



# European Construction Sector Observatory

Policy measure fact sheet

**France**

Digital Transition Plan for Buildings (PTNB)

Thematic Objectives 1 & 2

January 2018



## In a nutshell

<b>Implementing body:</b>	Technical Secretariat for the Digital Transition Plan for Buildings
<b>Key features &amp; objectives:</b>	Action plan to stimulate and support the large-scale uptake of digital solutions in the construction sector by developing and providing dedicated tools and guidance, as well as awareness-raising initiatives.
<b>Implementation date:</b>	Dec 2014 – Dec 2017
<b>Targeted beneficiaries:</b>	All public and private organisations of the construction sector
<b>Targeted sub-sectors:</b>	SMEs and micro-enterprises, project owners, architects, engineering companies, construction companies
<b>Budget (EUR):</b>	20 million

The report identified the need to support the large-scale uptake of 'Building Information Modelling' (BIM) tools. BIM can be defined as an intelligent 3D model-based process that enables architects, engineers and construction professionals to plan, design, construct and manage buildings and building construction in a manner that is more collaborative, efficient and cost-effective<sup>4</sup>.

Based on the report's findings, the Minister for Housing announced the creation of the Digital Transition Plan for Buildings (Plan Transition Numérique dans le Bâtiment - PTNB) in December 2014. The overall objective of the PTNB initiative was to stimulate, support and speed up the uptake of digital technologies by all stakeholders in the construction industry. The action plan was implemented over a three-year period (2014-2017) and the French government provided EUR 20 million to fund its implementation. One of the key features of the initiative was the large involvement of all key industry stakeholders in its design and implementation.

The launch of the PTNB led to the implementation of several dedicated actions such as the development of a collaborative online platform, the benchmarking of available training courses and existing digital tools, as well as calls for pilot projects to explore the use/application of BIM. Overall, the implementation of the Plan proved to be highly effective in raising awareness on digital solutions and resulted in significant achievements. In particular, it has significantly strengthened collaboration across the ecosystem – a result that stakeholders consider to be a key building block that is needed to underpin the successful digital transformation of the building industry.

On 24<sup>th</sup> March 2014, the French Minister for Housing<sup>1</sup> announced the launch of a task force to explore ways to encourage the uptake of digital tools in the French construction industry. Submitted on 2<sup>nd</sup> December 2014, the task force's final report demonstrated that the French construction sector was making insufficient use of digital solutions and concluded that it was essential to launch a new national initiative to stimulate and support the digital transformation of the construction industry<sup>2</sup>.

The report found a large discrepancy between the size of companies in the construction industry and their uptake and use of digital solutions. Large and medium-sized companies tend to be proficient users of digital solutions. However, the adoption and use of these solutions by smaller companies and micro-enterprises, which make up around 98%<sup>3</sup> of companies in the construction industry, is not commonplace.

The overall objective of the PTNB initiative was to stimulate, support and speed up the uptake of digital technologies by all stakeholders in the construction industry.

## 1

# General description

Launched in December 2014, the Digital Transition Plan for Buildings (PTNB) was implemented through to the end of 2017. It aimed to encourage the large-scale uptake of digital technologies in the construction industry.

The PTNB was designed by the French government in close collaboration with key stakeholders and representatives of professional organisations in the construction sector. A dedicated governance structure was set-up, including: (i) a Chairperson<sup>5</sup> appointed by the Minister for Housing; (ii) a Steering Committee composed of representatives of the government and 50 partner organisations (e.g. industry associations); and (iii) a Technical Secretariat in charge of implementation.

The PTNB was launched with three overarching objectives that served as guidelines to support the implementation of a number of specific actions. Although the PTNB led to the implementation of many more initiatives, some of the main PTNB actions are presented in Table 1 and are further developed below.

To achieve **Objective 1**, three main actions aimed to convince stakeholders of the benefits of using digital solutions in the construction process:

- Between 2016 and 2017, two 'BIM Barometers' were published with a view to monitoring the digital transformation of the construction industry. In addition to measuring the evolution of the use of BIM tools, these surveys aimed to collect stakeholder perceptions on existing digital solutions in order to tailor awareness-raising campaigns. They gathered answers from representatives of key professional groups such as: project managers, construction companies, architects and engineering companies.
- The 'Virtual BIM Workshop' (Atelier BIM Virtuel) was a collaborative workshop gathering several stakeholders aiming to re-design and develop, with the use of BIM, an already existing construction project that was previously achieved without any digital support. The objectives of such action

Table 1: Main PTNB Actions (2014-2017)

Objectives	Main Actions
1. Convince and mobilise construction industry stakeholders to increase the use of digital technologies	<ul style="list-style-type: none"> <li>• Monitor the progress of digitisation in the construction industry – i.e. the publication of regular 'BIM Barometers';</li> <li>• Simulate the use of BIM platforms in a virtual construction project – i.e. a 'Virtual BIM Workshop';</li> <li>• Awards for the best digital transition projects in the construction sector;</li> </ul>
2. Enhance digital skills and stimulate the development of tools tailored to small projects;	<ul style="list-style-type: none"> <li>• Set-up a collaborative platform for construction SMEs and micro-enterprises;</li> <li>• Map existing digital tools and training;</li> </ul>
3. Develop a trusted digital ecosystem	<ul style="list-style-type: none"> <li>• Develop common BIM norms and standards;</li> <li>• Call for pilot construction projects based on the use of BIM.</li> </ul>

Source: PTNB Operational Roadmap (2015)<sup>6</sup>

were mainly two-fold: to raise awareness on how collaborative BIM processes are being carried out; and to showcase the benefits of digital solutions in comparison to more traditional approaches.

- Finally, the PTNB organised the 'Digital Transition for Buildings Awards' (i.e. Trophées de la Transition Numérique dans le Bâtiment) in 2016. This challenge aimed to identify and attract attention to the digital solutions available on the market that were the most innovative and most in-line with the needs of construction SMEs and micro-enterprises.

To achieve **Objective 2**, two key actions aimed to support the upskilling of construction professions and the development of tailored digital tools:

- Firstly, bearing in mind that existing solutions are often too costly and not necessarily adapted to smaller companies, the PTNB developed a collaborative BIM platform tailored to the needs of SMEs and micro-enterprises. The aim was to set-up an online platform accessible to all relevant actors of the building sector, low-cost, user-friendly as well as safe enough to protect users' data that they could use in managing their daily construction projects.

- Secondly, PTNB services carried out a large mapping exercise of digital solutions available on the market and existing training courses. The resulting inventory listed and benchmarked training in France with a view to providing guidance to construction stakeholders and to raising awareness about dedicated training centres<sup>7</sup>. PTNB services also identified and benchmarked commercialised digital tools according to the type of actors involved in the construction process<sup>8</sup>. These inventories were made available online on the PTNB website<sup>9</sup>.

To achieve **Objective 3**, the PTNB implemented two key actions to support and strengthen the development of a digital ecosystem for the construction sector:

- Firstly, the PTNB and participating stakeholders developed a dedicated standardisation strategy to identify ongoing standardisation work and the positions of key French stake-

holders in the field, and to channel their views in international and European standardisation bodies (e.g. CEN, ISO etc.). The PTNB also set-up a coordination committee representing all professional organisations in order to clearly collect the perceptions and needs of construction SMEs and micro-enterprises.

- Secondly, one call for pilot construction projects was launched in 2017 in order to select companies aiming to include BIM tools in their project management and to provide them with dedicated support throughout the construction process. The main objective was to experiment and operationalise the guidance provided by the PTNB on the use of BIM, and to identify unanticipated challenges. Building up on the feedback of companies involved in these pilot projects, PTNB services further tailored their recommendations to the building sector.

## 2

## Achieved or expected results

The implementation of the PTNB proved highly successful as all of the foreseen actions were effectively completed. Some of the key achievements of the PTNB are outlined in Table 2.

Table 2: Key achievements of the PTNB (2014-2017)

Implementation of the PTNB- Main outcomes
<ul style="list-style-type: none"> <li>• Two targeted surveys (i.e. 'Barometers') with more than 1,100 respondents;</li> <li>• Simulation of the design and development of 30 households using BIM based on the collaboration of 73 professional organisations (i.e. Virtual BIM Workshop);</li> <li>• Identification and benchmarking of 440 training courses and 170 digital solutions available on the market;</li> <li>• Ten companies offering digital solutions were awarded for delivering the best digital transition projects in the construction sector in 2016;</li> <li>• Launch of the collaborative Public Platform for Buildings (i.e. Plateforme Publique Bâtiment) in November 2017, after a pilot testing phase that lasted 18 months and involved 250 users.</li> </ul>

Source: PTNB 'Rapport d'étape' (2017)<sup>10</sup>

In addition to the positive results outlined in Table 2, one of the key achievements of the PTNB was to successfully mobilise all relevant stakeholders and professional organisations and to act as a stepping-stone towards greater collaboration in digital transformation. Indeed, on 20th November 2017, the French government and around 50 of the public and private organisations involved in the PTNB signed the Charter 'Objective BIM 2022' (Charte Objectif BIM 2022)<sup>11</sup>.

The stakeholder organisations involved in the PTNB signed the charter and gave a voluntarily commitment to increase the use of BIM solutions in their construction projects and to support the generalised use of BIM across the French construction industry by 2022<sup>12</sup>. The initiative aims to facilitate the large-scale dissemination and use of PTNB's deliverables such as the Public Platform for Buildings (Plateforme Publique Bâtiment).

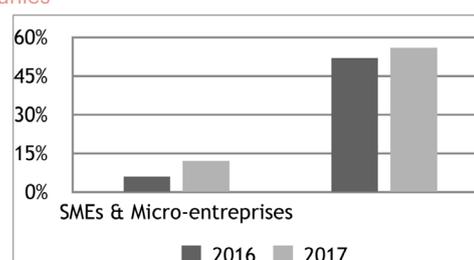
Considering that the PTNB came to an end in December 2017 and that it only lasted three years, it proves too early to fully assess its impact on the digitalisation of the French construction sector. However, as shown in Figure 1 and Table 3, the BIM

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barometers carried by PTNB services in 2016 and 2017 do indicate that the use of digital solutions in the construction sector by all company sizes is on the increase. As Figure 1 shows, SMEs and micro-enterprises recorded the most significant rise in BIM use, with a 100% increase between 2016 (6%) and 2017 (12%).

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Figure 1: Evolutions of the use of BIM tools across construction companies



Source: PTNB Barometers 2016 & 2017<sup>13</sup>

In 2017, 35% of companies surveyed (>1,100 respondents) said that they were using BIM tools in their construction projects, showing an increase of 6 points in only one year.

Similarly, half of the respondents confirmed in 2017 their plan to soon provide their workforce with training on digital solutions. Respondents also demonstrated their positive perception of BIM, as they considered that its main assets lie in facilitating collaboration between stakeholders, in decreasing design errors and in improving the overall quality of construction projects.

Table 3: Survey results on the evolution of the use and perceptions of BIM solutions

Survey questions	2016	2017
<b>Do you use BIM tools in construction projects?</b>		
Yes	27%	35%
<b>Do you plan to train your employees to BIM solutions soon?</b>		
Yes	45%	50%
<b>What are the main advantages of BIM solutions?</b>		
Facilitating collaboration between actors	45%	47%
Avoiding design errors	47%	45%
Improving overall quality	30%	37%
<b>What are the main barriers to the use of BIM tools?</b>		
Lack of in-house skills	45%	47%
Investment cost	47%	45%
Lack of standardisation	30%	37%

Source: PTNB Barometers 2016 & 2017<sup>14</sup>

However, significant efforts still need to be made to achieve a large-scale uptake of digital tools throughout the construction sector.

Indeed, in 2017, 65% of responding companies acknowledged that they were still not using BIM solutions. Also, despite a doubling in the use of BIM by SMEs and micro-enterprises between 2016 and 2017, only 12% of these types of companies used digital platforms, compared to 56% of responding mid-caps.

## 3

## Perspectives and lessons learned

The PTNB was broadly welcomed by all parties. The collaborative approach between the government and stakeholder representatives pursued to design and implement the Plan is overall considered as one of its greatest strengths. However, such efforts need to be sustained to ensure the large-scale digitisation of the French construction sector, in particular as convincing building companies of the benefits of BIM tools can only be achieved in the medium or long-run.

From an **implementation perspective**, the Secretariat of the PTNB is very happy with the progress achieved throughout the implementation of the Plan (2014-2017).

Three main reasons are put forward to explain the programme's positive results.

The first reason is that the PTNB services managed to ensure the mobilisation of all relevant stakeholders from the design of the PTNB through to its implementation. Indeed, the involvement of around 15 key national industry associations on the PTNB's Steering Committee and in its different activities was a key factor that helped to convince the French construction sector to increase the use of BIM solutions. In addition, a lot of effort was made to sustain stakeholder involvement after the end of the PTNB. The signing of the 'Objective BIM 2022' Charter by stakeholders is one example of their continued commitment.

The second reason is that the PTNB was very successful in its efforts to raise awareness of the benefits of digital tools and to disseminate best practices. Indeed, the EU BIM Task Group<sup>15</sup> says that the PTNB was highly effective in raising awareness, in particular through its website: "This website highlights and promotes the actions carried out by the French digital plan. The portal presents interviews with building professionals on their current practices which is a crucial aspect of encouraging good behaviours"<sup>16</sup>. The EU BIM Task Group was set up by the European Commission with a view to encouraging the common use of BIM throughout Europe and in which representatives of the PTNB are involved.

The third and final reason is that the PTNB managed to achieve its initial objectives and to develop collaborative tools, such as the Public Platform for Buildings, that could be easily used by construction companies to manage their projects. According

to the Minister of Territorial Cohesion, "the Public Platform for Buildings, made freely available to companies from the construction sector, will help organisations to familiarise with the use of BIM and will boost the digital ecosystem in the sector"<sup>17</sup>.

However, PTNB services acknowledge that further effort is needed to ensure the large-scale uptake of BIM solutions. The benefits that BIM is expected to deliver, in terms of increased productivity and enhanced building quality, will only be achieved if stakeholder involvement and support is sustained in the mid to long-term. Indeed, the President of the Scientific and Technical Centre for Buildings (Centre Scientifique et Technique du Bâtiment – CSTB), and Chairman of the PTNB (2014-2017), takes the view that "three years (i.e. the PTNB implementation period) are too short. Our actions have launched the movement towards the digitalisation of the construction sector. However, more time will be needed to make the use of BIM a common practice and to modernise the whole ecosystem"<sup>18</sup>.

From an **industry perspective**, there is broad support for the PTNB.

The common consensus is that the Plan has begun to raise awareness and is convincing companies about the benefits of using digital solutions. According to the R&D Director at GA Smart Building, "the PTNB is, in this regard, a success: we have noticed positive effects on micro-enterprises and SMEs, as an increased number of our subcontractors today know the BIM and its collaborative processes"<sup>19</sup>.

In addition, several industry associations involved on the PTNB Steering Committee, such as the French Building Federation (Fédération Française du Bâtiment – FFB) or the Confederation of Tradesmen and Small Building Companies (Confédération de l'Artisanat et des Petites Entreprises du Bâtiment – CAPEB), have launched several parallel public campaigns to the PTNB in order to increase knowledge of BIM solutions and to disseminate best practices<sup>20</sup>.

Finally, those companies that have started using BIM tools have already begun to reap the benefits of their use. According to the Manager of the SME LESPIAUCQ & FILS SARL "the BIM enabled us to access larger markets, to optimise the use of materials and resources, and decrease the risks and accidents for our employees"<sup>21</sup>.

However, industry representatives acknowledge that the PTNB is not sufficient on its own and that further effort is needed to continue support for the greater uptake of BIM solutions. In particular, construction companies believe that further support from the government is needed. Table 4 presents the top three recommended priority actions that were identified by respondents from industry to the 2017 PTNB Barometer.

**Table 4: Actions recommended by respondents to PTNB Barometer**

Actions recommended by respondents	% in agreement
Encourage the adoption of standards	54
Support the upskilling of the workforce through dedicated BIM training	48
Provide dedicated financial support	42

Source: PTNB Barometer, March 2017<sup>22</sup>

The construction sector also expects the government to step up its support for BIM by adopting a dedicated regulatory framework, a topic which has not been covered by the PTNB initiative. Industry representatives say that BIM should become mandatory in certain cases. The ICT Director at the Scientific and Technical Centre for Buildings (Centre Scientifique et Technique du Bâtiment – CSTB) says that the PTNB has been a missed opportunity in this regard: “the BIM is now compulsory in the United Kingdom for public procurement, and Germany, Italy and Spain are following the same path. This context should urge us to change our position”<sup>23</sup>.

# Endnotes

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- 3 Ibid
- 4 For instance, the task force's final report consider that the large-scale uptake of BIM by the French building industry could lead to at least a 10% reduction in the overall costs of construction projects.
- 5 Bertrand Delcambre, President of the CSTB (Centre Scientifique et Technique du Bâtiment) acted as Chairman of the PTNB between 2014 and 2017.
- 6 PTNB, Operational Roadmap, June 2015: [http://www.batiment-numerique.fr/uploads/PDF/Feuille%20de%20route%20PTNB\\_EN\\_002%20\(1\).pdf](http://www.batiment-numerique.fr/uploads/PDF/Feuille%20de%20route%20PTNB_EN_002%20(1).pdf)
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- 15 EU BIM Task Group: <http://www.eubim.eu>
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