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Construction Safety with Education and Training using Immersive Reality

Projecto Erasmus sobre Segurança na Construção com Recurso a BIM e a Ferramentas Digitais de Simulação

ALFREDO SOEIRO, JOAO POÇAS MARTINS E ADEEB SIDANI
UNIVERSIDADE DO PORTO – FEUP - DEC - CONSTRUCT

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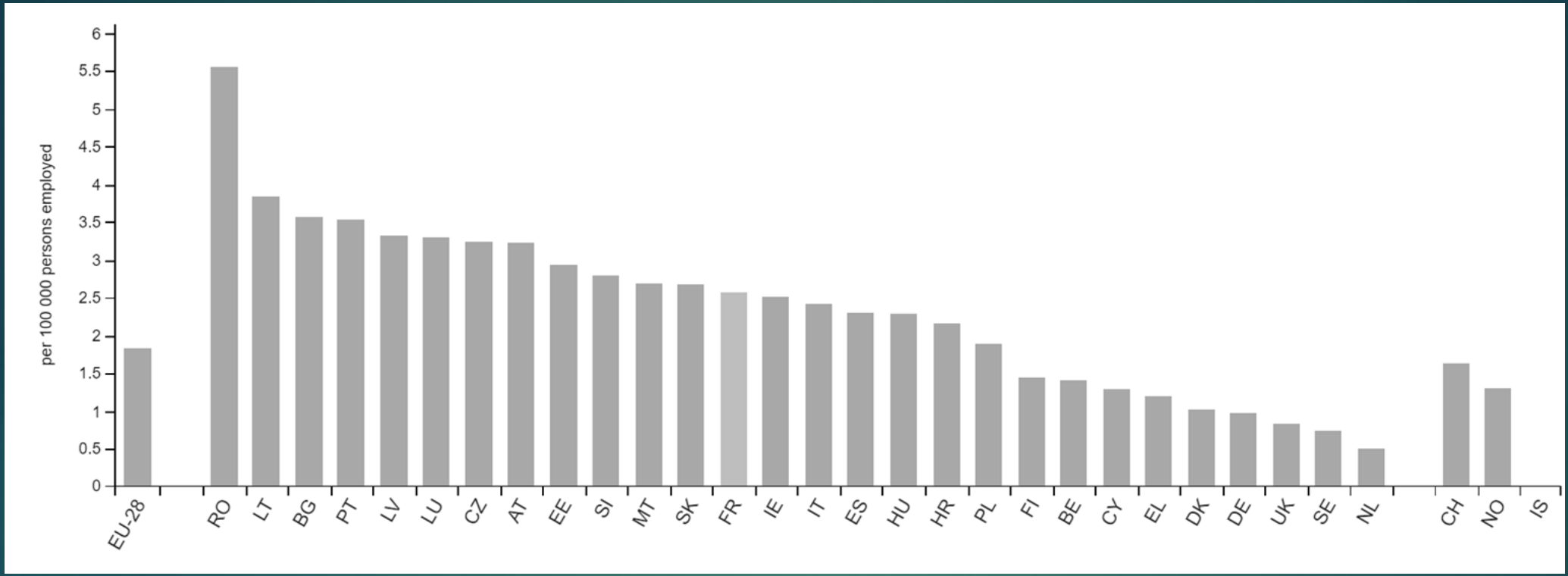
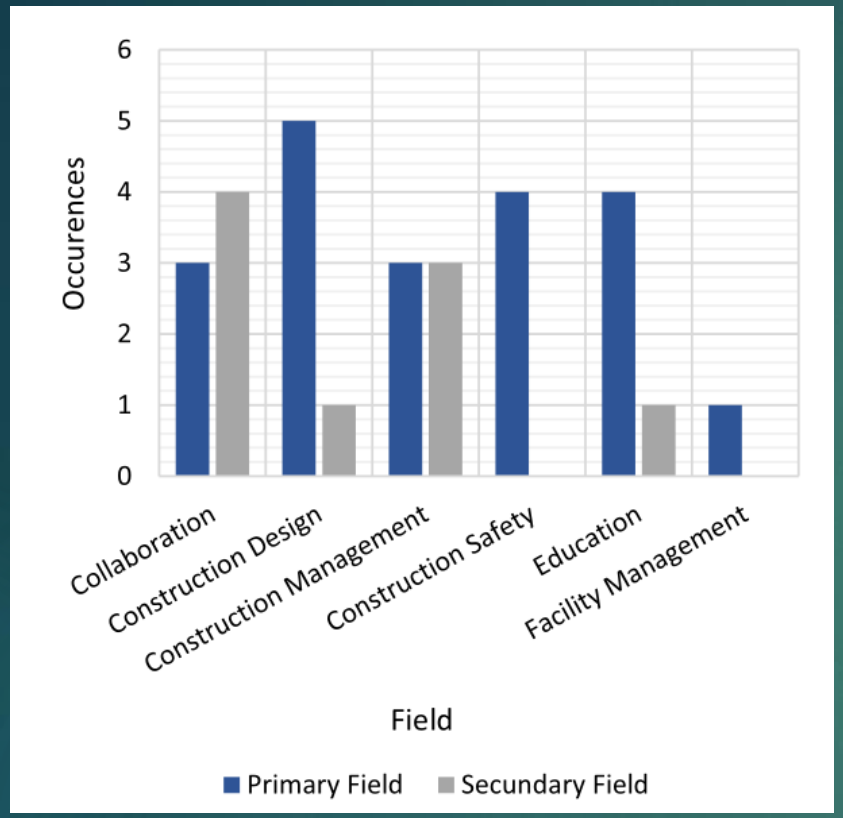
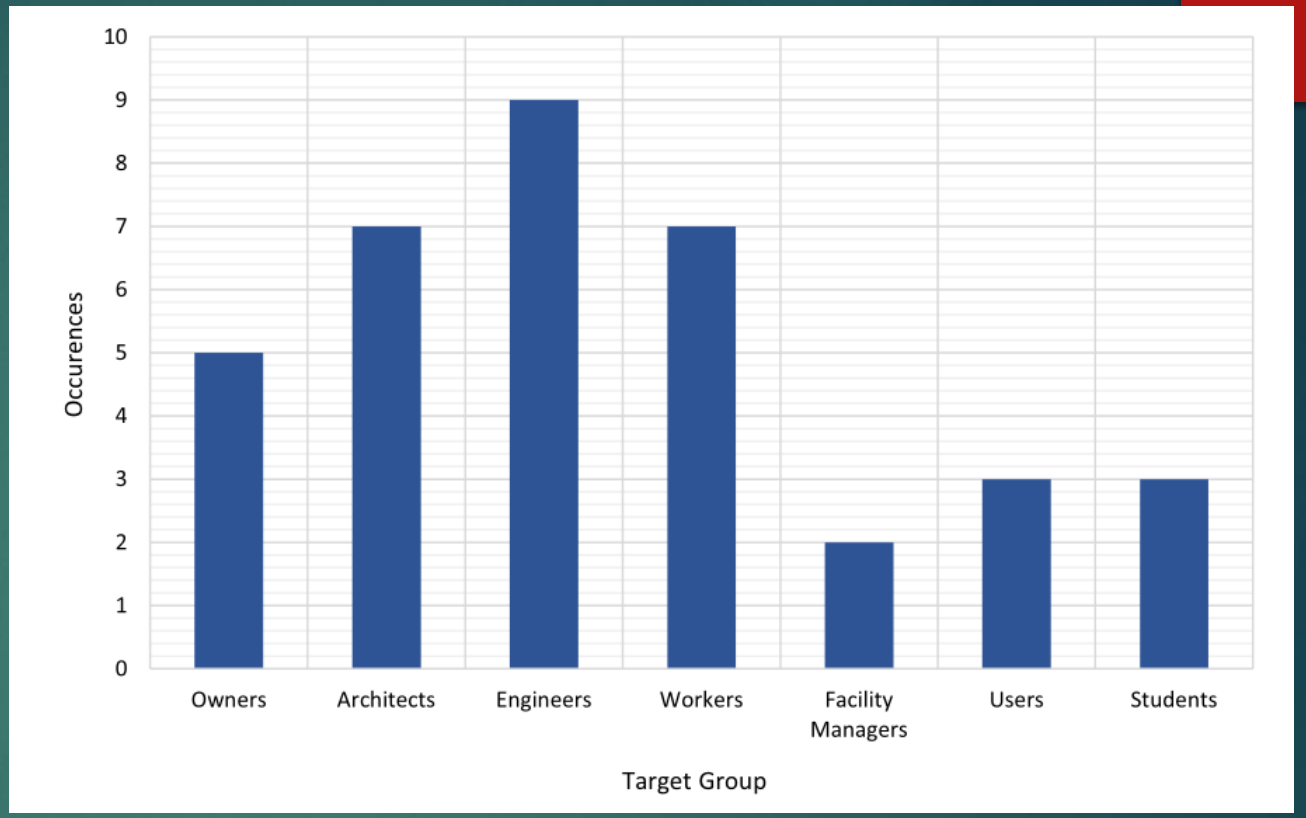


Fatal accidents at work, 2015

EU-OSHA (2015):

- 21% of workers with a fatal work accident were from the construction industry
- In Portugal, 60 fatal injuries per year
- New workers' first months on the job have more than three times the risk for injury than workers who have been at their job for more than a year: it is importante to become familiar with site conditions.





Source:
Sidani, Adeeb, Fábio Matoseiro Dinis, Luís Sanhudo, J. Duarte, J. Santos Baptista, João Poças Martins, and Alfredo Soeiro. "Recent Tools and Techniques of BIM-Based Virtual Reality: A Systematic Review." *Archives of Computational Methods in Engineering* (2019): 1-14.

Although it is not currently the most common use-case, several existing VR applications already address the issue of Construction Safety and target Workers as a user group.

Project Demonstration

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- Project financed by Erasmus+
- Construction Safety Education and Training using Immersive Reality
- 4 universities and one construction company
- 3 years
- Half million Euros
- ISHCCO, AECEF, ENETOSH and others invited to validate and tune up

Characteristics

- Construction tasks addressed at any time
- Risks associated from planning and statistics
- Visualization of environment
- Static, dynamic or interactive participation
- Learning/training
- Generic in terms of users

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Examples (1)

1. OSHA PIXO safety compliance Virtual Reality
2. Fulmax
3. VR Safety Training for Construction companies (LandMarkVR)
4. DOKA

Construction Safety with Education and Training using Immersive Reality

Virtualise Your Project BIM Data

FULmax

Think inside the box

& experience reality

www.fulmax.co.uk

Examples (2)

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5. CERTIFYME.NET

6. SRI International Augmented Reality Solutions for Construction Inspection

7. CAT VR Training

8. 3M Releases Construction Safety Virtual Reality Programs for Hands-on Learning

Benefits?

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- Simulation as training and education facilitator
- Possible use in certification
- Adjusted to each situation
- Standardising of training possible
- Adjustable to existing budget
- Use on site or on training facility
- Possibilities are immense

VR apps (currently under development) can simulate site conditions

Two questions!

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A) Relevant risks for training?

- Fall from height, equipment operation, excavation, confined spaces, scaffolding, dangerous products, electrical dangers, Covid19, …
- Which criteria is relevant for risk selection?

B) Training for whom?

- Coordinators, engineers, workers, foreman, supervisors, subcontractors, …
- How should the selection of target usergroups affect design of training solutions?

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Thank you for your attention.

http://csetir.civil.auth.gr/
avsoeiro@fe.up.pt