

# SERIOUS GAMES IM GESUNDHEITSBEREICH

## ANSATZ, STATUS QUO, BEISPIELE, TRENDS

**wtt**  **serious games**

Wissens- und Technologietransfer Serious Games

PRÄSENTIERT VON DR.-ING. (HABIL.) STEFAN GÖBEL AM 16.12.2021



Europäische Union  
„Investition in Ihre Zukunft“  
Europäischer Fonds für  
regionale Entwicklung

HESSEN



Hessisches Ministerium  
für Wirtschaft, Energie,  
Verkehr und Wohnen

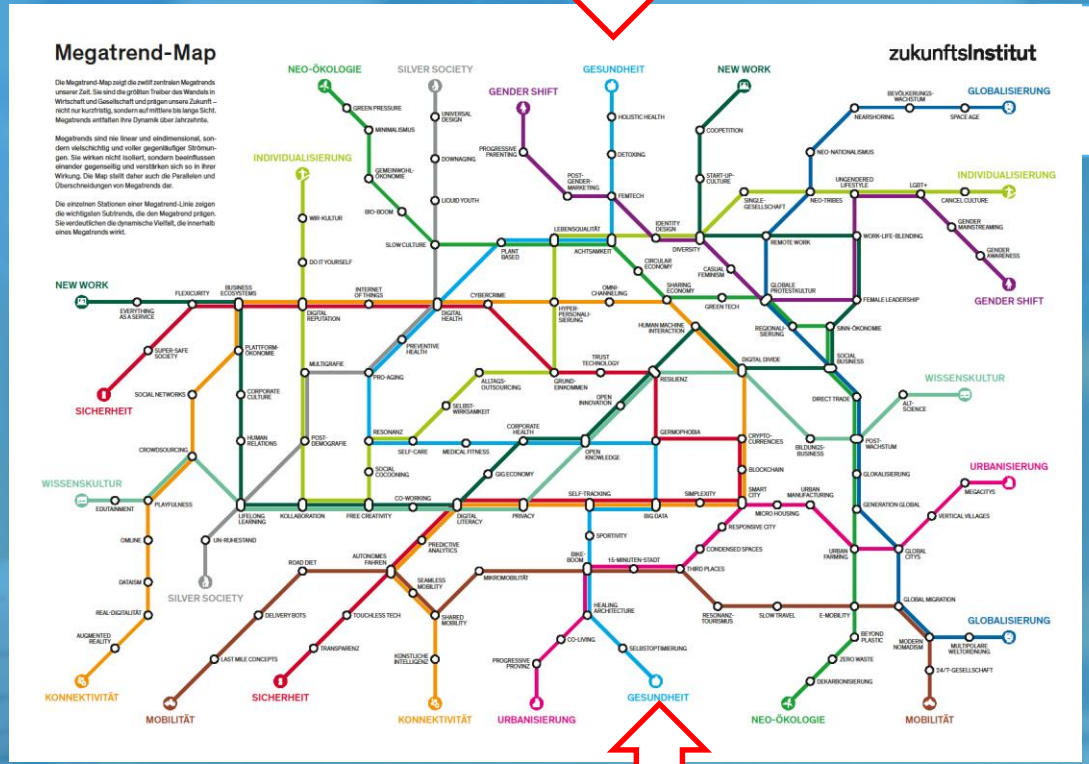


TECHNISCHE  
UNIVERSITÄT  
DARMSTADT



*Der Mensch ist nur da  
ganz Mensch, wo er spielt.*

Schiller (1759 - 1805)



# Serious Games

Foundations, Concepts  
and Practice

## SERIOUS GAMES DEFINITION

- *A serious game* is a digital game that was created with the intention to entertain and to achieve at least one additional goal (e.g., learning or health). These additional goals are named *characterizing goals*.

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### Serious Games – Foundations, Concepts and Practice

- Dörner, R., Göbel, S., Effelsberg, W., Wiemeyer, J. (2016)
  - Basics, Terminology, Theory, Technology, Business
  - Best Practice Application Examples (~100 pages)

# SERIOUS GAMES VS. GAMIFICATION

## Gamification

- „the use of game design elements and game principles in non-game contexts ..“
- „making non-game products more enjoyable, motivating, and/or engaging to use“
- „not a fully-fledged game“

Deterding et al. (2011)



# ANWENDUNGSSPEKTRUM SERIOUS GAMES

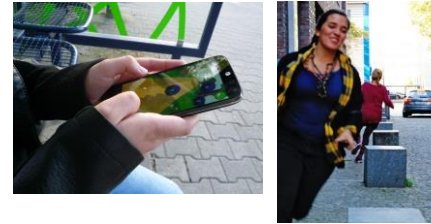
## Tourismus



## Bürgerbeteiligung 2.0



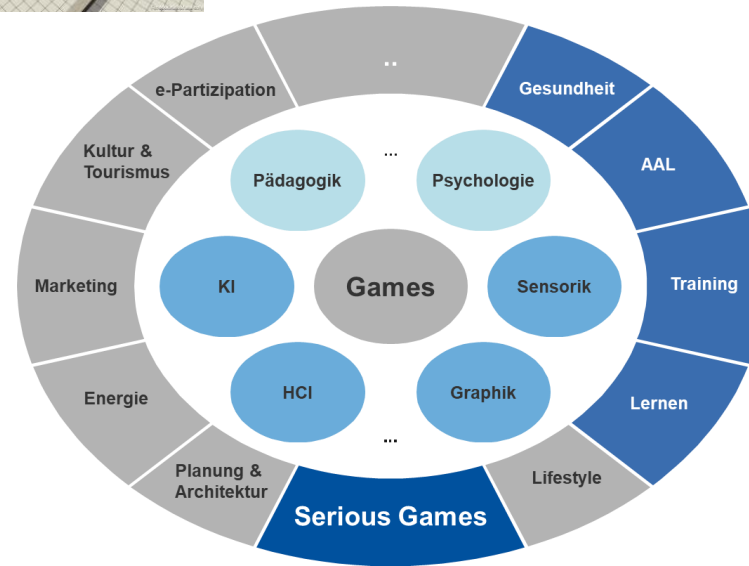
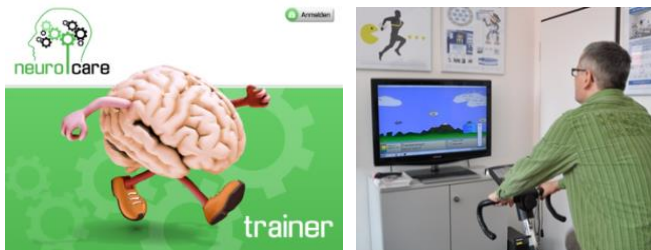
## Mobilität (LOEWE)



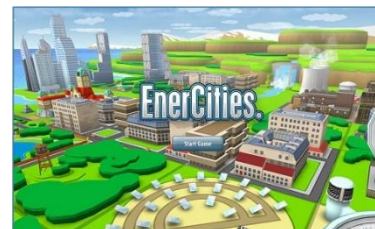
## KITE: KI-unterstütztes VR-Training für polizeiliche Einsatzkräfte (BMBF)



## Gesundheit (u.a. distr@I)



## Awareness Games



## SG4BB: Serious Games für die berufliche Bildung (BMBF)



# STATUS QUO

## “GRAND CHALLENGES“

### 1) Nutzerakzeptanz

- Qualität von Serious Games (ist gering?)
- Ethisch-rechtliche Aspekte, Datenschutz

- Erwartungshaltung bei Kunden?
- Bedenken?

### 2) Wirtschaftliche Betrachtung

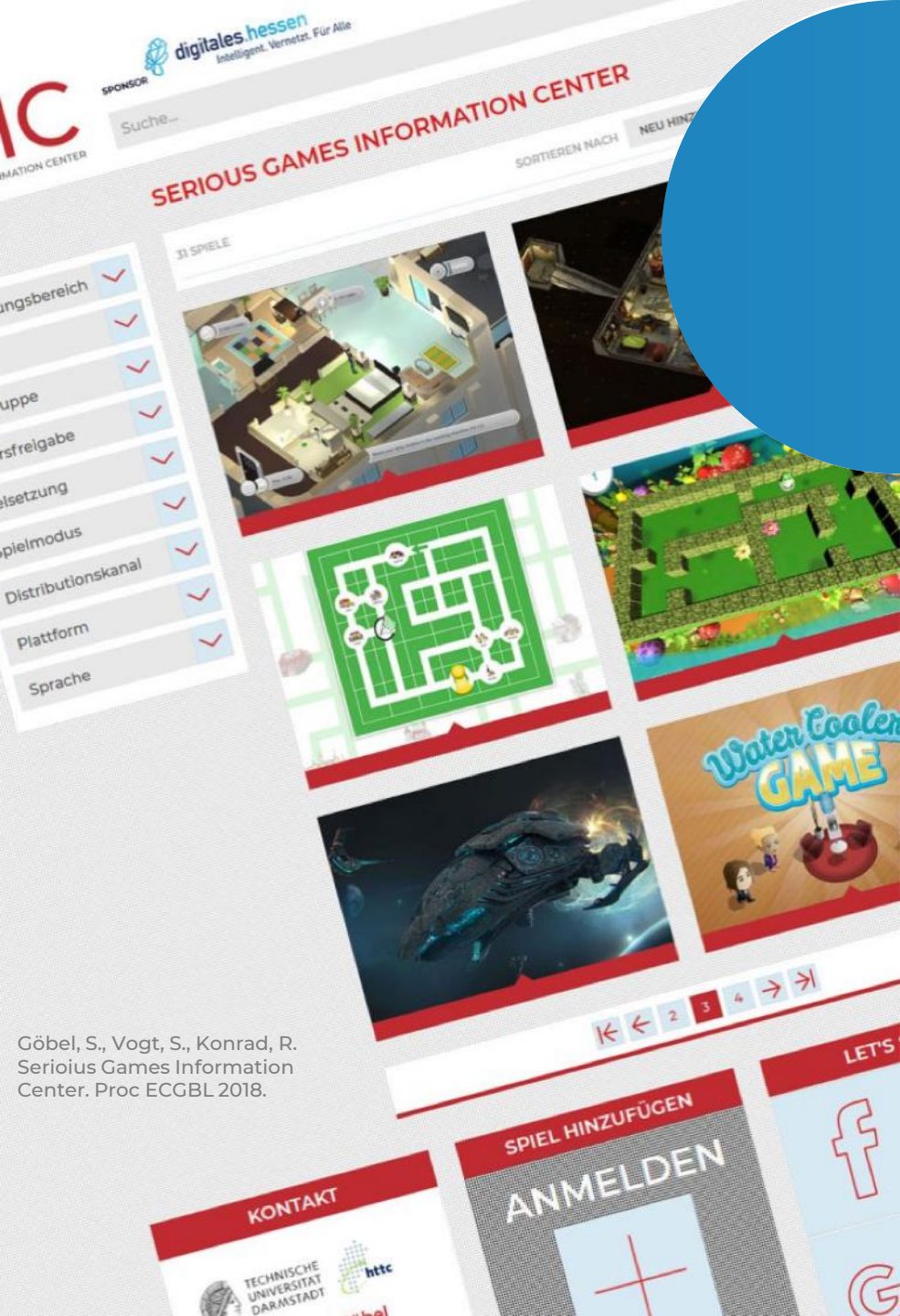
- Kosten/Nutzen – für Entwickler, Kunden
- Marktdurchbruch

- Sollen wir investieren, kaufen?
- bereits erreicht?

### 3) Forschung und Entwicklung

- Charakteristik von Serious Games (Design)
- Interdisziplinär: Authoring, Control, Evaluation

- ist komplex... → Preis sollte höher sein!
- Kosteneffiziente Produktion



# WELCHE SPIELE GIBT ES?

Serious Games Information Center

- <https://seriousgames-portal.org/>
- Metadaten Editor, Beschreibung und Auffinden
- Semantische Basis: DIN SPEC 91380  
Serious Games Metadata Format

42 Personen, 37 Institute

- Forschung & Industrie
- [www.beuth.de](http://www.beuth.de)

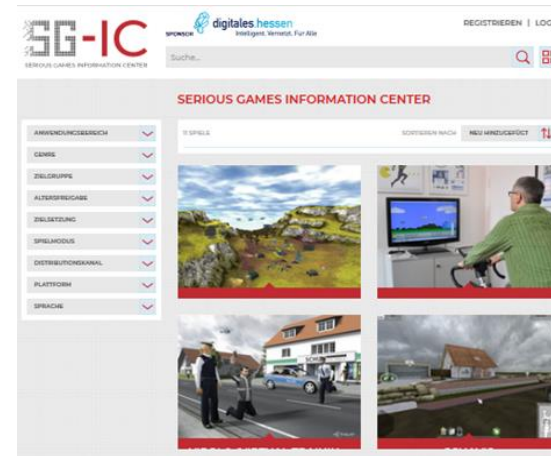
<https://www.beuth.de/en/technical-rule/din-spec-91380/289947896>

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# RAL GÜTEZEICHEN SERIOUS GAMES

## „QUALITÄTSSIEGEL“



DIN SPEC 91380 → SG-IC → WTT Serious Games → Qualität: RAL Gütezeichen

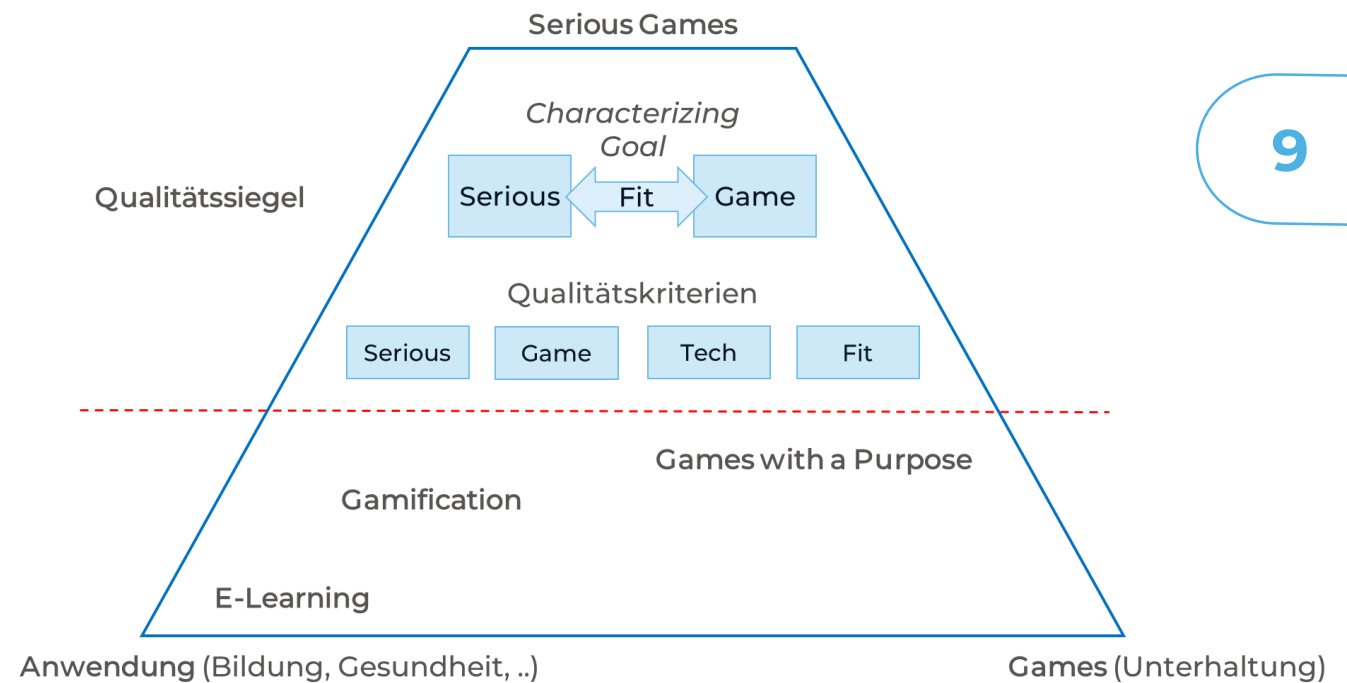


# WHAT MAKES A GOOD SERIOUS GAME?

CHARACTERIZING GOAL



TECHNISCHE UMSETZUNG



# RAL GÜTEZEICHEN – „SERIOUS GAMES SPACE“

## Serious Games

Quality Label



ExerCube

<https://sphery.ch/exercube/>

## Quality Criteria & Scoring

- All criteria  $\geq 2$  points  
-> clearly accepted

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<https://sphery.ch/news/>

### ExerCube vs. Personal Trainer: Evaluating a Holistic, Immersive, and Adaptive Fitness Game Setup

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Figure 1: The ExerCube (middle, right) provides players with a playful full-body functional fitness experience that is on par with personal training sessions (left). The player is surrounded by three walls, which serve as projection screens and a haptic interface for energetic bodily interactions. Movements are tracked with two HTC Vive trackers attached to players' wrists.

**ABSTRACT**  
Today's spectrum of playful fitness solutions features systems that are clearly game-first or fitness-first in design; hardly any sufficiently incorporate both areas. Consequently, existing applications and evaluations often lack in focus on attractiveness and effectiveness, which should be addressed on the levels of body control, and game scenario following a holistic design approach. To contribute to this topic and as permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for components of this work owned by others than ACM must be honored. Abstracting with credit is permitted. To copy otherwise, to republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee. Request permissions from permissions@acm.org.  
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<https://doi.org/10.1145/3296603.3300318>

**KEYWORDS**  
ExerCube; fitness game; exercise game; adaptivity; flow



Application (Education, Health, ..)

Games (Entertainment)

A person wearing a VR headset is shown in profile, looking towards a large, glowing digital globe. The globe is composed of a network of white lines and nodes, with a red and yellow core. The background is a dark blue with various network-like patterns and glowing points. The overall scene is futuristic and digital.

*Menschen hören nicht auf zu spielen, weil sie alt werden, sie werden alt, weil sie aufhören zu spielen!*

Oliver Wendell Holmes, Sr.

(1809 - 1894), US-amerikanischer Arzt und Essayist

1.10.2019  
NANO

The screenshot shows a ZDF video player interface. At the top, there is a navigation bar with the ZDF logo, icons for 'Rubriken', 'Barrierefrei', 'Live-TV', 'Sendung verpasst', 'Suche', and 'Mein ZDF'. Below this, the video title 'Health Games – Spielen auf Rezept' is displayed. The main content is a video frame showing a person from behind, wearing a blue patterned vest over a white shirt, looking at a large television. The TV displays a racing game with a motorcycle and a car on a road. A '3 sat' logo is visible in the top left of the video frame. The video player controls at the bottom show a progress bar at 05:50 / 06:16 and various icons for information, settings, and full screen.

# WTT SERIOUS GAMES

## ERGEBNISSE

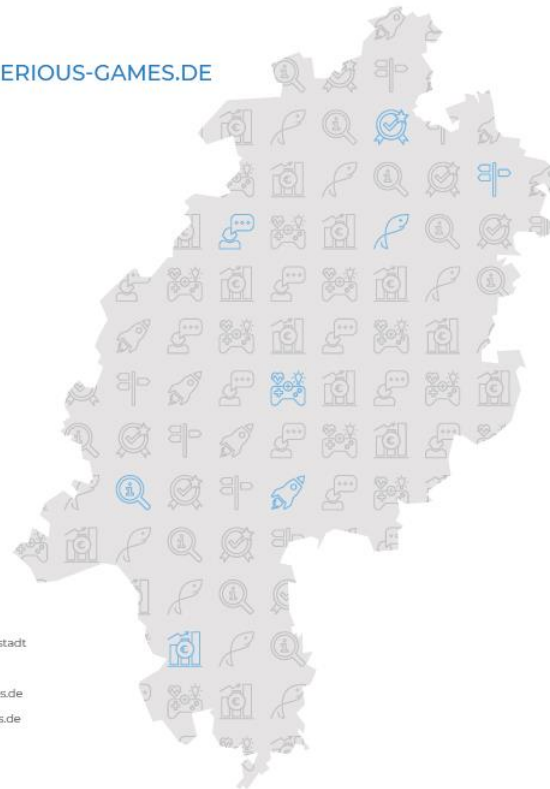
<https://wtt-serious-games.de/>  
→ Download Broschüre

### Broschüre „Serious Games. Dein Einstieg in die Branche.“

- Einführung Thema
- WTT Vorhaben
- Handlungsempfehlungen
- Wirtschaft, Markt
- Qualität, Gütezeichen
- SG-IC Auskunftssystem
- Akteurslandkarte, ..



WTT-SERIOUS-GAMES.DE



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# HEALTH GAMES: COMPUTER- SPIELE ALS THERAPIE



*Computerspielen für die Gesundheit? Was zunächst abwegig klingt, ist tatsächlich Realität. Denn das Genre der Health Games hält viele Angebote bereit, die nicht nur der Unterhaltung dienen: So können Spielende auch ihre Fitness und Gesundheit fördern.*



<https://www.deutschlandfunknova.de/beitrag/games-zocken-auf-rezept>

Megatrends, Gesundheit <https://www.zukunftsinstitut.de/artikel/die-megatrend-map/>

FDA zertifiziert EndeavorRX <https://www.gamestar.de/artikel/spiel-gegen-adhs-zugelassen,3358879.html>

Digitale Gesundheitsanwendungen <https://diga.bfarm.de/de/verzeichnis?search=Spiel>

A person wearing a VR headset is shown in profile, looking towards a large, glowing digital globe. The globe is composed of a network of white lines and nodes, with a red and yellow core. The background is a blurred indoor setting with blue and white light effects, suggesting a high-tech or virtual environment.

**VIELEN DANK FÜR IHRE AUFMERKSAMKEIT  
FRAGEN?**

<https://www.etit.tu-darmstadt.de/serious-games>