and emotions, creating an immersive, cognitively high-priority experience.

Implicit Learning

Personalised sonic pathways activate cognitive and emotional processes that foster implicit learning and a positive perception of therapy.

Patient–Clinic Bridge

Music reduces perceptual barriers, creating an immersive experience that encourages relaxation, trust and openness towards therapeutic interventions.

4. Benefits of Immersive Music Therapy

Physiological Effects

- Stress reduction via cortisol regulation
- Improved heart rate variability (HRV)
- Support for respiratory regulation

Psychological Effects

- Reduced anxiety and panic levels
- Induction of deep relaxation states
- Increased emotional satisfaction (reward circuits)

Social Effects

- Promotion of a more empathic, human care environment
- Reduced emotional burden on healthcare staff and patients

5. Intervention Focus: Personalised Playlists

4 main profiles — Phase 1: professional human profiling (Fondazione Metastasio)

1

Stress & Anxiety Management

Ambient music and slow rhythms

Genres: New age, natural sounds

2

Panic Containment

Ambient music and slow rhythms

Genres: Classical (largo, adagio), choral music

3

Cognitive Stimulation

Ambient music and slow rhythms

Genres: Jazz, instrumental folk

4

Pleasure Induction

Ambient music and slow rhythms

Genres: Individual preferences (age + cultural context)

6. Fondazione Metastasio

Project Content Manager — with MUSI-CO

Cultural Archives

A heritage of music, theatre and storytelling rooted in local and national culture, curated with methodological rigour.

Methodological Accuracy

Monitoring the accuracy of content creation. Phase 1: professional human profiling of patients.

Ethical AI Roadmap (2 years)

Target: adaptive music system compliant with AI Act and GDPR under the MINDKESTRA biofeedback protocol.

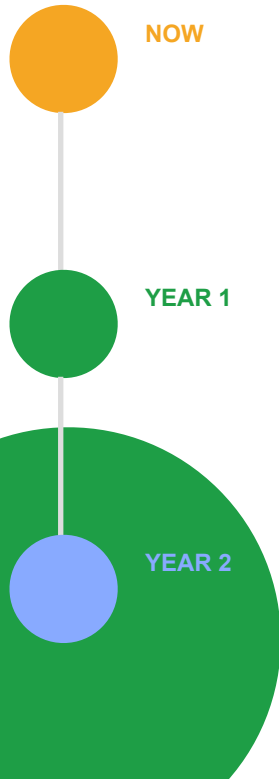
Compliance supervised by:
ALT — assistivelawtech.com

ALT

With MUSI-CO, Fondazione Metastasio co-manages musical content; ALT (assistivelawtech.com) ensures regulatory compliance.

7. The MINDKESTRA Protocol & Biofeedback

Under MUSI-CO Ecosystem — mindkestra.com



Human Profiling

Nurses and therapists follow predefined protocols to administer playlists based on demographic profiles (age, cultural background).

Active Biofeedback

Monitoring of HRV, SpO2 and anxiety levels. Playlist optimisation based on collected physiological data.

Ethical Adaptive Music

AI-driven adaptive music system compliant with AI Act and GDPR. Automatic personalisation with guaranteed transparency and human oversight.

8. Supporting Scientific Evidence

Cognitive Effects

Studies on the "Mozart Effect" demonstrate temporary improvements in spatial reasoning and problem-solving abilities.

Relaxation Effects

Research on ambient music, naturalistic soundscapes and new age genres shows a significant reduction in cortisol levels.

Panic Treatment

Personalised music therapy improves emotional regulation and reduces the frequency and intensity of panic episodes.

9. Project Phases

1 Planning & Training

- Set-up of immersive rooms with K-ARRAY
- Healthcare staff training
- Profiling protocol setup (Fondazione Metastasio)

2 Implementation

- Launch of personalised music therapy sessions
- Biofeedback monitoring (HRV, SpO2)
- Content oversight by Fondazione Metastasio

3 Analysis & Adaptive AI

- Data & feedback collection to optimise playlists
- Development of ethical AI system (AI Act, GDPR)
- Scientific publication prospects

10. Expected Outcomes



Measurable patient stress reduction (HRV, cortisol, SpO2)



Dataset for peer-reviewed scientific publications



Increased emotional satisfaction and quality of the clinical experience



Replicable model for other wards and hospitals



Positive evaluation from hospital staff



Ethical adaptive AI system within 24 months (AI Act & GDPR compliant)

Demographic Segmentation

Basis for professional profiling — Fondazione Metastasio & clinical team

Age Groups



Child



Adult



Elderly

Cultural Context



Chinese



Indian



Arab-Muslim



Western

11. Appendix: Scientific Validation Tools

Objective

Measure the effectiveness of music therapy through pre- and post-intervention analyses, with methodological oversight from Fondazione Metastasio.

Metrics

- Heart rate variability (HRV)
- Oxygen saturation (SpO2)
- Anxiety levels: standardised surveys

Publication

Data collected will serve as the basis for publishable scientific studies, aiming to validate the proposed therapeutic model.

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