

**COBGI2024**

**Challenges and Opportunities in BIM - GIS integration**

## **Challenges and Opportunities for BIM - GIS integration – BIRGIT case study**

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# Why BIM GIS integration?

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- the global adoption of BIM-GIS integration is accelerating, with significant contributions to smart city projects and infrastructure development
- The ongoing research, best practices, and technological advancements are paving the way for more comprehensive and efficient AEC industry practices

# Why BIM GIS integration?

**USA** – no federal mandate but various state governments adopted BIM for public projects and BIM GIS integration in large infrastructure projects



**UK** – leader in mandating the BIM use – groundwork for integrated digital approaches in large infrastructure projects

**EU** – promoting BIM adoption through various directives and initiatives.

**Asia** – Singapore and SK implemented strong policies and guidelines for BIM adoption, public projects. Looking at integrating GIS for urban planning and smart city

# Why BIM GIS integration?

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**Other Regions:** adoption is more fragmented but growing.

For instance, Hong Kong has published guidelines for BIM-GIS integration to support smart city applications and urban planning

The gap with increasing demand for the skilled professionals and skills professionals in AEC have  
→ opened the space for the BIRGIT project

# BIRGIT project as case study

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- training on Building Information models integrated with Geographical Information
- Erasmus+ project – 7 international partners from 5 countries
- Duration of the project: 3 years
- Project timeline: February 2022 – January 2025

# Main aims of the BIRGIT project

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- focus on BIM-GIS data interoperability and real-world applications
- update vocational programs (VET) to up-to-date knowledge
- bridge the gap between skills supply and demand on the job market

# Survey about the market demand

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The questions asked in the questionnaire are mainly classified into:

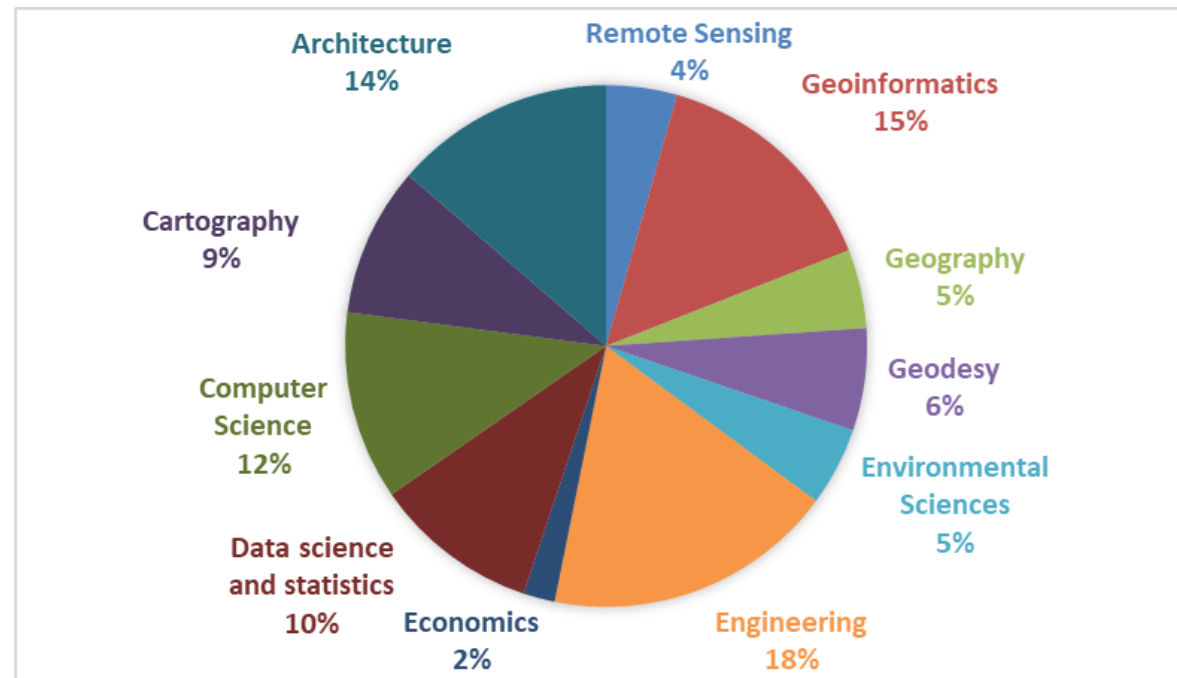
- General organisation information
- Industry demand of BIM-GIS integration skills
- Perspectives on BIM-GIS integration

Survey answers from domain:

- 47% from SME enterprises
- 19% from education and research field
- 15% from administration and public bodies

# Operating sector of organizations

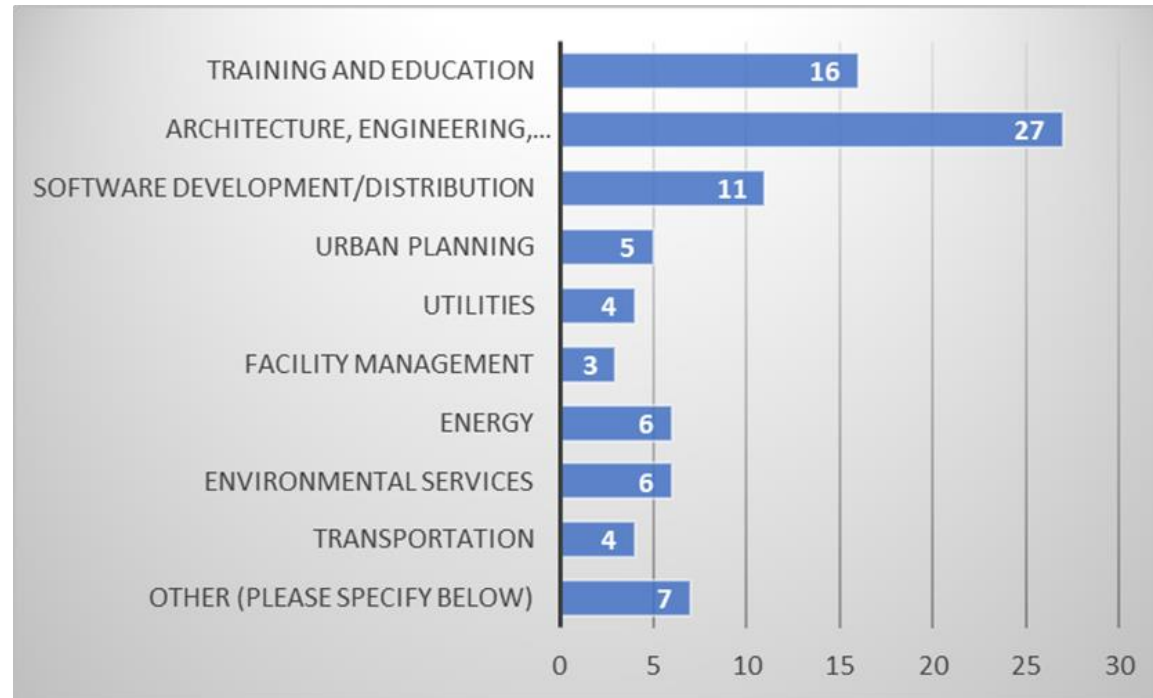
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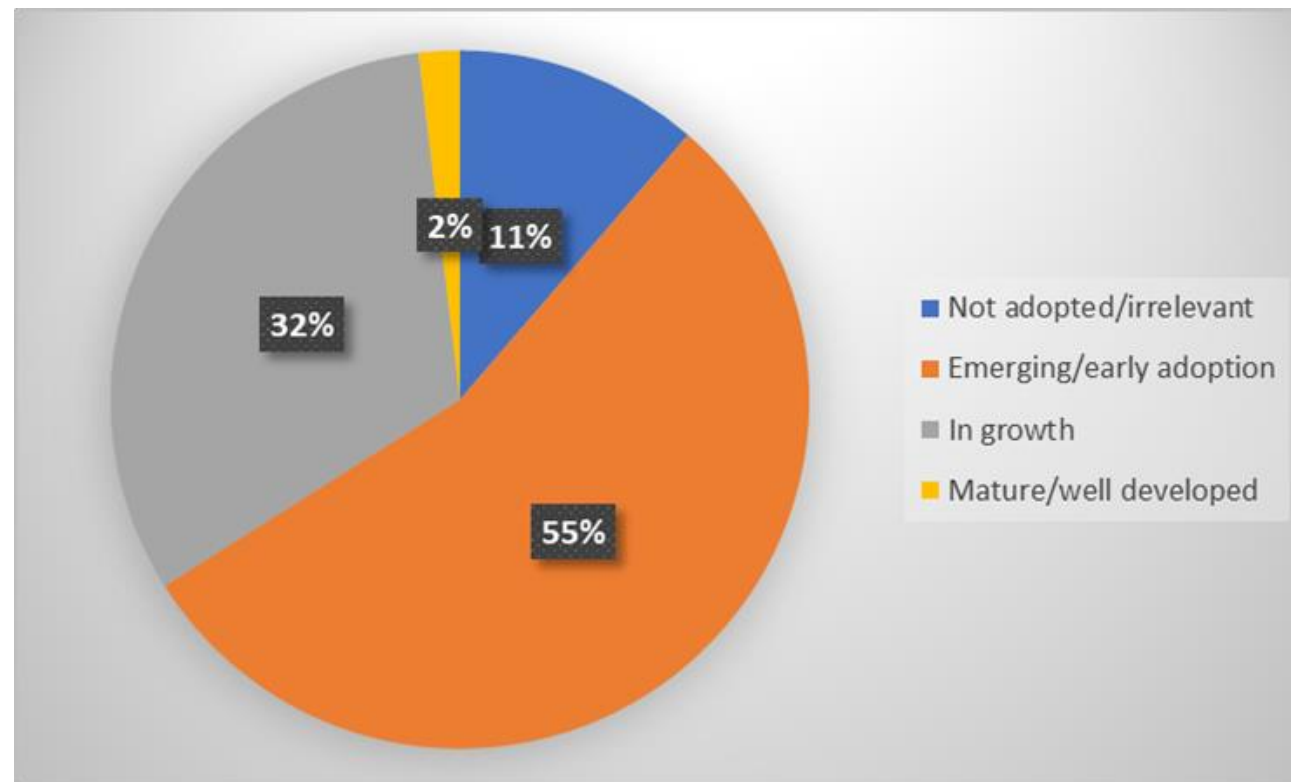
# Survey about the market demand

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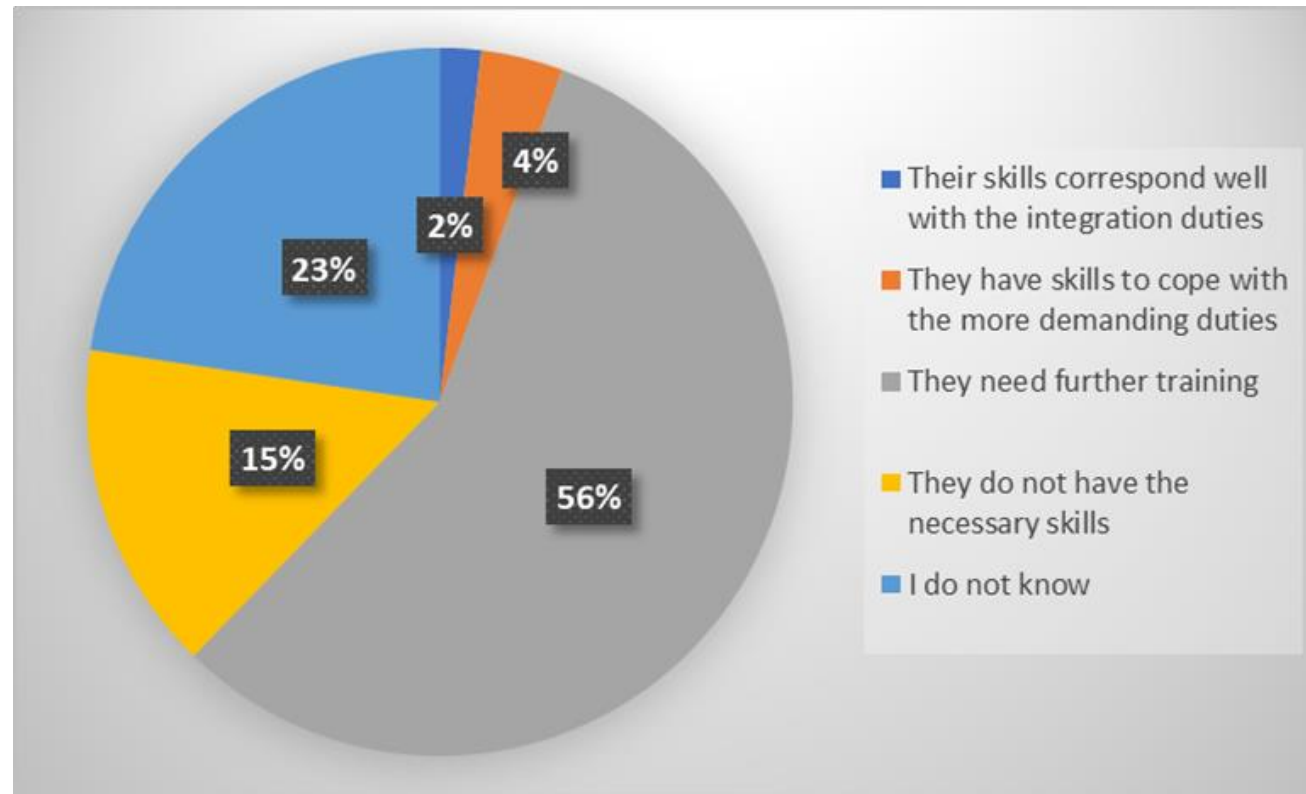
# The maturity of adoption of BIM-GIS integration

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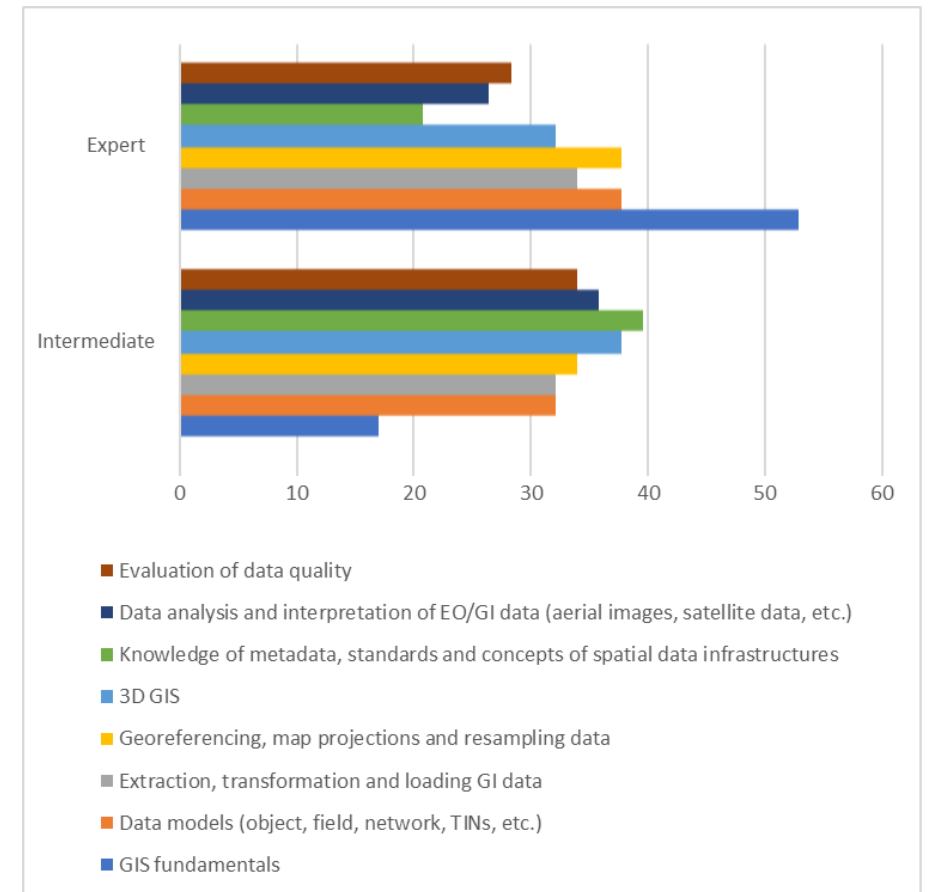
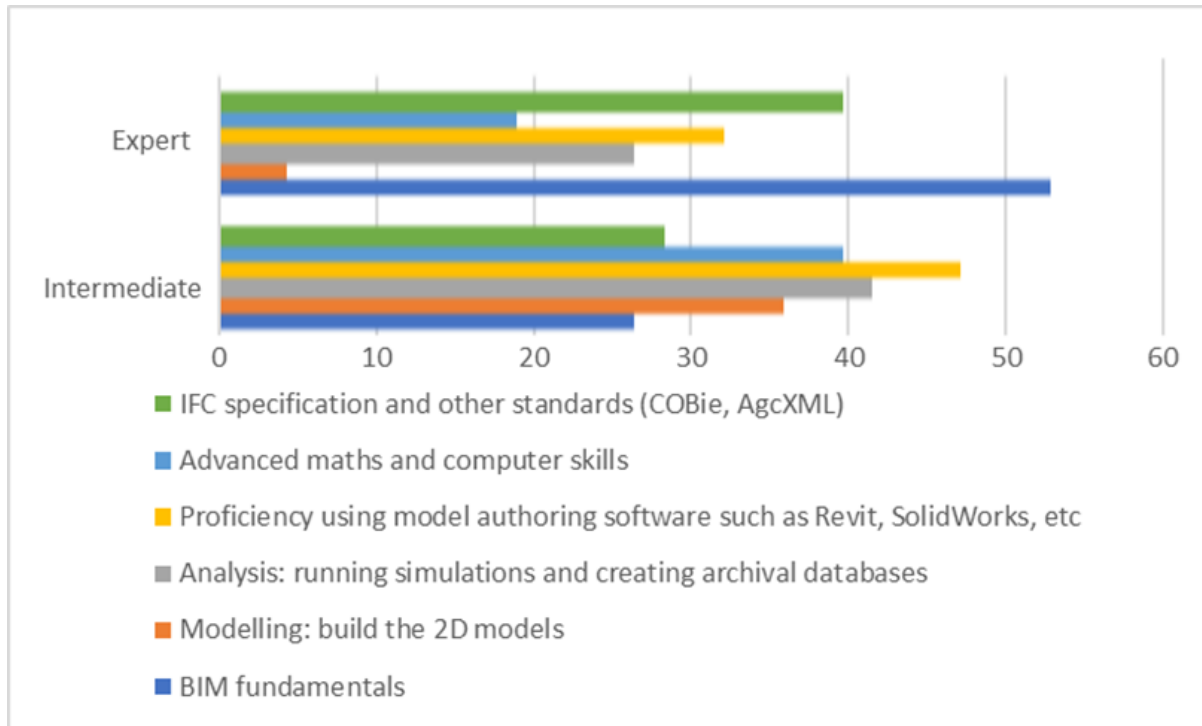


# Status of skills required for BIM-GIS

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# BIM/GIS skills set for BIM-GIS integration job



# Outcomes and current status

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- **Learning materials** have been developed and are in testing phase
- several **Multiplier events** across partner countries are being organized – to reach wider audience
- **materials will be publicly and freely available** – bridging the gap of lacking knowledge in the domain of BIM and GIS integration

# Far from opportunities, there are also challenges

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- Data compatibility and interoperability: different data formats, standards, integration tools
- Scale and detail discrepancies
- Data volume and management
- Technical, software barriers
- Regulatory and standardization issues

# Look into the future of BIM GIS integration..

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- The integrated approach will continue to enhance..
  - project visualization,
  - improve sustainability,
  - reduce costs
- It is expected that the role of BIM-GIS integration **will become increasingly critical** → enabling **smarter** and **more efficient** urban and infrastructure planning

# Look into the future of BIM GIS integration..

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- Enhanced interoperability and standards
- Advanced data analytics and AI
- Digital twins and smart cities - digital twins will allow for real-time monitoring, simulation, and management of buildings and infrastructure.
- Cloud computing and IoT – facilitate the storage, more accessible and scalable
- AR and VR - stakeholders could visualize and interact with integrated BIM-GIS data in immersive environments, improving collaboration and understanding of complex projects
- Sustainable development - assessing and mitigating the environmental impacts of construction projects
- Regulatory support - Increased support from governments, particularly in public infrastructure projects
- ...



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**Thank you for your attention!**

**Questions?**