

Digitalisation of construction planning in Poland

Inception report

03 December 2019



This project is carried out with funding by the European Union via the Structural Reform Support Programme and in cooperation with the European Commission's Structural Reform Support Service





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1

Context and
objective of
the project

Context of the Project

-  Governments are in various stages of implementation of BIM in the public procurement, in planning and permitting, tendering and project execution. **Since 2014 the EU legislation encourages Member States to develop BIM based procurement in their countries.** The EU Public Procurement Directive states that: for public works contracts and design contests, Member States may require the use of specific electronic tools, such as of building information electronic modelling tools or similar.

-  The essential advantages of BIM supported planning are:
 - **greater planning reliability**, performance and efficiency through integrated viewing of virtual models
 - **high data quality** due to centralised, non-interfacing database and prevention of knowledge and data loss
 - **improved communication and coordination** of all parties involved through immediate, continues data availability
 - simulation of construction processes **enabling early identification of errors and clash detection**
 - **immediate availability and analysis** of all object-based data (cost, schedules etc.)
 - integration of as-built and operational data for a **holistic view**

-  However, the actual use of BIM based approach in public tenders is very diverse. EU member and non-member countries' governments mandated the use of BIM for the public building tenders in the UK, Norway, Denmark, Finland, Sweden and Spain. Others like Germany, Italy, Ireland, Czech Republic and Poland have made the implementation of a **BIM mandate a priority in their national digitalisation in construction strategy frameworks.**

-  In 2016 Poland has developed an analysis on the implementation of BIM in the construction industry. Subsequently the first pilot project with the BIM requirements was launched in the road sector. The project was suspended at the stage of tender award due to the bids exceeding the available budget. The BIM implementation remained a priority for the national authorities in construction sector. The Ministry of Investment and Economic Development has recently selected a new pilot project in the field of a national scheme of **affordable housing.**



Objective of the project

- Support the Ministry of Development to define and implement the processes to mandate the use of Building Information Modelling (BIM) in public projects.
- Provide the Ministry with necessary standards and documents to procure the first pilot project mandating BIM in the affordable housing sector
- Improve the efficiency of public tendering system.

Building Information Modelling requirements exist in the Polish public procurement tenders as a result of the local authorities initiatives.

50+ projects released with BIM requirements in various stages of the tender and delivery.

The tender specifications are based on the external experts' advice or prepared by the investor's technical team and differ from project to project.

Objective of the project



Standardise the tender requirements mandating BIM



Deliver a strategy of BIM implementation



Define the IT requirements for a digital platform underpinning BIM and prepare procurement documents



Increase the knowledge of the BIM requirements across the construction sector and consult the proposed solutions with the industry and public stakeholders

2

Project team

Project Team Overview (1/2)

Structural Reform Support Service (SRSS) of the European Commission is providing support for the implementation of BIM requirements in public projects in Poland. SRSS finances the technical assistance and provides overall guidance to project implementation.

The project is co-ordinated by the Department of Architecture, Construction and Geodesy in the Ministry of Development (former Ministry of Investment and Development and the Beneficiary of the project).

Client



SRSS. The mission of the Structural Reform Support Service (SRSS) of the European Commission is to provide support for the preparation and implementation of growth-enhancing administrative and structural reforms by mobilising EU funds and technical expertise.

Beneficiary



Ministry of Development. Ministry established on 15th November 2019 by the Prime Minister of Republic of Poland. Mission of the Ministry is to support entrepreneurship, stimulate employers to take responsible actions for employees, increase the efficiency of Polish business through the development of innovative solutions.



Project Team Overview (2/2)

PwC have combined the application of international standards together with local presence and understanding of local specifics and legal framework.

Contractor



PwC. Advising clients on BIM projects internationally. Through our global network, we support national governments and businesses in the development and implementation of the BIM strategies and preparation of BIM procurement.



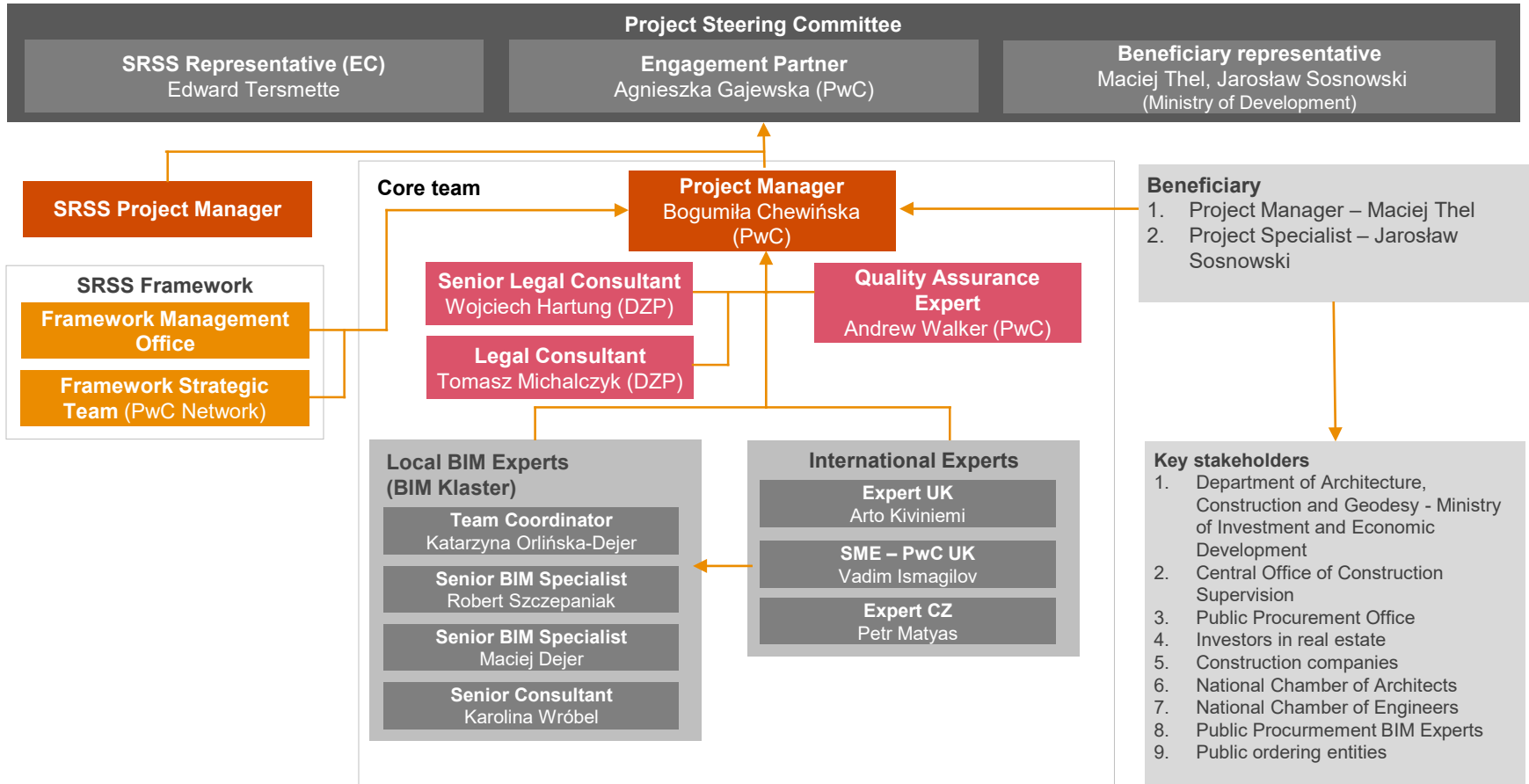
Association Cluster of Information Technologies in Building Industry. Polish and international experts representing an Association of Information Technologies in Building Industry Poland. Knowledgeable of the BIM penetration in the Polish market with its challenges and specifics.



DZP. Procurement legal team experienced in Polish and EU public procurement law.



Team structure



Contractor team composition (1/3)



Agnieszka Gajewska
Engagement Leader

Agnieszka is PwC Capital Projects & Infrastructure Leader and International Development Leader for 29 countries in CEE / CIS. She worked in over 20 countries on four continents, with particular focus on advising governments and local authorities on pilot infrastructure projects, esp. in PPP and Project Finance, structured as a mix of private and public finance. She acted as advisor or Mandated Lead Arranger, on PPP / PF projects of the total value exceeding \$15bn.



Bogumiła Chewińska
Engagement Manager

A professionally qualified Architect with over 15 years of experience in the project management of large residential, commercial and retail developments in Europe. For the last 6 years she has specialised in BIM supported procurement, design and project management, FF&E, commissioning, transition management and stakeholder consultations in public healthcare projects in Australia.



Katarzyna Orlińska-Dejer
BIM Experts Coordinator

Katarzyna is the President of the Board of the Cluster of Information Technologies in Building Industry (BIM Klaster) as well as an author of publications on BIM. Over two years of experience in R&D projects (e.g. Development of an application for visualization of BIM models in HoloLens technology) and projects related to technology transfer (e.g. 3D Central). Responsible for product development (from concept, specification of tool functionality to system implementation).



Wojciech Hartung
Legal Expert

Wojciech advises on infrastructure projects carried out under the Public Procurement Law or using partnership structures, i.e. PPP, concessions and other forms of co-operation between public and private partners. He specialises in issues involving public-public cooperation (in-house procurement). He heads projects concerning exclusion of the obligation to apply the Public Procurement Law covering entity and subject-matter exclusions.



Konrad Danieluk
Framework Manager

Konrad is PwC Framework Manager of the Multiple Service Framework Contract with the SRSS. He is responsible for coordinating framework activities of all PwC offices across the EU including the bidding process, contracting, monitoring and evaluation of specific projects. Konrad has 12 years of framework and project management experience. He has been working with the EC and DFID UK managing projects in Europe, Africa and Asia.

Contractor team composition (2/3)



Robert Szczepaniak
BIM Expert (BIM Roadmap)

An expert consultant with over 15 years of experience with full architectural qualifications in Austria and Poland. Robert has his own architectural practice and is a founding member of the 'BIM for Polish construction' Association. An activist of the BIM Cluster and an author of dozens of articles on BIM in the professional press. Robert is an expert in the implementation of the BIM methodology in public projects.



Maciej Dejer
BIM Expert (IT Systems)

An expert consultant with over 10 years of experience in the implementation of projects in BIM technology, project coordination and contract administration of projects implemented in New Zealand, Canada, the USA and Poland. Maciej is a VP of the Board of the Information Technologies in Building Industry (BIM Klaster), responsible for popularizing knowledge and processes based on innovation.



Karolina Wróbel
BIM Expert (BIM templates)

BIM Manager, BIM Coordinator, BIM Trainer. Karolina has over 6 years of experience in the implementation of projects using the BIM methodology including design, project management, coordination and consulting on tenders. She specializes in handling programs used for BIM modelling and coordination. Karolina is an author of the BIM guide for SketchUp users and articles on BIMblog.pl, as well as a speaker at conferences and a leader of BIM workshops.



Tomasz Michalczyk
Legal Expert (Procurement)

Tomasz specialises in matters concerning infrastructure, public procurement and PPPs. He advises both contractors and contracting authorities on all aspects of public procurement law at all stages of procurement procedures. He has extensive experience in handling tenders conducted by private entities with EU funds. He represents clients before the National Appeal Chamber and also in proceedings based on appeals filed with common courts.

Contractor team composition (3/3)



Arto Kiviniemi (Subject Matter Expert – UK)

Dr Arto Kiviniemi, Honorary Research Senior Fellow, retired Professor of Digital Architectural Design, at the University of Liverpool is one of the **internationally leading experts in the integrated Building Information Modelling (BIM) which he has developed internationally since 1996**. He initiated the first MSc BIM programme at the University of Salford in the UK. Arto is one of the founding members of the International Alliance for Interoperability, now known as building SMART International. Arto has presented over 180 keynote and invited lectures in international seminars and conferences around the world in the vast majority regarding BIM.



Petr Matyas (Subject Matter Expert – Czech Republic)

Petr is the Chairman of the board of the Czech BIM Council, a Member of the executive board for **coordination of BIM standardisation** at Ministry of Industry ČR. Petr is leading his own architectural practice, he's Partner in di5 Architects and Engineers and BIM-POINT. He is a Member of EU BIM Task Group.



Vadim Ismagilov (Subject Matter Expert – UK)

Vadim is a Manager within Capital Project Services PwC team based in London. He is a Chartered Civil Engineer, a Professional Project Manager with experience in design, construction and delivery of large capital projects and programmes. Through the project with the UK government on BIM L2 benefits Vadim gained an expertise in the field of BIM use and implementation in public sector (BIM Level 2 in UK). He has a knowledge of BIM industry standards (UK and international) and developed BIM benefits measurement methodology for the UK government client.



Andrew Walker (Quality Assurance Expert)

Andrew is a Senior Manager in PwC's London based Capital Project Services practice and leads the team's focus on the Digital Built Environment, including Building Information Modelling (BIM) and its integration with wider business processes. Andrew has advised both UK and global clients on BIM, including the quantification of the benefits of BIM, review and development of a business case for investment in BIM and advising clients on their strategy, procurement and implementation of BIM (clients: UK government, Water utility client, General Contractors).

3

Workplan
and timeline

Deliverables



Report with recommendations on the BIM templates



BIM Management Standard Document Templates



Roadmap for implementation of BIM methodology in Poland



Technical report on necessary IT system for BIM



Legal document templates for procurement of the IT system in public tender



Final Report and presentation



3 meetings with the stakeholders, online survey and a seminar



Workshop with SMEs representing EU countries (UK, Czech Republic)

Stakeholders consultation (1/2)



BIM Management Standard

It is necessary to understand the differences between the stakeholder groups to ensure the dialogue conducted with them during the meetings is adequate to the stakeholders' profile. Such approach will allow us to obtain valuable feedback from the market about the documents templates. The BIM templates will be prepared for the affordable housing type of buildings but will be adaptable to any other type of buildings

Meeting No. 1 – Investors/public entities / facility managers

Meeting No. 2 – Designers

Meeting No. 3 – General contractors

Stakeholder consultation survey and seminar



Roadmap for implementation of BIM in construction sector

Representatives of the EU Member States: Great Britain and Czech Republic will present the key assumptions of the road map and other strategic documents used in their countries.

Supported by case studies showcasing the lessons learned from the implementation of BIM methodology.

Workshop with the stakeholders who deal with strategic decisions concerning BIM mandate in Poland

Stakeholders consultation (2/2)



Investors/public entities

- Polish Development Fund – Real Estate [PFR Nieruchomości]
- Polish Real Estate Holding [Polski Holding Nieruchomości]
- Polish Association of Developers [Polski Związek Firm Deweloperskich]
- Public Procurement Office [Urząd Zamówień Publicznych]
- Representatives of the largest cities in Poland - Warsaw, Cracow, Poznań etc.
- Other as agreed with the Beneficiary



Designers

- Association of Polish Architects [SARP – Stowarzyszenie Architektów Polskich]
- Chamber of Architects of the Republic of Poland [IARP – Izba Architektów Rzeczpospolitej Polskiej]
- Chamber of Construction Design [IPB – Izba Projektowania Budowlanego]
- Polish Chamber of Civil Engineers [PIIB – Polska Izba Inżynierów Budownictwa]
- Polish Association of Construction Engineers and Technicians [PZiTB – Polski Związek Inżynierów i Techników Budownictwa]
- Other as agreed with the Beneficiary



General contractors

- Polish Association of Construction Industry Employers [Polski Związek Pracodawców Budownictwa]
- National Association of Road and Construction Companies [Krajowe Stowarzyszenie Firm Drogowo – Budowlanych]
- Sectoral clusters e.g. Polish Construction Cluster
- Other as agreed with the Beneficiary



Facility managers

The group will be invited to Investors/public entities workshops.
The list of facility managers will be discussed with the Beneficiary

In the first meetings with the stakeholders in January 2020 we will present the history of BIM in Poland, examples of tender procedures with requirements for BIM technology, assessment criteria used as well as the course of technology implementation in the two other EU member states: Great Britain and Czech Republic.

Timeline

Deliverable	Date
Kick-off meeting	13.11.2019
Inception report	04.12.2019
Meetings with stakeholders	29-31.01.2020
Seminar to discuss the on-line survey outcome	04.2020
Workshop with the EU experts	04.2020
BIM Management Standard Document Templates	30.04.2020
Roadmap for implementation of BIM methodology in Poland	29.05.2020
Technical report on necessary IT system for BIM	30.06.2020
Report on preparation of the procurement of the IT system	31.07.2020
Final report and presentation	31.08.2020



Commencement date

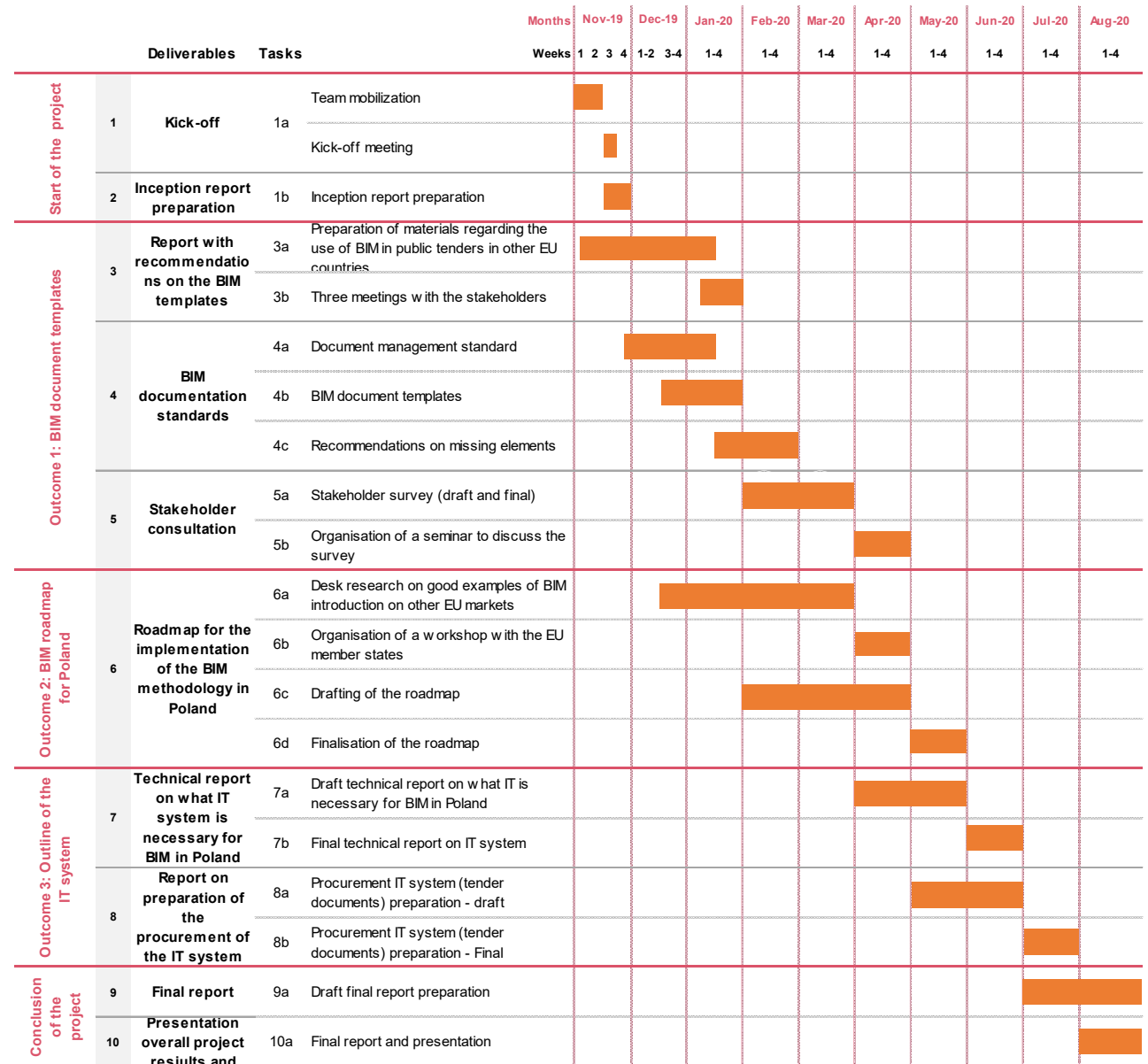
22.10.2019



Duration

10 months, (40 weeks)

Work plan



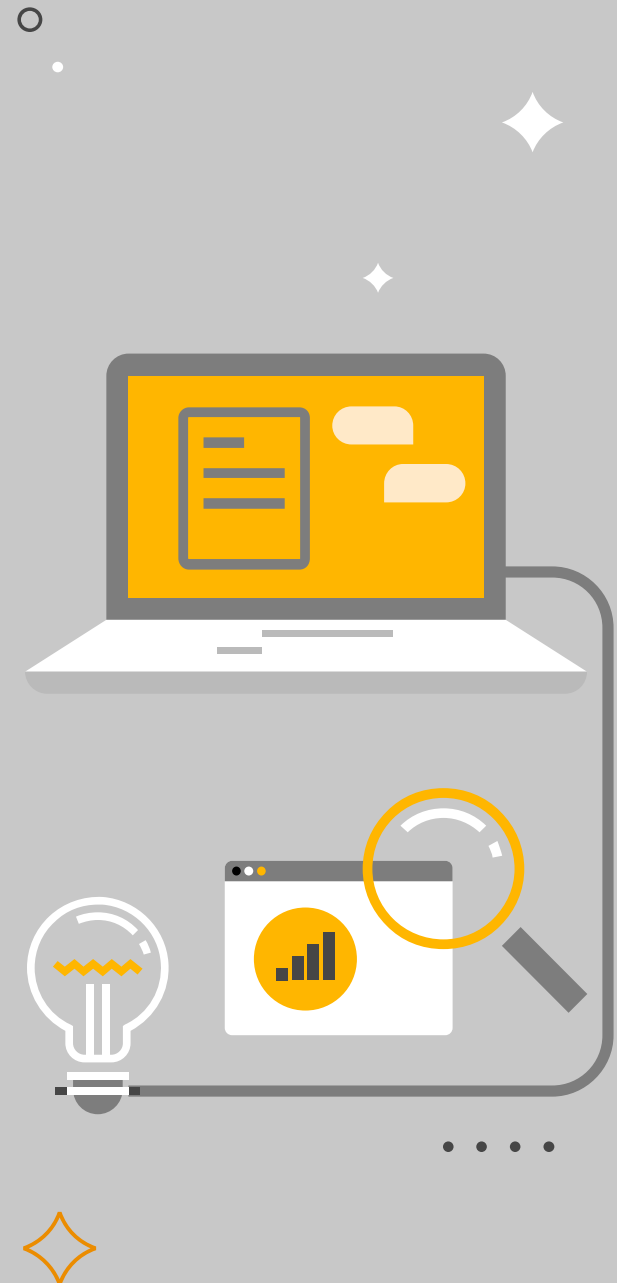
Monitoring and communication lines

PwC Project Team coordination

- PwC Project Team status update – Once a week, face-to-face or conference call
- PwC Framework monitoring – Once a month, conference call

Meetings with SRSS and Beneficiary

- SRSS – PM status update – Twice a month, conference call
- Beneficiary – PM status update – Twice a month, face-to-face or conference call
- Steering Committee (SRSS, the Beneficiary, PwC) – Once a month, progress report /
Every two months – conference call



4

Detailed
methodology



BIM templates

Recommendations on the BIM templates

Review implementation of BIM in public procurement in EU Member countries.
Validate the proposed standards through the stakeholders consultations process.

1

Carry out research on concept, strategy and procedure of technology implementation in the EU Member States: United Kingdom and Czech Republic.

Review the history of BIM in Poland, examples of tender procedures with BIM technology requirements, evaluation of criteria applied.
Assess which documents and processes were the most beneficial from the point of view of both the participants of the project and the project itself on domestic market.

2

Carry out workshops with three groups of stakeholders – investors, consultants and general contractors to obtain valuable feedback from the market regarding BIM use and establish good relationship with the participants.

The agenda of the meeting will include the time for discussion with the participants on their expectations, concerns and possible market limitations.

Present experiences from BIM integration into the public procurement system in EU Member States: United Kingdom and Czech Republic.

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BIM Management Standard Document Templates

BIM Management Standard and Document Templates

Develop the first BIM Management Standard templates for public projects in Poland

1

Documentation management standard

Develop a complete document management system using BIM methodology. We will conduct an in-depth analysis of the rules and standards in this matter, including those in force in the home market. We will review the compliance of selected documents with Polish law, including public procurement and construction law, considering provisions in the vacatio legis period (e.g. the new Public Procurement Law, of which the expected effective date is 1 January 2021) and draft regulations. We'll check against the relevance to Polish market requirements to ensure the documents correspond to the realities of the Polish construction market.

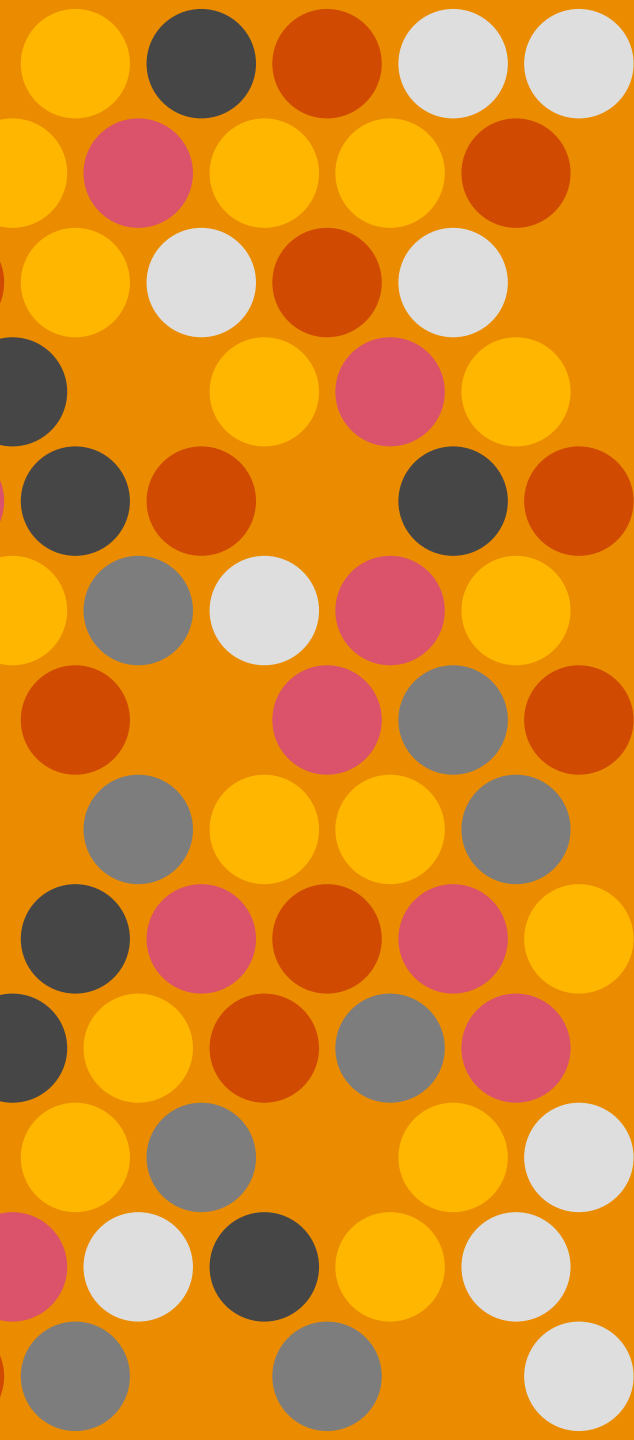
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Stakeholder consultation survey and seminar

Consultations with key stakeholder groups (investors and general contractors) will be carried out by means of an online survey.

Following the survey we will carry out a workshop to obtain market feedback on the document templates and their usefulness at the stage of implementation of subsequent stages of investment. We'll aim to understand the market potential and the current level of companies' preparation for the implementation of projects with the requirement of BIM.

Invite the most active participants of the survey, whose comments are of a key importance for the final version of the documents.

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Roadmap for implementation of BIM methodology in Poland

Roadmap for implementation of BIM methodology in Poland

The roadmap will determine the the likely time perspective for introduction of BIM in Poland

1

Desk research on good examples of BIM introduction in EU Member States. Particularly in MS which also produced comparable strategic policy documents and roadmaps: United Kingdom, Czech Republic.

2

Workshop with these countries representatives to present the implementation strategy of the BIM methodology in each of these countries.

The BIM experts will present the key assumptions of the road map or other strategic documents used in their countries. Case studies will be presented showcasing the challenges and benefits during the implementation of the BIM methodology.

3

Roadmap will present the current state of application of the BIM methodology in public projects in Poland.

Focus on the objectives to be achieved in the construction industry for the implementation of BIM.

Develop a work schedule detailing the milestones necessary to achieve the objective.

Identify the minimum resources required in following groups: people, finances, technology, procedures, legislation.

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Technical report on IT system

Technical report on necessary IT system for BIM

The report will consist of technical recommendations for the required IT system for BIM enabling the digitalisation of public procurement in construction

Based on:

- Good practice and lessons learned from the implementation of IT systems in EU Member States
- Analysis of ICT systems in domestic market
- Conclusions from previous consultations with stakeholders and the Beneficiary

Focus on:

- Analysis of the BIM penetration in the Polish construction industry, in particular in the area of residential buildings
- Simulate a future use of an efficient system supporting BIM processes
- Indicative budget for that system to put in place
- Common digital platform
- Steps necessary to achieve the objective of implementing the BIM technology
- Resources needed to implement the IT system (time, finance, capacity)

During the course of this assignment we will make available a digital platform for demonstration purposes and document management.

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Tender documentation for procurement of IT system

Tender documentation for procurement of the IT system

The documentation will allow the Beneficiary to procure the IT system for BIM in the public procurement process

We will prepare tender documentation for public procurement contracts for the Beneficiary's use in the tender for the procurement of IT system underpinning BIM.

The following documents will be prepared:

- Invitation to submit initial offers and Invitation to submit offers - if the public procurement procedure is conducted in the form of negotiations with an announcement
- Description of the contracting authority's needs and requirements and Invitation to dialogue - if the public procurement procedure is conducted in the competitive dialogue mode
- Specification of the Essential Terms and Conditions of Purchase
- Description of the subject of the contract
- Instructions for Contractors setting out the formal requirements which should be fulfilled by the applications for participation in the procedure and tenders submitted by the Contractors
- Terms of Reference (draft of contract)
- Template of Offer Form
- Template of Declaration of fulfilment of conditions for participation in the proceedings and lack of conditions for exclusion;
- Template of Declaration on the use of resources of another entity
- Template of Obligation of another third party to donate sufficient resources to the contractor for the purposes of Article 22a of the Polish Procurement Law.

The documents will comply with the new Public Procurement Law that will enter into force on 1 January 2021.

5

Risks and
mitigation

Risks and mitigation

Risk	Probability-Impact	Mitigation measure
Delay in providing the documents, data and information necessary for the implementation of the Contract	Low / High	<ul style="list-style-type: none"> • Agree a schedule of the issue of documentation at the inception of the project • Agree milestones activities • Early warnings and continuous update on progress of data acquisition
Key Beneficiary representatives not available to carry out an audit of existing IT system	Low / High	<ul style="list-style-type: none"> • Agree availability of the key personnel • Request for someone else in the same organisation to provide support • Communicate project aim via lines of communication
Insufficient commitment or capacities of stakeholders for Project support	Medium / High	<ul style="list-style-type: none"> • Communicate the aim of the project and role of stakeholders involvement • Stakeholders are contacted and invited to the meetings as early as possible. • Select the stakeholders based on their level of use and understanding of BIM and manage their expectations
Complexity of the seminar and workshops	Low / Medium	<ul style="list-style-type: none"> • Participants will be provided with relevant material well in advance
Change of Beneficiary project team responsible for the project	Low / High	<ul style="list-style-type: none"> • Establish a decision-making team of several members on Beneficiary side in order to ensure project continuity
Divergence of opinions between the parties regarding the BIM implementation concept	Medium / Medium	<ul style="list-style-type: none"> • Establish the principles of cooperation i.e. Being responsible for the project delivery and its final substantive value, the Project Team is open to consider the substantive comments regarding the BIM implementation concept
Insufficient interministerial cooperation due to different visions of BIM implementation.	Medium / High	<ul style="list-style-type: none"> • Communication addressed to the internal stakeholders (eg. other Ministries) and public sector representatives regarding the commencement and objectives of the project, involve them as early as possible in the consultation process and keep them up to date with the project progress.

6

Other key
items

Key success
factors

Other key items



The process of consultation of the BIM templates will be open and the stakeholders won't be bound with the confidentiality agreement. Draft BIM documents will be published by the Beneficiary to keep the industry up to date with the progress of the project.



We will provide analysis of BIM implementation in two (2) EU Member states (UK and Czech Republic) as well as the tender procedures with BIM requirements implemented on the Polish market so far.



Ministry will aim support the Contractor in collecting data via contacts with the ministries and government agencies of other EU member states (through EU BIM Task Group).



The list of stakeholders provided by the Beneficiary will be reviewed by the Contractor and additional members proposed if required.



The pilot project will be related to the public projects of social / affordable housing. The Ministry will confirm which housing scheme will be subject of the pilot project and the lessons learned from the ongoing scheme „Apartment Plus”.



The Ministry will lead the project communications through the Ministry web site. Any press release is to be approved by the SRSS prior to publication.

Key success factors

Key success factors for implementation of BIM technology in Poland:



Capacity building
of administrative and
technical staff
(not in this study)



Define guidelines for
implementation of pilot
project (not in this study)



Cooperation between
the public stakeholders

7

Next steps

What's next

- Communication regarding the launch of the project – Ministry website (November)
- Identify the stakeholders interested in the consultation process – Beneficiary (November / December) in cooperation with the Contractor
- Meet with Department of Housing in regard of experience on current social housing programme (Apartment +) – Beneficiary (end-November)
- Desk research on BIM rules and standards in Poland other EU Member states (Great Britain, Czech Republic) – Contractor (mid-January)
- Stakeholders workshops – Presentation by the Contractor (January 29,30 and 31)
- On-line survey – Contractor (mid-January), for review by SRSS and Beneficiary prior to publication on Ministry website (end-January)

Thank you



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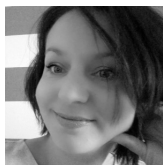


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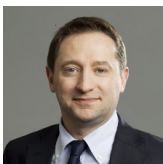


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