



BIM Workshop



FIG WW Hanoi, 21st April 2019

BIM in the Czech Republic

Robert Šinkner



Odborná rada pro BIM
Czech BIM Council



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BIM in the Czech Republic



Robert Šinkner

Date of birth: 09.10. 1964

Nationality: Czech Republic (EUROPE)

University: Czech Technical University in Prague, Faculty of Construction, Depart. G + K (Geodesy and Cartography)... Ing. + Sheffield Hallam University.... MBA

Professionally:

- TKP geo Ltd. – private company, Surveying, GIS and BIM, Owner and Managing Director,
- Chartered Surveyor for geodetical works in Construction, Cadastre, Land administration, GIS and BIM

Start with FIG from 2006, Munich, in Commission 10 as a Czech National Delegate,

- and then Participation every year until today (Congresses, Working Weeks, Regional Conferences)

Member:

- CUSC – Member of Board, Czech Union of Surveyors and Cartographers, Czech Republic
- Member of FIG, Past Chair of Com 10, 2011-2014

Teacher: VŠTE – University for Technical and Economic Studies in Ceske Budejovice – Faculty of Construction

What is BIM? How old is BIM?

This is an ancient floor plan, made in Sumeria in the Ur III period (circa 2100-2000 BC) – this plan was made out of clay (a common writing material), inscribed with a wedge shaped tool

- This documentation is 2D or 3D ... ?
- It is in a good complete condition even after 4 thousands of its existence
- It is easy to archive
- It is difficult (heavy): to share, to copy
- It can even to kill you ... 😊
(and paper or digital documentation can kill you as well, if is too difficult...)
- It has no attributes, no non-graphic information: about material, ...
- It bears no inscription to identify the owner of the building or its function...
But... this plan would have been useful for calculating the quantity of bricks needed to complete the construction...





BIM in the Czech Republic



Czech Republic, 10 mil. of inhabitants, 78 000 km², developed country

In the middle of Europe – we can follow the activities of our neighbours...

A lot of influences (for BIM as well):

British Commonwealth, Hong Kong,...

Southern countries: Sweden, Finland, Norway, ...

Germany, Russia;

Africa, Asia, North and South America, Australia...



Where do we are with BIM ? Are we too late or in middle of this activity or the last one among other countries?



BIM in the Czech Republic



Czech Republic

- 2002 – first common use of 3 letters acronym – BIM
- 2009 – Regional Conference in Hanoi – R. Š. Chair Elect Comm. 10

„Good“ reason for BIM in the Czech Republic:

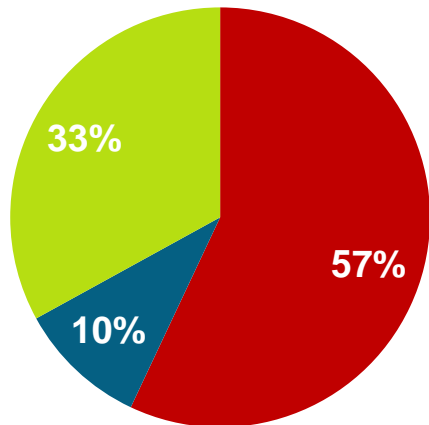
- 2008 – Economic Crisis
- Czech construction business: – 35%
- Employees in construction business: – 80.000



BIM in the Czech Republic



construction industry



Inefficiency (red) – all construction activities that consume resources, but do not bring added value (blue)



What kind of savings are possible on the market:

EU market

€ 1.2 trillion/year (10¹²)

1% : 12 billion €

10% of 120 billion €

CZ market

450 bil. CZK/year

1% : 4,5 billion CZK

10% of 45 billion CZK



BIM in the Czech Republic



Two Ways of Implementation of BIM

1. Privat: Architects, Designers, Construction Companies, Academics, ... „volunteers“ in the best sense of this word

Czech BIM Council – officially started in 2011 (I became a Chair of FIG Commission 10 😊), first conference was 18.05.2011 – **BIM DAY**, still works, BIMDAY Nr. 9 in 2019 (08.10.)

5 principles:

- Popularisation of BIM: explanation, conferences, publishing, ...
- Introduction and Implementation: law, standards, methodology
- Platform for meeting of experts from different professions – CZBIM as a „bridge“
- Education – secondary schools, high schools, Universities
- Working groups – WG #01 – WG #05. BIM a GIS



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Czech BIM Council – www.czbim.org

Members:



- Membership base -> from all construction segments
- We are a professional base bringing together companies and institutions from the entire construction sector
- Promoting the principles and benefits of BIM
- BIM implementation into construction business
- Communication with the state administration



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Czech BIM Council



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Czech BIM Council

Achievements:

- BIM is known acronym
- Cooperation with the state administration
- Creating and supporting expert groups – standards
- BIM government mandate



BIM in the Czech Republic



Czech BIM Council – achievements

- CZ BIM published SNIM (Standard of Nongraphic Model Data)
- Creation of parameters based on national requirements
- Use of standard in different software
- Mapping to IFC
- Workshops „How to use standards“



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Czech BIM Council

Seznam Kategorie Podkategorie Property sety Parametry Datové typy Log out

Šablona pro seznam Všechny kategorie

Přidat kategorie do skupin

Název	Popis	Příklad	Je v IFC	Propertyset	IFC název	Datový typ	Jednotka	LOD
Kód budovy	Jednoznačné kódové označení budovy, ve které se daný prvek nachází	501	Není v IFC	Paet_floorCommon	--	string	TEXT	100 200 300 350 400 500 <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Kód prvku	Jednoznačné kódové označení typu prvku. Odpovídá značení uvedeném v syntaxi značení jednotlivých prvků.	SH.103	Není v IFC	Vyberte propertyset	--	string	TEXT	100 200 300 350 400 500 <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Délka	Číselná hodnota délky udávaná v mm	550	Je v IFC	Vyberte propertyset	Length	number	mm	100 200 300 350 400 500 <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Technologie provedení	Například CFA, Franki, beraněné, stálé, dočasné, záporové atd.	Beraněné	Není v IFC	Vyberte propertyset	--	string	TEXT	100 200 300 350 400 500 <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>

Podkladní beton



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Czech BIM Council – achievements



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2016 – Public Procurement

Ročník 2016



SBÍRKA ZÁKONŮ ČESKÁ REPUBLIKA

Částka 51

Rozeslána dne 29. dubna 2016

Cena Kč 217,-

OBSAH:

134. Zákon o zadávání veřejných zakázek

135. Zákon, kterým se mění některé zákony v souvislosti s přijetím zákona o zadávání veřejných zakázek

- Law 135/2016 Sb.
- BIM is allowed for public procurement
- Investors may request experience with BIM as a benchmark
- A number of major projects were commissioned in BIM
 - Reconstruction of the State Opera
 - New building of the National Audit Office
 - Biotechnology Centre of Charles University

.....



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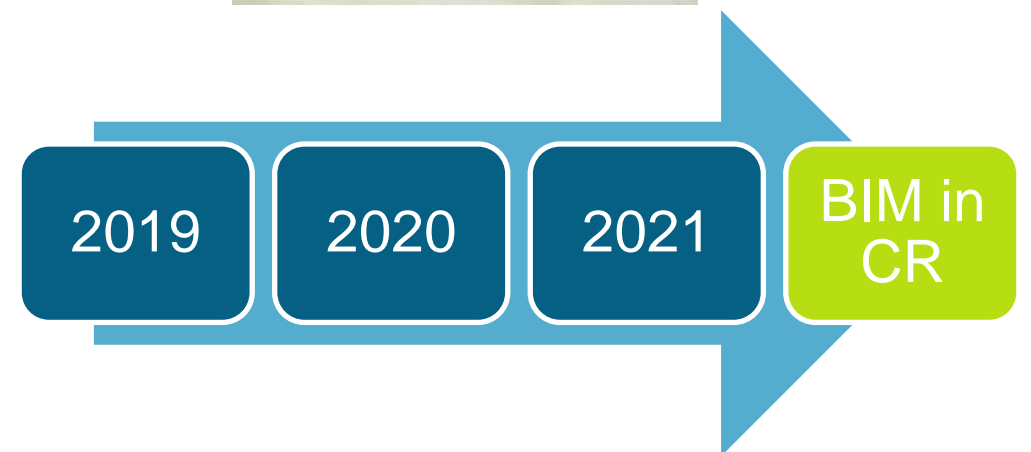


Czech BIM Council – achievements

- Ministry of Industry and Trade is responsible for BIM
- Schedule of standardization
- BIM required from 2022 for projects over 4 mio €



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Two Ways of Implementation of BIM... now is time for Government

2. Public: Government, Ministries, Local Government, Departments for Construction, ... „paid professionals“ with the clear task

Conception of Implementation of BIM methodology in the Czech Republic

Directive of the Government of the Czech Republic Nr. 958, about the Importance of BIM (Building Information Modelling) for Construction in CR and suggestion of the next method of its implementation, from 02. 11. 2016.

Ministry of Industry and Trade (MPO, www.mpo.cz) – was mandated to prepare this Conception in cooperation with:

- Ministry of Transport (MD, www.mdcr.cz), State Fund of the Transport Infrastructure (SFDI)
- experts from Czech BIM Council. (www.CzBIM.org).
- Interdepartmental Expert Group for BIM (MES BIM), organised by MPO.



BIM in the Czech Republic



Two Ways of Implementation of BIM – 2. Public:

Conception of Implementation of BIM methodology in the Czech Republic

Ministry of Industry and Trade (MPO, www.mpo.cz)

Very important cooperation, mainly:

- Cooperation with Ministry of Transport (MD, www.mdcr.cz),

**BIM standards not only for Construction of Areal Buildings
but for Line Buildings as well (roads, railways, utilities, pipelines, etc.**

- Cooperation with Ministry of Education, Youth and Sports (MD, www.msmt.cz)

Preparation of student programmes for Secondary schools and for Universities

- Cooperation with Ministry of Regional Development (MMR, www.mmr.cz)

Preparation of Construction Law and Standards, Digitalisation of Construction Industry



BIM in the Czech Republic



Conception od Implementation of BIM methodology in the Czech Republic

Ministry of Industry and Trade (MPO, www.mpo.cz)

01.01.2017 was established the **Czech Agency for Standardisation ... ČAS**



and „ČAS“ means „TIME“ in the Czech Language ... is it in the sense

„Time is running“ ??? or ??? We have time enough

(as we normally know about the work of the governmental penpushers 😊)

Two main tasks for CAS:

- **Technical normalisation, standardisation and**
- **Conception of BIM**



BIM in the Czech Republic



Czech Agency for Standardisation ... ČAS



Vision:

To reach the more effective Construction Industry through the Standardisation and Methodical support in Digitalisation.

Mission:

Through the quality standards, education and interprofessional communication accelerate innovative development of the BIM methodology and significantly contribute more effective realisation of construction projects with the help of improvement of cooperation, sharing the information a cultivation of relationships.



BIM in the Czech Republic



Czech Agency for Standardisation ČAS

Selection of tasks

1/2017 Standardization Agency -> BIM Section

2017-20 Selection and realization of pilot project

2018 IFC as a supported format

Standard of LOI a LOD for each phase of documentation

2019 Architecture of Data Standard

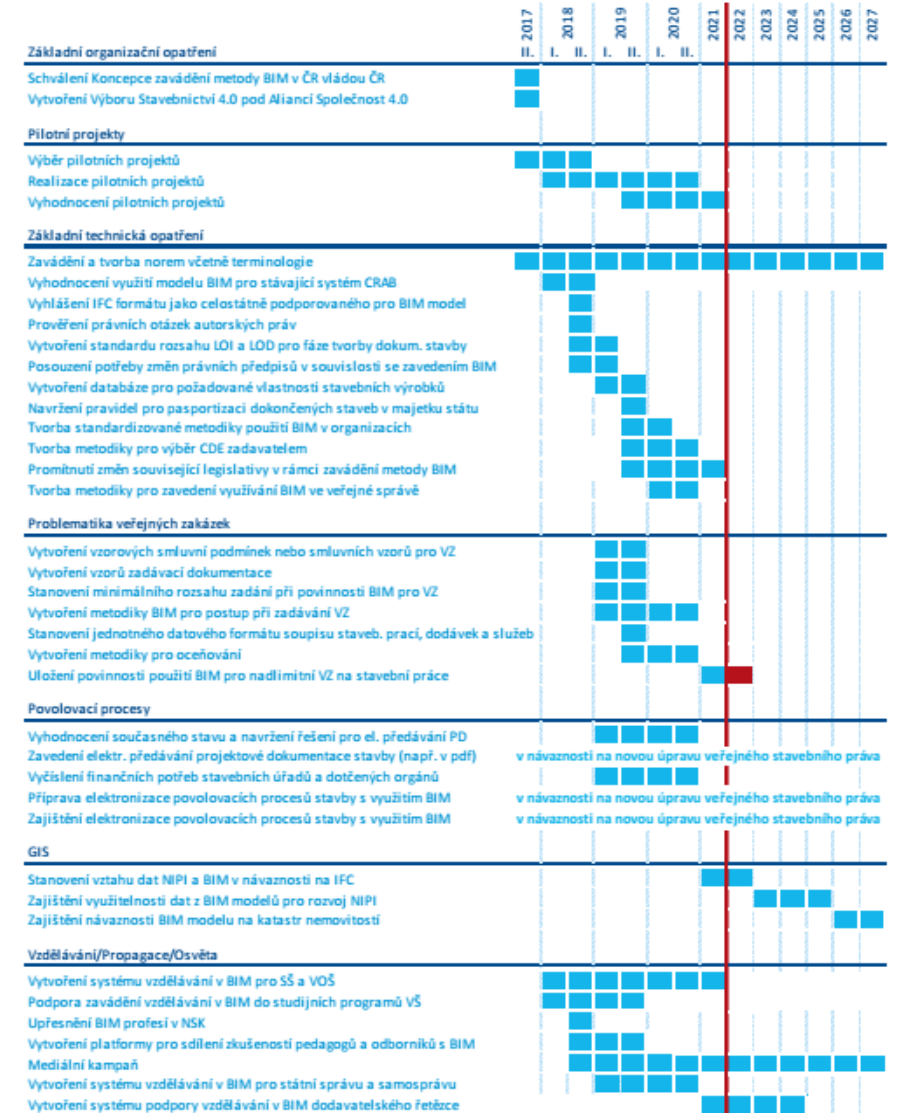
Sample contracts for BIM

Methodology for cost estimation

2021 Obligation to use BIM for Constructions over € 4.8 mio

> 2021 Linking BIM to Land Registry and GIS

6.1 Harmonogram doporučených opatření



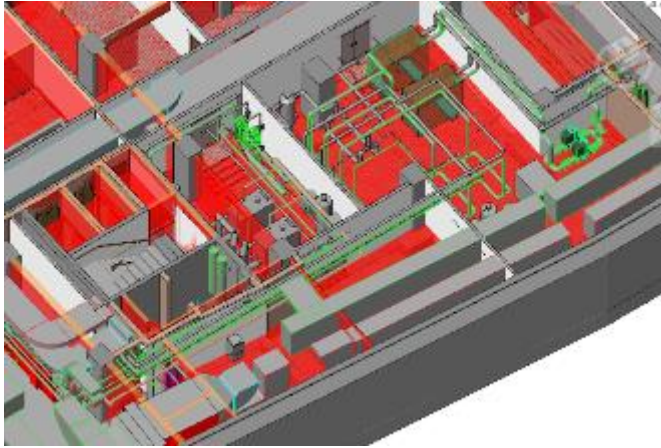
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ČESKÁ
AGENTURA PRO
STANDARDIZACI



BIM in the Czech Republic



Education

- Define goals for education from business point of view
- Personal certification

What is BIM project

- Methodology how to compare a quality of BIM project
- Increase quality on market

Information centrum for investors

- Hand book
- Information service – list of BIM ready companies

Conferences and workshops

- Conference for investors
- Workshops „How to use standards“
- Regular meetings of members – BIM market



BIM in the Czech Republic



- GDP/c raised 62% since 1990
- 3,4% grow in last years
- 7,8% GDP is digital economy (6,9% is in EU5)
- Last place in Czech digital economy has state



Where is the problem?

- Build residential project in Prague takes 9 years
- Obtain building permit takes 222 days, needs 21 different acts (1103 days avg.)



BIM in the Czech Republic



Two Ways of Implementation of BIM – 2. Public:

Cooperation with Ministry of Regional Development (MMR, www.mmr.cz)

Preparation of Construction Law and Standards, Digitalisation of Construction Industry

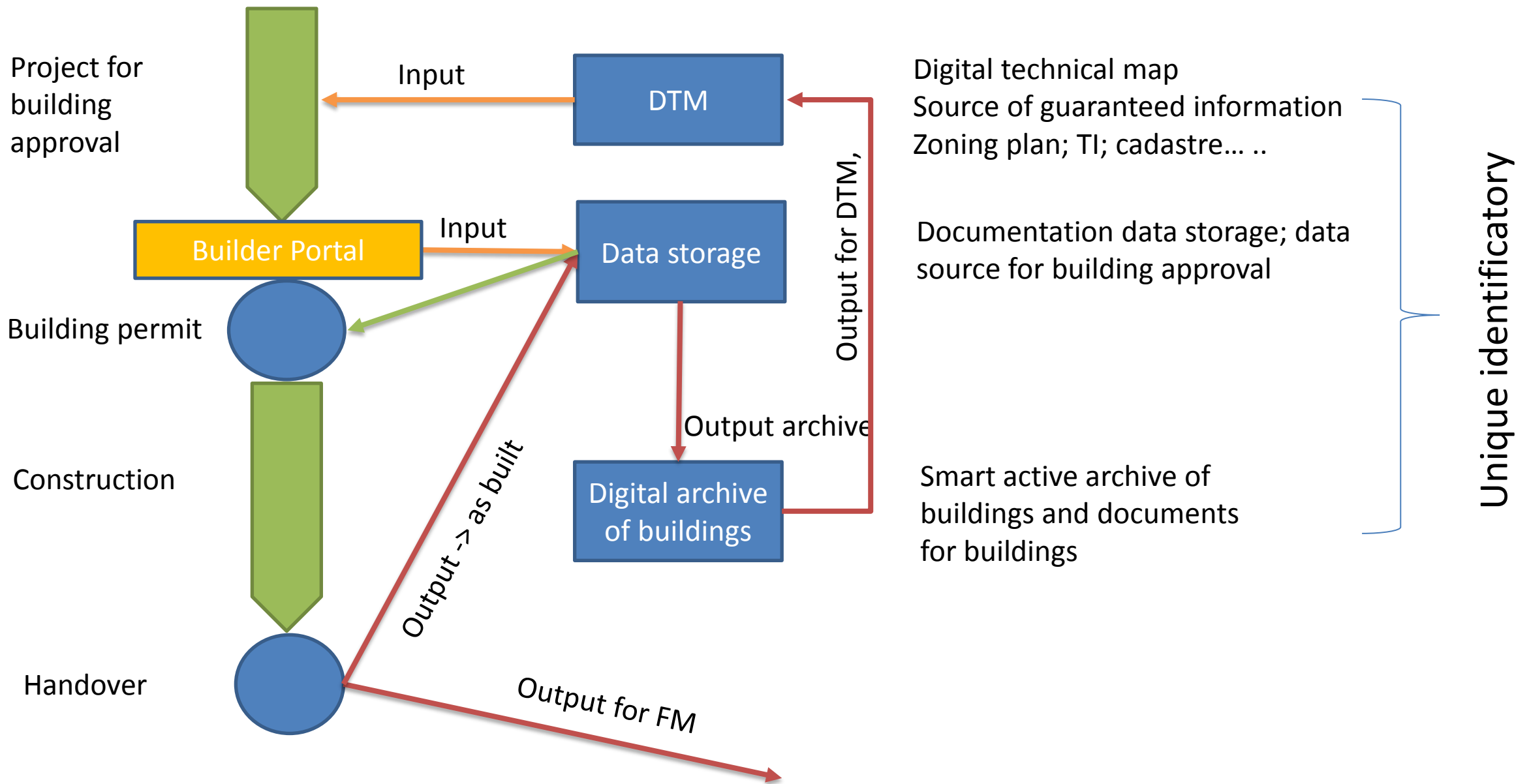


1 step

- Digital submission (pdf, ifc)
- With small changes in construction law
- < 2020

2 step

- Complete change of Construction law
- Fully digital building permit
- < 2025



Digitalization – Building approval



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How to „sell“ BIM to client/owner

Who is BIM for?

- Architect
- Cost Estimator
- Contractor
- Producer
- State, Developer



BIM in the Czech Republic



BIM = efficient investment throughout the
construction lifecycle

From history: Drawings – CAD – GIS... 5Ws of GIS

BIM = (similar to GIS) = 5Ws



BIM in the Czech Republic



BIM = 5Ws

HW = HardWare

SW = SoftWare

DW = DateWare

MW = MarketingWare

PW = PeopleWare



BIM in the Czech Republic



HW = HardWare

PC, NB, mobile mapping, UAV, scanner, big data storage

SW = SoftWare

... Czech Republic: REVIT, ArchiCAD, MicroStation...



BIM in the Czech Republic



DW = DataWare

Chance for the surveyors

To gather data – Total Station, as a 3D

To deliver the data – not only raw data, clouds of points, 3D models, Twin Cities, combination with IoT

Process – Construction documentation from cloud to IFC model – interprofessional cooperation

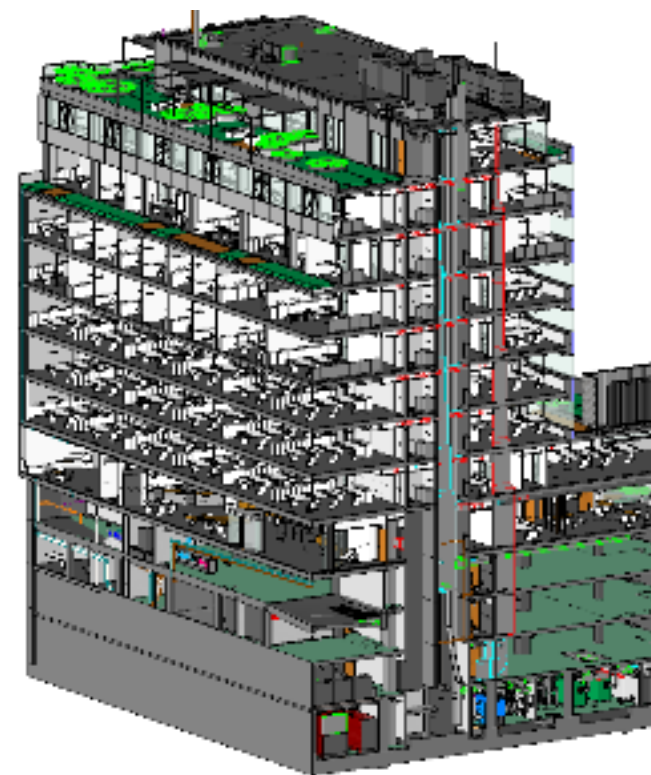


BIM in the Czech Republic



3D model of Prague (capital of CR)

- Data from BIM can be used for better planing





BIM in the Czech Republic



MW = MarketingWare

- Promotion
- Explanation
- Sharing Knowledge
- What to do
- Why to do
- How to do





BIM in the Czech Republic



PW = PeopleWare ... the most important part

- Knowledge
- Cooperation
- Sharing Information
- Partnership
- Interprofessional overview (to know what the others do)
- Ability to learn new methods and approaches



BIM in the Czech Republic



PW = PeopleWare ... the most important part

Internal and
External Team



Client

Contractor



Public Authorities



BIM in the Czech Republic



BIM =
Win to Win



You Win if
Everebody
Wins



BIM Workshop – 21.04.19 – Hanoi



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😊 Thank you for your attention 😊

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