TEASER

Teacher as Avatar

Roadmaps

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Roadmap DE: SBG Dresden (Focus: Chemistry & Biology)

The roadmap of the **Saxon Education Society for Environmental Protection and Chemical Professions Dresden mbH (SBG)** focuses on the integration of AI and avatars into **practical laboratory and plant training**. The aim is to increase the media competence of trainees and to relieve trainers of repetitive instructions.

1.1 Preparation and Needs Analysis

It was based on a quantitative and qualitative analysis of institutional needs:

- **Status Ante:** In a SELFIE-based survey of **15 VET trainers** , 60% said that while digital approaches exist, a coherent strategy for AI was still missing.
- **Identified barriers:** The main barriers to innovation were identified as **a massive lack of time** and the lack of specific, practical training opportunities.
- **The "Educational Questions":** The SBG Dresden defined central pedagogical problems that are to be solved by the technology:
    - How can avatars make the delivery of **occupational health and safety (H&S) instructions in** the laboratory more consistent and attractive?
    - How can specialist knowledge at complex chemical plants (e.g. LC 2030) be taught individually and asynchronously?

1.2 Development and Planning

In this phase, the concept of the **media lab** was anchored as a central location for the structured qualification of staff.

- **Scenario design:** SBG developed **four specific learning scenarios** for the fields of chemistry and biology:
    1. Pedagogically sound use of avatars in chemistry education.
    2. Pedagogically sound use of avatars in biology education.
    3. Improvement of media literacy through avatar use at the LC 2030 chemical plant.
    4. Process management and safety instruction in the biology laboratory (e.g. cell cultivation).
- **Strategic partners:** The cooperation between SBG and the Dresden Chamber of Industry and Commerce and the Employers' Association Nordostchemie e.V. ensured that the roadmap meets the requirements of modernised training regulations.

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1.3 Pilot Phase and Training

SBG took over the management of the development of central content of AVATAR **. AI Course**:

- **Module development:** Responsible for **Module 3 ("How to use it?") and Module 4 ("Ethical concerns?")**.
- **Content creation methodology:** A "technical chain" has been established: teachers record videos -> ChatGPT optimizes the transcripts -> **HeyGen or Eleven Labs** generate the final avatar videos.
- **Iterative testing:** The scenarios were piloted and evaluated to optimize manageability (e.g. QR code triggers on machines).

1.4 Full Implementation

The roadmap envisages a future anchoring in the organizational structure:

- **Scaling:** The goal is to implement at least **one AI-supported scenario per apprenticeship** (a total of 7 professions, such as chemical technician or biology laboratory technician).
- **Standardisation:** The use of SBG**'s Moodle LMS** will be established as the standard platform for all digitally-supported learning content.
- **Continuous review:** The institutional AI roadmap is **reviewed every six months** in order to integrate technological leaps (e.g. generative 3D environments) in a timely manner.

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2. Roadmap NL: Graafschap College (Focus: IT & Social Work)

The roadmap of **Graafschap College** (Stichting BVE Oost-Gelderland) in Doetinchem is closely linked to the educational vision **"HIP Education" (Hybrid, Innovative and Personalized).** As the largest regional training centre in the Achterhoek region with around 10,000 learners, the institution uses the **STRAX programme** to integrate pedagogical innovations directly into the training through i-coaches and its own Experience Centre.

2.1 Preparation and Needs Analysis

In the first phase, Graafschap College focused on structural preparation and the identification of specific target groups:

- **Needs assessment:** Using the **SELFIE-based survey** , it was determined that a strong digital strategy and support from the school management already exists, but that there is a need for optimization in the time prioritization for innovations.
- **Structuring: An** AI task force **has been** formed to steer the implementation process.
- **Target group focus:** New students and non-native speakers (NT2 learners) **who need special support in integrating into the education system were identified** as primary target groups.

2.2 Development and Planning

The college developed a roadmap that defines technological solutions to concrete pedagogical problems:

- **The "Educational Question":** How can AI and avatars help NT2 learners overcome language barriers in organizational processes (Wi-Fi setup, printer setup, school pass)?
- **Scenario design:** Two core scenarios were designed:
    1. **Student onboarding:** Avatars (e.g. created with HeyGen) that provide information in the learner's native language.
    2. **Professional communication:** Simulation of feedback conversations through dialogue-oriented avatars for **social work students**.
- **Technology selection:** Use of **Convai software** (integrated with the Unreal Engine) to create the avatar "Sivon" as well as experiments with the **Rabbit R1** to support integration.

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2.3 Pilot Phase and Training

The focus of this phase is on empowering staff and testing interactive formats:

- **Training of the i-Coaches:** Teachers and staff are trained to create and adapt avatars independently.
- **Interactive simulations:** Piloting a **WhatsApp simulation** with the fictitious person "Mrs. Jansen" to train prospective social workers in dealing with elderly people in need of help.
- **Dynamic Avatars:** Testing of dynamic avatars that allow learners to practice real-world conversations and make mistakes in a protected space without being afraid of judgment.

2.4 Full Implementation

In the institutional anchoring phase, Graafschap College strives for **24/7 availability** of support:

- **Virtual assistants:** Avatars act as permanent contact persons for students with questions about internships or school procedures, regardless of the availability of human teachers.
- **Integration into curricula:** The AI-based simulations will become an integral part of the training courses in social work and IT.
- **Data protection (AVG):** Compliance with the **GDPR (Dutch: AVG)** is ensured by the use of purely virtual persons in fictitious scenarios.
- **Integration speed:** Measure whether NT2 students are less behind at the start of their education due to native avatar support.
- **Feedback loops:** Regular workshops with the education teams to refine the didactic guidelines based on the students' experiences.

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3. Roadmap CY: S.C.P.SERV (Focus: IT & Cybersecurity)

The roadmap of the **S.C.P. - School of Certified Professionals (SCP)** from Limassol focuses on the technological spearhead of the project. As a recognized educational center with in-depth programming and IT expertise, the focus is on **improving cybersecurity education** and teaching programming basics through interactive AI systems.

3.1 Preparation and Needs Analysis

In the first phase, SCP laid the foundation through a comprehensive analysis of the institutional requirements.

- **Management support:** The SELFIE-based survey showed an exceptionally high level of support from school management (100%) for testing new digital ways.
- **Identified needs:** Around 69% of teachers said they have time to explore AI technologies, while 84% are already taking advantage of lifelong learning opportunities in the field.
- **The "Educational Questions":** SCP defined as a core problem the need to make **complex cybersecurity topics** (such as phishing or malware) more tangible and interactive in order to increase motivation in technical subjects.

3.2 Development and Planning

In the second quarter of 2024, a detailed implementation plan was created to equip the IT infrastructure for AI integrations.

- **Technology Selection:** SCP opted for a hybrid approach of **Synthesia** for the rapid generation of avatar videos and a **customized ChatGPT version** for real-time answers to student questions.
- **Scenario design:** Two central educational paths have been developed:
    1. **Python Basics:** Basics of programming with AI avatar support.
    2. **Cybersecurity Basics:** Identification and prevention of digital threats.
- **LMS integration:** The SCP roadmap envisaged expanding the Learning Management System (LMS) so that avatars could be used for both pre-recorded tutorials and live simulations.

3.3 Pilot Phase and Training

Practical testing started in the third quarter of 2024.

- **Central Staff Training:** As the host of the Teacher Mobility in **September 2025**, SCP trained the consortium in the technical implementation of "low-threshold" tools for avatar creation.
- **Iterative testing:** The Python and cybersecurity scenarios were piloted with trainers and students to validate the usability of the **Programiz Online Python compiler** in conjunction with AI debugging.

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3.4 Full Implementation

This phase marks the rollout across the facility.

- **Institutional anchoring:** The AI-supported modules will become an integral part of the curriculum in the "Innovation Lab" for prospective computer scientists.
- **Ongoing Support:** SCP established a system for regular maintenance and updating of AI content in order to respond to new cyber threat scenarios.
- **24/7 learning support:** The integration of chatbots in the LMS ensures continuous support for learners regardless of the instructors' attendance times.
- **Strategic contribution:** SCP takes over the management of **Module 5 ("Is it safe? / Data Security")** of the blended learning course to ensure the safe handling of avatars and compliance with the GDPR.

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4. Roadmap SI: Solski Center Kranj (Focus: Mechatronics)

The Slovenian **Šolski Center Kranj (SC Kranj**), an institution with over 70 years of tradition and around 2,200 students, focuses its roadmap on the **digitization of workshop safety** and the **relief of teaching staff** through AI agents.

4.1 Preparation and Needs Analysis

The roadmap started with an in-depth analysis of institutional readiness:

- **SELFIE results:** The survey of 22 teachers showed strong support from school management, but identified **outdated devices and limited connectivity** as hurdles.
- **Identified needs:** An urgent need for **concrete guidelines** and structured IT support was identified in order to minimize the uncertainty of the use of AI.
- **The "Educational Questions":** SC Kranj defined two central pedagogical challenges:
    1. How can trainees in workshops be instructed **more effectively and attractively** about safety measures?
    2. How can the **onboarding process** for new teachers be automated through an AI-powered knowledge base?

4.2 Development and Planning

In the design phase, specific technological solutions were designed for the mechatronics workshops:

- **Scenario design:** Two main scenarios were developed:
    1. **Interactive avatars for workshop safety:** Use of 8 avatars for different machines (e.g. CNC, welding machines, soldering irons).
    2. **Onboarding Support Chatbot:** A system for automating recurring questions from new hires.
- **AI Agent for Teachers:** Develop a **custom GPT** that acts as an educational advisor and reduces lesson planning time from 40 minutes to **5 to 10 minutes**.

4.3 Pilot Phase and Training

The practical testing (validated the chosen "low-threshold" approach:

- **Use of technology:** The avatars were created using the **HeyGen** web app , which supports over 40 languages (including Slovenian) and enables fast, cost-effective video production.
- **QR code integration:** Trainees scan QR codes directly on the machines to invoke the avatar's safety instructions.

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4.4 Full Implementation

Institutional anchoring is achieved through the establishment of permanent structures:

- **Support team:** Forming an internal team to maintain the AI systems and support the teachers.
- **Standardization:** The avatar-based safety instructions will become standard in all mechatronic departments.
- **Qualification:** SC Kranj led the development of **Module 1 ("How AI works? / Basics of AI")** for the AVATAR. AI Blended Learning Course to Train Staff in Prompt Engineering
- **Quality assurance:** SC Kranj ensures that all scenarios are evaluated according to the **DigCompEdu framework** .

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