Flow state application

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team Flow hunters

- Here we present the first part of our materials prepared for startup workshop granted by ESET company

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Flow state detection and training app

Flow state

Definition:

- mental state when a person is fully immersed in an activity, experiencing a sense of energised focus, full involvement, and enjoyment in the process of the activity

Occurrence:

- Flow is occasionally experienced by athletes, artists, writers, designers, managers, scientists, and anyone deeply engaged in their work, study, or hobby

Benefits:

- achieving Flow leads to peak performance and increased satisfaction, making it a desirable state in both professional and personal contexts

Background and motivation for investigation of Flow

Background:

- mental factors are considered crucial for any performance
- recently, the role of mental preparation in professional sports has been put into practice
- there is a boom in well-being applications
- a rich market for smart fitness trackers along with an ecosystem of services

Motivation:

- team leader's interest in the topic of Flow for the last 15 years
- his personal experience in Flow and systematised investigation in sports (7 years)
- one of the relevant factors is a pure mind that can be trained through the practice of mindfulness (32 years of personal training)

Flow state – research characterization

Goal: assessment, monitoring, and training of Flow state

Technology can be based on:

- evaluation of physical, physiological, and psychological conditions
- applied psychophysiology - electrophysiological measurements (EEG, HR, HRV, GSR) capable of measuring relaxation, stress, excitement, engagement, or attention
- analysis of emotions: image/video analysis (facial expression, body language), sound/voice analysis
- characteristics of human body motion from video analysis (sports: GPS tracking)
- questionnaires with subjective assessment (including Csikszentmihalyi's 9 components and other Flow scales)
- deployment of machine learning and AI

Potential applications could provide athletes, performing artists, managers, and others with:

- feedback through monitoring tools
- training procedures for more frequent entering into Flow states (including practice of mindfulness)

Selected experience of the team leader

- Over 20 years in biomedical research, applied psychophysiology, and data science in industry
- PhD thesis: TEPLAN, M.: Audio-visual stimulation and relaxation, 2006. Identification of 2 levels of relaxation from EEG by machine learning and AI
- Research on meditation
- Campaign Digitální zdraví for the Czech O2, 2024. In addition to acting, responsible for the design of experiments, choice of electrophysiological measurements and devices, analysis, and interpretation of EEG and other physiological data
- Technological audits of various innovative technologies, including biomedical and well-being
- Popularisation of science and media presentation

Conceptual remarks

- Pinpointing the Flow state is quite challenging
- There is limited research - pioneered by Csikszentmihalyi, however huge empirical data
- Basic and applied research is inevitable
- The state of Flow can only hardly be set on command, but conditions for entering it can be enhanced
- Conscious experiencing of Flow can be quite transformative
- Mysterious transcendental elements may be attractive to many
- The narrow definition of Flow state with holistic scent and superpowers, can be expanded into a wider one: It’s a state when any activity is conducted more smoothly, with greater efficiency.

Basic questions

- What is the Problem?

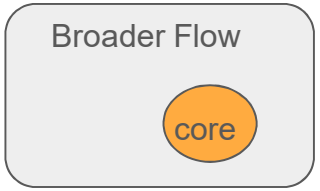
  Absence of optimal exploitation of human abilities for enhanced performance

- What is the Solution?

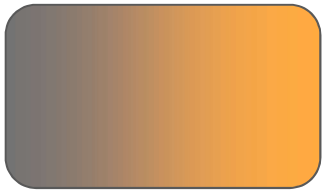
  Monitoring and management of Flow across nearly any activity

Bigger picture

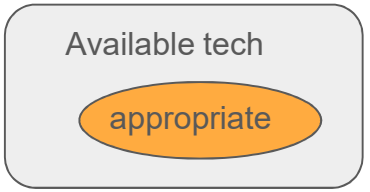
- Realistic goal: Flow in a broader sense -
  measuring the effectiveness of any performance



- Detection of not only Flow: anything in a continuum between 2 poles:
  - from absence (stress, suppressed attention)
  - to the full manifestation of Flow

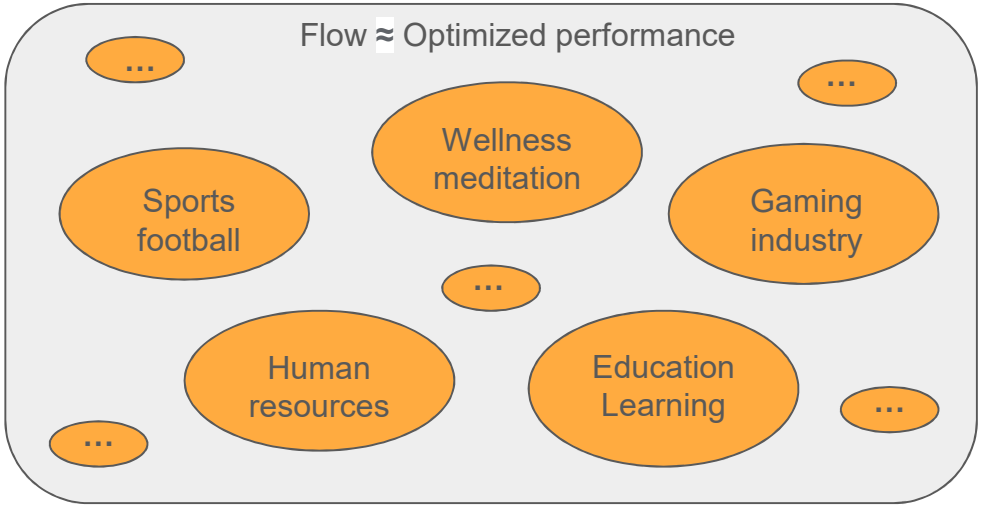


- Strategy for technology & devices: from rich offer prioritising according to ease of use (lab vs. field), “noninvasiveness”, accessibility



Research application in different industries

Mind map of branches



Blurb

I’m Michal Teplan from the Institute of Measurement Science. Our goal is to build a platform for measuring flow, a mental state in which any activity is easy to do and earns the best possible results. The application will provide management of work performance. We start in the field of sport analytics with the most available data. Our approach is unique as we merge physical, physiological, and cognitive data and process them with AI. I have over 20 years of experience in biomedical research, applied psychophysiology, mindfulness, and data science.