XRCONSOLE's contribution to SURE5.0

XR Training as driver for <u>industrial resilience services</u>

- Scalable training solutions for workforce transformation
- Rapid Upskilling possibilities with XR trainings
- Massive Improvement of acting competencies through experiential learning → learning by doing
- Ability to train rare and / or dangerous events in safe virtual environments
- Better qualified workforce is more resilient to unforeseen events

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Transforming how enterprises train their resilient workforce for I5.0 through extended reality

I hear and I forget.
I see and I remember.
I do and I understand.

Confucius

Our approach to XR experiential learning

1) XR Potential Canvas

Together with our clients we identify attributes criteria and learning metrics for a successful XR experiential learning project within their organizational and work context.

2) Experiential learning design

a) Based on a joint definition of learning goals the XR learning journey and respective scenarios are designed and then translated into a MVP by our team, first feedback from stakeholders is acquired

b) Gamification principles like adaptive goal setting, a visible status and feedback on erroneous as well as correct behavior are integrated into the learning journey in order to ensure recurring training sessions and motivation of the trainees

c) We utilize our outstanding 3D visualization skills to determine optimal design levels needed to ensure immersive presence of the scenarios, ranging from low complexity (low-poly) to photorealistic assets and environments.

3) Impact Assessment

a) In order to understand the subjective experience of trainees we use questionnaires such as IPQ and ITC-SOPI for assessing cyber-sickness and other learning experience related dimensions such as hedonic, pragmatic and eudaimonic aspects of XR experiential learning applications

b) XR environments capture behavioral and objective learning metrics. They provide insights in actual learning progress and can be used to adaptively vary the learning journey, Insights into achieved decision making and acting competence of the trainee are documented and fed back into the trainer dashboard

c) Behavioral data as well as training statistics are integrated into existing learning management systems (LMS)

d) Support in the deployment phase

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David Kolb's learning cycle

Decision making and acting competence

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Conventional Training

XR Experiential Training
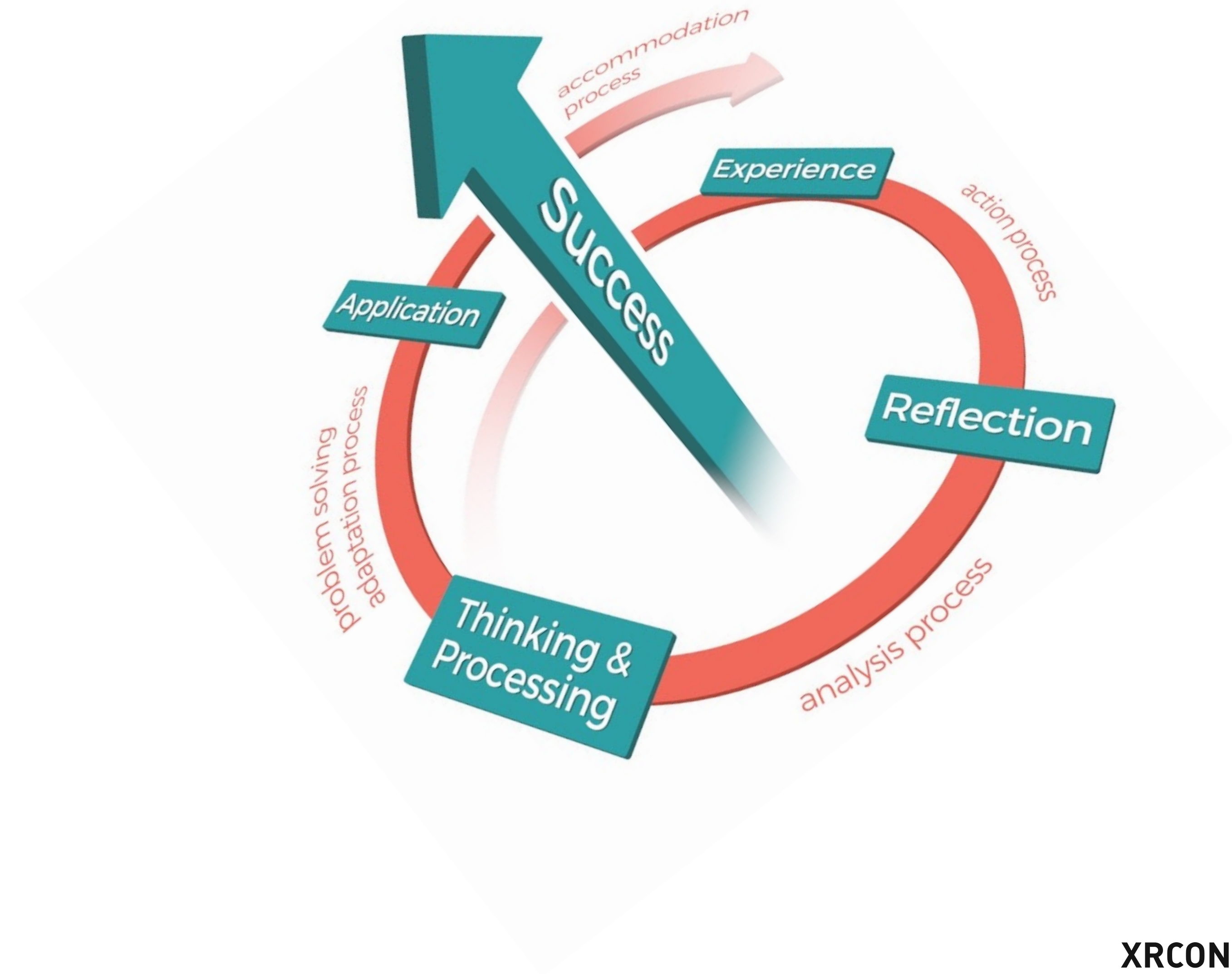
Conventional Training		XR Experiential Training
Dangerous	→	Safe
Centralized	→	Decentralized
One Shot training	→	(Unlimited) Repetitions
Errors not well accepted	→	Errors as source of experiential learning
Exam data	→	Behavioral data
Cost and trainer intensive	→	Cost optimized
Exam results	→	Detailed feedback for trainee
One for all	→	Adaptive Learning Journeys

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WIFI Steiermark CNC Simulator

Challenge

Availability and coordination of trainings times on CNC milling machines

Solution

1:1 trainings environments identical with the physical machine

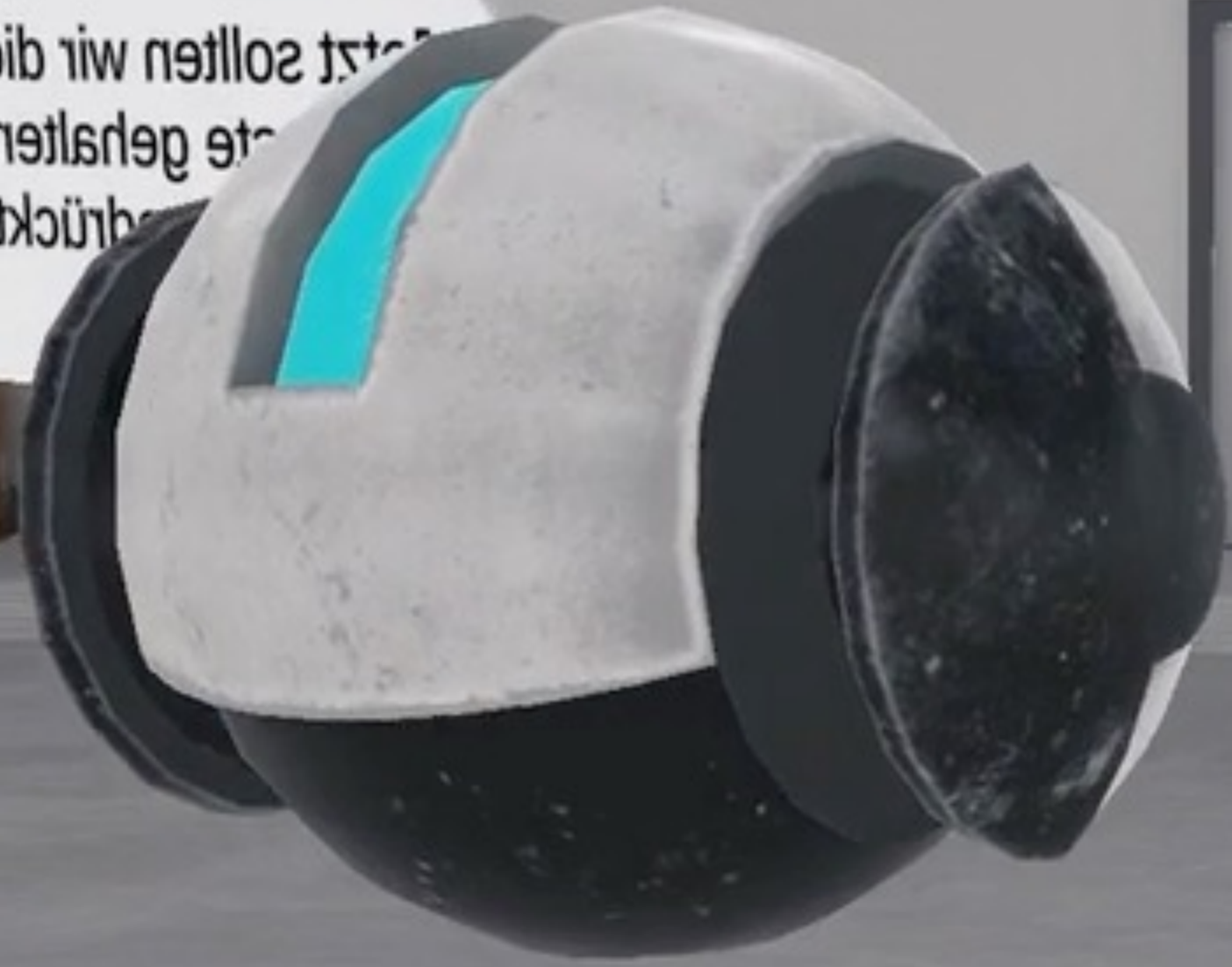## Result

100%

More individual on-the-machine training time

DigiLernSicher

Challenge

Availability for educational trainings is limited due to the fact that real-world settings are too dangerous for the trainees

Solution

Virtual learning lab for safe experimentation and education

" Especially when it comes to workplace safety, the potential of digital technologies is enormous."

Josef Pesserl, president of the Austrian labour chamber (AK Steiermark)

BVG education center

Challenge

Physical resources such as subway trains and subway station in construction are not available for real world training.

Solution

Identification of XR experiential learning goals and fit into existing curriculum, formation of a Core-Stakeholder group, design of the learning journey by XRConsole, translation into MVP, feedback on MVP and following iterations by core group, trial phase with selected trainees, delivery of final product

Result

- Better understanding of technical relationships
- Shorter time to reach necessary skill levels in real-world training
- Utilization of new subway stations ahead of schedule

250 future subway drivers per year are trained

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XR training for food retail workers

Challenge

Ability for close to real training before deployment on-site, communicate and internalize brand values and related social skills, acquaintance of work routines in grocery store environments

Solution

Joint definition of learning and experience journey, Mapping of visual concept to target group (apprentices), MVP of visual concept → Evaluation by executives → go decision, addition of playful interaction cues, implementation of seven different work positions and related skills in the store, continuous feedback with future trainee group, addition of soundscapes for improved immersive presence

Result

- Dual use principle: Corporate training and job simulation at job fairs
- Mobile solution without the need of complex computing infrastructure
- Decentralized and physical store independent training solution

Immersive and fun exploration of daily work routines with skill transfer

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MILCH & KÄSE

EXPRESS

INTERSPAR
Backstube

XRTrain: SOP's in healthcare

Challenge

Training of standard operating procedures: in stress and high-risk situations healthcare workers and first responders have to act fast, correct and target oriented

Solution

Identification of existing learning practices and shortcomings, together with medical practitioners design of immersive training approach, prototype development, feedback from existing healthcare workers, prototype improvement, design and execution of scientific intervention group study with 41 healthcare students (VR group vs. conventional training group), learning transfer and task performance assessment on real world assets

Result

- High acceptance of XR experiential learning application
- Slightly less execution errors for VR group
- Decentralized and physical store independent training solution

36 sec

Significant execution time improvement: VR group 30% faster as conventional training group

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CREATING
IMMERSIVE
EXPERIENCES

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