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Commission



HIGH LEVEL CONSTRUCTION FORUM

Meeting Report

Reporting from the 1st meeting of the Digital
Cluster Group

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Table of contents

- General overview 3**
- The first Digital Cluster Group meeting – A summary 3**
 - Opening of the meeting 3
 - Challenges and topics identified at the HLCF 4
 - Breakout session 1 – Supporting frameworks for digital technologies 5
 - Breakout session 2 – Data governance and digital platforms..... 7
 - Breakout session 3 – Digitalisation of SMEs 11
 - Concluding the first Digital Cluster Group meeting 14
- Annex – List of participating organisations 16**

General overview

On 28 September 2021, the European Commission's Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (DG GROW) organised the first meeting of the High Level Construction Forum (HLCF). The HLCF is an initiative that has evolved from the Construction 2020 Strategy with the purpose to co-create the green, digital and resilient transition pathway for the EU construction industry ecosystem. At this meeting, industry, public authorities, social partners and other relevant stakeholders came together to initiate a dialogue for defining a transition pathway for the construction industry ecosystem.

Following the meeting of the HLCF, separate discussions were organised under the digital (19.10), resilient (20.10) and green (22.10) themes. The meeting of the Digital Cluster Group was attended by 101 stakeholders who exchanged their views on challenges, ambitions and actions in the following three areas:

1. Supporting frameworks for digital technologies;
2. Data governance and digital platforms;
3. Digitalisation of SMEs.

The first Digital Cluster Group meeting – A summary

Opening of the meeting

Ms Fulvia RAFFAELLI, Head of Unit for Construction (DG GROW H.1), opened the first meeting of the Digital Cluster Group. She highlighted **that digitalisation is not the goal but one of the means towards a greener and more resilient construction ecosystem**. Digitalisation can help with urban planning and building management. It can be a bridge connecting the separate parts of the value chain as well as users, and it can help to create trust, transparency and improve decision-making. Digitalisation also helps to overcome challenges posed by the pandemic, for example, through digital building permit systems and other digital tools that can continue throughout a lockdown.

Ms RAFAELLI stressed that, to digitalise further, **it is important for this group to identify the benefits and challenges of digitalisation and turn them into respective actions**. In this regard, she stressed the importance of working together with stakeholders from across the whole value chain.

The digital transformation and changes in business models can also pose a challenge to companies. *Ms Fulvia RAFAELLI* disagreed with the view that the construction sector is not innovative. There are already many initiatives, tools and technologies that have revolutionised the construction process. Although she added that we have to recognise that not all the issues regarding the digital transition are solved yet. Here, *Ms RAFAELLI* also emphasised the importance of collaboration between companies in the sector and public authorities.

She then elaborated on what the European Commission has already done to enhance the digitalisation of the industry further. For example, the efforts in supporting the implementation of building information modelling (BIM) through encouraging BIM requirements in public procurement, supporting its integration into the building permit system, and assistance with developing a methodology to calculate the costs and benefits of implementing digital technologies for SMEs. She also elaborated on possible solutions to further digitalise the sector, like digital logbooks, and other data-sharing platforms. By using data, construction professionals can create better services and products and simultaneously data contributes to achieving European targets.

Ms RAFAELLI ended her opening statement by **stressing that digitalisation is at the core of the transition, but at the same time, it is something that we need to shape to the specificities of the construction ecosystem** to reach our goals. The digital transition is not a political slogan but a deliverable to improve the quality of construction and buildings for the planet and each one of us.

Challenges and topics identified at the HLCF

Mr Souheil SOUBRA, IT Director CSTB and Chair of the EU BIM Task Group, reported on the discussion at the HLCF on the digital transition. He started by stating that the overall challenge identified is to find the economic and business case for a more green, digital and resilient construction ecosystem. In this regard, the **digital transition is an essential enabler of low-carbon solutions and increased productivity** by benefiting and connecting all steps in the building life cycle. Key topics identified were the EU Data Act as a tool to level the playing field, trust, collaboration and interoperability to improve data sharing and public demand through public procurement as a lever for innovation and standardisation, especially through open BIM.

Mr SOUBRA then explained that the discussions at the HLCF can be grouped into four themes.

The first theme is **data governance and platforms**, which means accessibility, transparency, reliability, trust as well as shareable and protected data provided in digital data repositories. The key topics are to make public-sector data available for re-use (through B2G but also G2B) and to facilitate data sharing among businesses (i.e. B2B). Important initiatives under this theme include the proposed **Data Act** as a framework to enable B2G data sharing, the creation of **data spaces** to allow data to be shared in a safe and transparent system, and the **DigiPLACE** project which developed a 'reference architecture framework' to provide guidelines for developing and deploying platforms in construction. Another initiative mentioned was the French-German **GAIA-X initiative**, which is based on the principle of decentralisation. Organisations complying with the GAIA-X standard can contribute to a common, open, transparent and trusted infrastructure.

The second theme is **frameworks supporting digital technologies**. This topic recognises that full-scale digitalisation requires large-scale implementation of various technologies (e.g. BIM, digital twins, IoT, 3D printing, automation, drones, prefabrication, big data analytics, artificial intelligence, etc.). We need to address how public authorities and the private sector can work together on these technologies. Innovation occurs primarily in the industry, but the example of BIM clearly shows that demand is needed to drive large-scale implementation. The question, therefore, is how to engage the private sector in a way that is appropriate regarding public priorities. These technologies can then be addressed regarding the integration possibilities they offer, their innovative character and potential impact, and their level of alignment with EU priorities.

The third theme that came out of the discussions at the HLCF was the **digitalisation of SMEs**. The full-scale digitalisation of the construction sector in Europe is slowly progressing but faces a variety of challenges. Many of which specifically constrain SMEs:

- Lack of investment in digitalisation and R&D;
- Lack of trained employees in digitalisation technologies and data management;
- Lack of awareness and open-mindedness about the importance of digital transition.

SMEs need to be taken on board to fully implement the digital technologies, and they, therefore, need specific technical, financial, skill and training support actions.

The fourth theme is a cross-cutting one, relevant to all other themes: **standardisation and harmonisation across the value chain**. Standards are a key pillar to achieve digital transition as they contribute to a more efficient, more productive, more sustainable and safer built environment. A lot of standards already exist; however, stakeholders might not always be aware of them, fully understand them, or consider them relevant for their work. The key question here is to identify the barriers to adoption and address them one by one.

After this presentation, *Ms Ilektra PAPADAKI, DG GROW H.1* as the Chair of the Digital Cluster Group, introduced the three breakout sessions, which would dive deeper into some of the themes identified during the HLCF.

Breakout session 1 – Supporting frameworks for digital technologies

Mr Jaan SAAR, Estonian Ministry of Economic Affairs and Communications, as the facilitator of session one, opened the session with an impulse statement. He reiterated that digitalisation is not an end in itself but a means to achieve other goals. Digital technologies have been around for a long time and some of them (e.g. BIM, sensors) are more mature than others (e.g. AI, digital twins). Still, some of the more mature technologies have not yet become the norm. So what obstacles hinder their widespread application? *Mr Saar* noted that **while the implementation of technologies is up to the private sector, governments bear the responsibility of creating a supportive regulatory framework**. As mentioned by *Mr SOUBRA*, public procurement is key in providing such a framework, but there are also other interventions. For instance, the Estonian Government digitises all government processes, like digital building permits (in place since 2015) and transitions to BIM-based processes to automate and speed up technical checks and administrative processes. Estonia also launched a digital twin to facilitate data access for the construction sector. Now, Estonia is developing an e-construction platform to link public and private actors in the built environment. *Mr Saar* noted that, while Estonia is small and used to change, it is not an exception in the EU – there are similar developments in many other countries.

The role of electronic public procurement

Ms Isabel MARIA DA ROSA, Electronic Procurement (DG GROW), introduced the activities of the European Commission in the area of public procurement. She mentioned **that the digitalisation of public procurement has increased significantly in the EU in recent years**, which is also due to the EU requirements for electronic procurement. At national level, Member States frequently go beyond these requirements and digitise many more procurement stages. During the COVID-19 pandemic, *Ms MARIA DA ROSA* added that digital public procurement proved helpful in keeping procurement active. However, **some challenges remain, in particular the interoperability of procurement tools**. The high level of digitalisation increases data availability, which is essential for applying digital technologies such as artificial intelligence. The European Commission – in cooperation with Member States – is working on initiatives to improve access to and the use of such data. In particular, she highlighted that DG GROW is working on the **architecture of a federated procurement data space**. It should provide integrated procurement data from TED (EU level) and from Member States, but Member States will continue managing their own data. An additional tool of this data space would be data analytics tools developed for procurement data, which will be provided to the authorized Member States representatives to help them improve their own procurement processes.

The architect's perspective on BIM requirements and digital building permits

Mr Pavel MARTINEK, Architects Council of Europe, provided a perspective from architects on the practice of using BIM, digital building permits and public procurement requirements. While architects are typically SMEs or micro-enterprises, they can be considered relatively highly digitised and among the early adopters of many technologies. The reasons for this are that digital tools are time-saving, practical and support architectural creativity. The majority of architects use some types of 3D modelling, and one third use BIM processes. *Mr MARTINEK* clarified, however, that in public procurement BIM is used in a very different context. **It is questionable whether BIM, in its current state, can fulfil the expectations of improving project understanding and control possibilities, save time and increase transparency** because it depends strongly on the BIM typology, project size and the ability of the procurer to work with BIM effectively. Also, there is no clear definition of when 3D modelling tools are BIM. Moreover, he added that the current software is not at the level of maturity that can partly take over the architect's responsibilities and change how project stages are executed.

Whatever tools an architect uses, any parts of the work are subject to the same validation claims and BIM is also not necessary for every project (e.g. for small projects).

Mr MARTINEK mentioned **several issues that should be improved, with mistake avoidance in models being the main one**: a model needs to be conceptualised from the onset to avoid mistakes and a certain skill level is necessary for working with the software. Libraries are assumed to be a link to manufacturers but vary greatly in their quality and complexity. This may lead to mistakes and the need to remodel. He also added that a **bill of quantities could provide similar benefits as digital building permits**. However, the accuracy cannot be assured when the necessary data cannot be fully extracted from the model, and this would endanger the completion of different project stages. The crucial point is whether the level of detail in 3D models is sufficient and where the translation to 2D documentation should start. Another issue is the transparency of 3D documentation: whereas 2D documentation is accessible more easily, 3D models require special knowledge and training, and there is a certain dependency on those who developed the 3D model.

Digital building permits are currently 2D documentation – drawings printed from the 3D model, often providing more information than needed. But the authorities need to step up their game and start assessing the 3D model directly. In light of these challenges, *Mr MARTINEK* concluded that **BIM should not be mandatory for every project** because it is not effective for certain types of projects and would force everyone to have the same expensive software.

Open discussion

Opening the floor for discussion, *Mr SAAR* mentioned that he is familiar with the problems outlined by *Mr MARTINEK*, but thinks that many of the issues could be solved through practice. He pointed out that the advantages would outweigh the remaining issues. *Mr SAAR* also agrees that BIM should not be obligatory for all public procurement or building permits and that many agreements need to be achieved before using BIM in practice (e.g. on the level of detail, how to standardise it).

Mr Christopher SYKES, Director General Construction Products Europe, commented on the problem with data libraries by pointing out that there is indeed no common understanding of what BIM is. At the same time, there are already attempts by some Member States (e.g. Hungary) to close national procurement to non-nationals through BIM. To reach a common understanding, one should start at the foundation of BIM, which is a digital data-management system. *Mr SYKES* added that for a single market, **such a system needs to be open and accessible for everyone, which requires common data formats and language** to make data transfers work. Here monetisation of data is a central issue. Currently, libraries are using data that should be free; the data coming from the websites of product manufacturers (through the mandatory declaration of performances). Product manufacturers, in fact, pay libraries to store the data, while libraries are now selling access to the data, package it and organise it differently. However, *Mr SYKES* explained that **the intermediaries would be unnecessary if there were standardised data formats** and stakeholders are looking forward to the European Commission's proposals in this regard. *Mr SAAR* agreed with these observations, adding that open standards and open systems would be a solution.

In a short poll, participants were asked to identify **the main obstacles and challenges to the more widespread use of digital technologies**. More than half of the respondents found that the **difficulties in implementation and change management** (seen as costly or time-consuming) is the main challenge. About one third agreed that public processes do not support digital tools (as approvals and permits are managed on paper or non-machine readable digital paper). A small minority agreed that procurement methods do not support or motivate digital delivery (clients want things done the 'usual

way’). However, none of the respondents indicated that a lack of digital skills or that the benefits of digital technologies not being clear are the main challenges.

A few participants indicated that there are other challenges. In the discussion, it was explained by *Mr Christopher SYKES* that digitalisation is one of the ways to fulfil the environmental and climate goals. **The challenge is to understand the legal obligations that the sector has and then to choose the proper instruments to fulfil them.** The instruments may or may not involve digital technologies, but the development of digital technologies is currently not matched by the legal framework. In *Mr SYKES’* view, the construction industry should follow the legal framework and not the enthusiasm of IT experts. In reaction to this, *Mr SAAR* pointed out that there is general consent among the HLCF participants that digitalisation is not the end objective. He also shared the Estonian approach where often **different digital solutions are tried and tested before a legal framework is changed or developed.** The presence or absence of a legal framework can be a serious challenge, but it is impossible to think of and regulate all technical developments in advance. Therefore, a more pragmatic approach is to have a ‘minimum viable product’ – a solution that works in practice and is accepted by the market – and then to discuss the regulation. *Mr SAAR* admitted though that it is also a riskier approach.

Breakout session 2 – Data governance and digital platforms

The breakout session was opened by *Mr Riccardo VIAGGI, Secretary General of the Committee for European Construction Equipment*, who acted as facilitator for the discussion. He welcomed participants and explained that the roadmap is an important stepping stone for the transition towards a green, digital and resilient construction ecosystem. In this first Digital Cluster Group meeting, he added, it is crucial that we have a first **in-depth discussion on challenges, ambitions and actions.** He then gave the floor to *Mr Claudio MIRARCHI, Politecnico di Milano*, and *Mr Nicolas NAVILLE, CSTB*, for a short opening statement outlining the strategic roadmap and reference architecture framework (RAF) created by the DigiPLACE project.¹

DigiPLACE – Its strategic roadmap and reference architecture framework

Mr MIRARCHI explained that the DigiPLACE project started with the idea to understand how we can develop digital platforms in the context of the construction sector, answering questions such as how the construction supply chain can be integrated with such platforms and how all of the diverse stakeholders can benefit from it. With this in mind, the project developed a strategic roadmap following four cornerstones:

1. **Promote & network:** creating a long-lasting stakeholder ecosystem
2. **Develop & deploy:** integrating, stimulating and experimenting through large-scale pilots
3. **Foster & secure:** contributing to a RAF-based digitalisation of European and national regulation
4. **Capitalise & train:** developing expertise and training digital skills

The roadmap was developed to be dynamic and adaptable as it needs to be integrated into the national context. One of the main outcomes of DigiPLACE was to **identify how to develop digital platforms for the construction ecosystem that consider the different levels and interconnections, integrating stakeholders and other platforms** to guarantee we have a coherent view and facilitate accessibility.

¹ For more information, see: <https://digiplaceproject.eu/finalbooklet/>.

Following the presentation of the strategic roadmap, *Mr NAVILLE* introduced the RAF, which is publicly accessible through the DigiPLACE website. Basically, the RAF is an attempt to bring together the various views of stakeholders and **create a common understanding of the requirements for interoperable platforms**. The RAF is structured in two main blocks: 1) the core guidelines that enable interoperability and data sharing; and 2) area-specific guidelines that leverage the interoperability to create benefits. The first block covers aspects such as common language and processes² as well as control over the use of data.³ The latter identified use cases in four separate areas: environmental performance (e.g. BIM-based LCA); large scale data sharing (B2B or B2G platforms); business, market and collaboration (BIM-based collaboration on projects); and public services and initiatives (e.g. digital building permits, digital building logbooks). **The proposed RAF can be applied to each of these use cases to identify what needs to be addressed to develop interoperability.**

The Open Data Directive, the Data Governance Act, and Data Act

After this first intervention, *Mr VIAGGI* gave the floor to *Mr Federico MILANI*, Deputy Head of Unit, DG CNECT G1, who presented the work the European Commission has been doing to promote data sharing.⁴ He explained that an open data environment means having the possibility of sharing data, but also keeping control of data, which is extremely relevant for growth in all ecosystems, including construction. Relevant legislative instruments include:

- **The Open Data Directive:**⁵ The implementing act currently being prepared to update the directive requires the public sector to make available a number of high-value datasets for free and in a machine-readable format.
- **The Data Governance Act:**⁶ The act aims at increasing trust in data sharing by setting up mechanisms to facilitate the reuse of data and clarify roles in the chain of data sharing.
- **The Data Act:**⁷ This ensures fair access to co-generated data between the producer of a device and the user. Currently, the data is often not accessible to the user.

Mr MILANI added that among all of these instruments, there is also the concept of **data spaces**. This is not only a platform but a way to share data through the creation of a market where providers and users can share the data. This is why the European Commission is very interested to hear what the major concerns and constraints on the promotion and creation of such data spaces are in the various industrial ecosystems.

² i.e. through data formats, models and semantics, use of open standards as well as information management and processes and through governance and access to standards and frameworks.

³ i.e. through guidelines on data storage, security and sovereignty as well as on data ownership, data qualification creating trust and data availability & sustainability.

⁴ A European Strategy for data, see: <https://digital-strategy.ec.europa.eu/en/policies/strategy-data>.

⁵ Directive (EU) 2019/1024 on open data and the re-use of public sector information.

⁶ Proposal for a regulation on European data governance (Data Governance Act), COM/2020/767 final.

⁷ For more information, see: https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13045-Data-Act-&-amended-rules-on-the-legal-protection-of-databases_en.

Open discussion

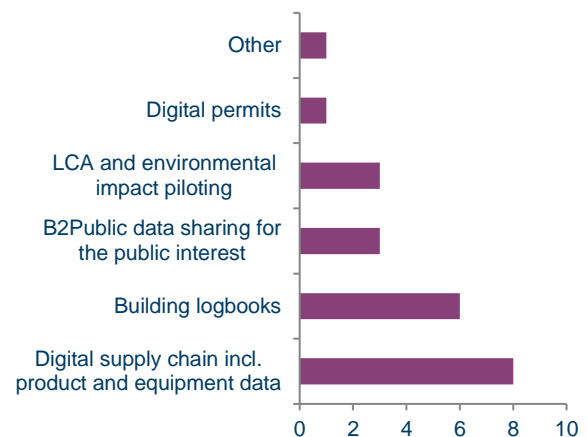
After these initial interventions, *Mr VIAGGI* opened the floor for discussion, starting with a poll on the question ‘*what are the priority use cases to address through digital platforms?*’. Of the 22 participants, the majority responded by identifying either digital supply chain or digital building logbooks as the priority use cases.

During the discussion, *Mr Bernd GRUNER, European Union of Electrical Wholesalers*, remarked that their sector developed a database to classify technical product information, which has been further developed to integrate environmental information.

Similar investments in developing platforms have been done by the heating equipment sector and are also planned by the building materials sector. Regarding this, *Mr GRUNER* voiced his concern on how these existing (sometimes international) platforms based on private business initiatives will be integrated. In response, *Mr MILANI* explained that this is an interesting question that the European Commission receives from many sectors. The idea is to **work together with stakeholders in creating these data spaces, which are themselves not platforms, but an infrastructure where data can be made available, traded, shared and sold**, while simultaneously making sure that data holders or creators retain some control over the data. Therefore, *Mr MILANI* added, the idea is to go through these processes together with stakeholders to identify the requirements for each sector. Existing data markets and companies such as the French DAWEX or the German Ocean Protocol already provide a market and link between data users and providers. Similarly, there is GAIA-X which is also working on the development of a data infrastructure for sharing data.

On the topic of challenges, *Mr Flavio BONO, Joint Research Centre*, remarked that the **fragmentation of the construction value chain with a few major actors and many SMEs** is one of the main challenges as SMEs struggle with the uptake of digital technologies. For example, BIM is not yet fully exploited yet as only larger companies have access to skilled workers that can manage data. He added that besides all of the data standards and systems integration, this is a major constraint and, therefore, the adoption of technologies and development of skills needs to be supported. *Mr VIAGGI* agreed with this statement, adding that **currently, most of the data in construction are not used and companies sit on it as they do not know what else to do with it**. Even new approaches allowing data to be shared more easily might not change this. Representing construction machinery manufacturers, *Mr VIAGGI* explained that many machines have had their telematics antenna for 20 years, but often companies do not even know how to track things like fuel consumption. Still, it is a sector where data can be shared very rapidly and easily.

Mr Alain JAFFRÉ, Cobaty International, brought up the **challenge related to the know-how of construction firms being captured by large software and technology companies** and how this should be addressed. *Mr NAVILLE* responded that, as part of DigiPLACE, it was discussed whether technology companies would use the data of the many products and equipment that already generate data to train their artificial intelligence and replace the designers. He added that, during the discussion, the company Autodesk reassured that this is not the case as the data are normally owned by the user and not the software vendor, and normally the data should not be used in this way. Nevertheless, the issue of data ownership was widely discussed **with the main conclusion being that we need transparency**



over the use of the data. He concluded that today this is still a black box as it is not always fully clear who can access and use the data generated by the software and on platforms.

Ms Milena FEUSTEL, German Institute for Federal Real Estate, brought two additional issues to the discussion: users' habits leading to vendor lock-in and the security of platforms. She explained that we have many platforms already on the market. Companies providing these platforms try to position themselves to remain on the market. Meanwhile, users often lack the incentives or information to try out new platforms and simply force of habit makes change difficult. To have more reliable, secure and open data platforms, we need to answer the question of how we collaborate with the existing established platforms that did not have these priorities when set up. In her view, the best way to deal with this question is to set up standards that clearly define if either a platform is secure or not. This question cannot be left to the vendors but should be outlined by European or international standards. *Mr VIAGGI* thanked *Ms FEUSTEL* for her inputs, agreeing with them and adding that not only standards but building on them, certification i.e. for cybersecurity and data security, would be needed. *Ms FEUSTEL* agreed, explaining that in Germany the federal government has very high security requirements with cybersecurity certificates based on a German standard. However, there are not many vendors fulfilling these security requirements. She concluded that **if we establish a European standard and certify it, this could open the market, make it more competitive and easier for both public clients and the private sector.**

Following this discussion, *Mr MILANI* summarised the two key issues. First, the **security of the storage of data** is important so that they cannot be accessed unlawfully. Second, **the role of large technology companies** is ambiguous as they can provide platforms to share data but have the possibility to force data providers to allow platforms to use aggregated data to sell other services. Addressing this concern of losing control over one's data, he added that the Data Governance Act proposes **introducing neutral data intermediaries.** These actors would be organisations certified by Member States acting as intermediaries between data users and providers, but would not have the possibility to use the data for their gain. These neutral data intermediaries would be central actors in the creation of data spaces and improve trust and transparency as essential cornerstones for a data economy. *Mr Aitor ARAGÓN, Spanish Association for Standardisation,* agreed that ensuring this neutrality and security of data is important. Responding to a follow-up question by *Mr VIAGGI,* *Mr MILANI* explained that **these intermediaries could either be public or private organisations.**

Mr Antonio CABALLERO, European Mortar Industry Association, explained that in a diverse sector such as construction, it is rather difficult to find one common level of requirements. Construction product producers, for example, already have the requirement through the Construction Products Regulation to provide a declaration of performance (DoP). This process is currently being digitalised through the introduction of smart CE marking. In this area, *Mr CABALLERO* stated that access to data is not an issue: today anyone can already retrieve the data from the DoP and soon also through digital means. However, he is concerned with **the declaration of performance being basically a passport, which could be forged.** The product provider who makes data available takes the responsibility and would not want to see their data being manipulated. Therefore, he concluded, **data protection should also be about the data that is made (freely) available being protected.** This requires data security, clarity and transparency if data has been modified as well as a user and SME friendliness.

Another point *Mr CABALLERO* raised is **the difference between the design-stage data, which is important for BIM, and the link to the real data,** i.e. the end-product data which comes through the DoP. The first is likely provided by the sector or associations, while the second is provided by the manufacturer. Finally, on the point of sustainability and producing locally, *Mr CABALLERO* raised the issue that from a designer's point of view the aim is to pick the product that suits your needs best.

However, that might not be a mass product that is also not produced locally. Therefore, **we do not only need data platforms but also local data to prevent unsustainable transport**. *Ms Laura PALLARES, Wold Green Building Council*, commented on this issue that there are already some tools that take this local aspect into account.

Breakout session 3 – Digitalisation of SMEs

The opening statement of the session on the digitalisation of SMEs was made by *Mr Eugenio QUINTIERI, Secretary-General of the European Builders Confederation*. He stated that digitalisation is a key aspect in achieving the overarching goals of the construction sector. He also stated that in this process, the most difficult target is to achieve digitalisation in SMEs. As SMEs have many challenges in implementing digital technologies, such as a lack of financial means, knowledge, and understanding of digital skills. *Mr QUINTIERI* proposed that the goal of the session was to identify the specific challenges and propose solutions to enhance the digitalisation of SMEs. He then gave the floor to *Mr Karim KARAKI, PwC*, representing the European Construction Sector Observatory.

Digitalising SMEs – drivers and opportunities

Mr KARAKI touched upon the question of how SMEs digitalise.⁸ He opened by stating that digitalisation is unavoidable for the sector. **When talking about the drivers of SME digitalisation, he stressed the importance of the public sector**. The public sector should contribute to the digital transition of SMEs. *Mr KARAKI* elaborated on two specific drivers. First, any policy action needs to be accompanied by funding strategies and investments. Second, the digitalisation of the public sector will serve as an incentive for digitalisation in the private sector, especially through BIM requirements. *Mr KARAKI* also stated that **large construction companies can trigger the digitalisation process of SMEs**. Larger companies are often more digitalised and already see the benefits of digitalisation in their projects and can therefore encourage SMEs in their supply chain to digitalise as well.

Mr KARAKI explained that there is a gap in the market concerning digitalisation. However, the opportunities of the gap are not seized by construction companies. Instead, **IT companies step in, which leads to increased competition in the construction sector**. SMEs remain key players in the industry, although they have limited resources, which hamper seizing these opportunities. *Mr KARAKI* then elaborated on standardisation as a possible opportunity for the digitalisation of SMEs. To seize this opportunity, different processes of the value chain need to communicate better with each other.

Mr KARAKI concluded by stating that there is **a need for more data on the digitalisation of the sector and for more EU-level measures**. Specifically, measures regarding:

1. More regulation and a single market for data to enhance proper data management and security.
2. EU actions to foster awareness of the benefits of digitalisation. Here, the European Commission is already making progress through policies concerning BIM and the cost and benefit analysis⁹ showcasing that it is profitable to implement BIM.
3. The EU needs to increase financial support to SMEs and better incentivise SMEs to apply for funding.

Ending his intervention, *Mr KARAKI* stated that a holistic approach and a systemic perspective are required, but one should not forget to take a lot of other important factors into account such as public procurement and transportation.

⁸ European Construction Sector Observatory (2021) Analytical Report - Digitalisation in the construction sector; <https://ec.europa.eu/docsroom/documents/45547>.

⁹ The BIM cost and benefit analysis can be found here: <http://www.eubim.eu/cost-benefits/>.

Issues and possible solutions for digitalising SMEs from a cluster perspective

Ms Rodica LUPU, Technology Enabled Construction Cluster, shared the view of *Ms Fulvia RAFAELLI* that digitalisation is not the goal but a means to a greener and more resilient construction ecosystem. When discussing the issues of digitalising SMEs, like *Mr QUINTIERI* and *Mr KARAKI*, she stressed the lack of resources as an important issue. Although, *Ms LUPU* identified the **lack of skills in the sector as the most prominent issue**, as it affects all levels. She stated that the construction sector is conservative and that other challenges are low productivity and low growth. Digitalisation can address this but requires upskilling. Hence, she **proposed an action to educate the sector on digitalisation, especially at management level**. She stated that when surveying the management of Romanian construction SMEs, 70% of the managers said they had not been affected by digitalisation, and 60% said they would not be affected in the future.

According to *Ms LUPU*, there are early adopters, like architects and engineers, who already use BIM. However, to increase digital skills across the whole sector, *Ms LUPU* is **developing a consulting service**. She believes this to be the most efficient way **to deal with management skills and, in addition, assist with the implementation of BIM** to address the digital gap in the market. According to *Ms LUPU*, software developers do not usually have a systematic approach because they only try to sell their own solution. This makes it difficult for construction companies as they do not see the end result and do not see all of their problems addressed.

Ms LUPU also set up an **awareness campaign which was successful as she saw more SMEs coming to the cluster for support**. However, both consulting and awareness-raising activities cannot reach their full potential without the help of the public sector. However, here *Ms LUPU* echoed the challenge mentioned by *Mr KARAKI*, **namely that the public sector is not educated on digitalisation** and hence does not pressure construction companies to increase their skills on digitalisation. Therefore, **dialogue with public authorities is needed**, and there is already one particularly promising initiative trying to set up a framework to move towards a **national BIM strategy**. The **funding from the Recovery and Resilience Fund**, which should provide over EUR 300 million for the digitalisation SMEs from other sectors than ICT, is also promising. Through her cluster, *MS LUPU* hopes that many construction SMEs can be supported in applying for this funding. As she closed, she remarked that together with an ICT cluster their cluster set up also a **digital innovation hub (DIH)**, which she argues is a valuable concept to drive digitalisation, adding that encouraging a specialisation of DIHs in terms of sectors would help and that more conservative sectors are included in this framework.

EISMEA on the issues and solution of digitalisation of SMEs

Ms Andreea Bianca PUJA, EISMEA, opened by explaining that digitalisation is a priority for the EU, and the COVID-19 pandemic has shown that this process is now unstoppable. Furthermore, despite the various EU digitalisation programmes in place, there are not many initiatives targeted at digitalisation of the construction sector. This is surprising to *Ms PUJA* as construction is an important contributor to the EU economy.

In her view, a **key barrier in the digitalisation of construction is that the sector is populated mostly by small companies** that service specific subsistence needs rather than exploit new business opportunities. This leads to low investments in innovation and digitalisation due to a lack of resources. For example, 70% of the construction sector dedicate less than 1% to innovation, which is in line with what was mentioned by *Ms LUPU* on the situation in Romania. Hence, the lack of investments in innovation lead to low adaptation of digital technologies. This is exacerbated by a lack of training, affordable software solutions, and data security.

In light of these challenges, *Ms PUJA* mentioned that EISMEA and DG GROW will soon kick-off a project to support actions for the digitalisation of construction SMEs. This project is built on two actions. The first action is the **development of a digital maturity scan and an interactive handbook to guide construction SMEs in the uptake of digital technologies** and mainly BIM. The second action refers to **training for lifelong digital skill development** for construction SMEs based on the handbook. Both instruments are targeted at SME managers, especially those of micro-enterprises. *Ms PUJA* believes, just as *Mr KARAKI*, that micro-enterprises are excluded from digitalisation, while most larger companies are already on the right track.

Open discussion

Mr QUINTIERI thanked all three speakers and opened the floor for discussions. He reacted to the initial statements, adding that for the challenges mentioned it is important to consider whether the client is public or private as these have different elements. According to *Mr QUINTIERI*, there is the quality of work, the execution, the timing, the planning, but also the issue of price. **For digitalisation to happen, as mentioned by the speakers, you need to invest, which initially will increase costs.** In light of the current increase of the prices of construction materials, this could be problematic. He states that it is difficult to invest when margins are low in an environment with a lot of competition. Hence, *Mr QUINTIERI* concluded that we **need to find a compromise in investing and maintaining margins**, which is why there is also a supporting role for local, national and European public authorities.

Mr QUINTIERI continued by naming two main issues related to the support of public authorities. First, he believes **that a different strategy is needed for different Member States**, which can complicate EU-level policies. A second issue is how the money coming from the recovery fund can be spent and how much can be dedicated to SMEs and digitalisation support. In many countries, funding focuses on the renovation wave, which is a good thing. However, we also need funding for digitalisation. *Mr QUINTIERI* believes that **digital requirements in public tenders** can contribute to digitalisation, but these requirements need to be done in a progressive way that supports the transformation of SMEs so they are not left behind. He agreed with the need for better training public authorities, so digital requirements are rooted in reality.

He continued by stating that there is also a **role of larger companies as many already offer training to SMEs** and their subcontractors who work with them. This is something we should encourage further. In agreement with *Ms LUPU*, he added that we **need more construction-focused DIHs**. This is a topic, for which *Mr QUINTIERI* thinks the European Commission could do more in its cooperation with local and regional public and private actors. For example, by setting up local and regional clusters or private-public partnerships.

Another solution proposed by *Mr QUINTIERI* is to reflect on the triggers that make SMEs digitalise. One potential trigger is the ambition of better business management of their enterprises as one key benefit of digitalisation. The action that *Mr QUINTIERI* proposes is **to improve the link between better business management with BIM** and what is needed for the rest of the value chain. This links to the comment made by *Ms LUPU* on the conservativeness of the sector, as this would monetise digitalisation. He added that this also requires actively **addressing SMEs and emphasising the advantages of digitalisation** based on accurate assessments.

Ms LUPU shared *Mr QUINTIERI's* opinion on the importance of showing SMEs the benefits of digitalisation. This was also something *Mr SOUBRA* brought to the table in the plenary when talking about creating a business case for digitalisation. She stated that **it is sometimes hard for SMEs to grasp the exact return on investment (RoI) of digitalisation**. Therefore, *Ms LUPU* proposed developing, together with public authorities and based on best practices, a model to calculate the RoI

of digitalisation, especially of BIM, to convince companies to digitalise faster. *Mr KARAKI* responded to the proposed solution by stating that many of such methodologies are already applied today. For example through a European Commission study on the cost and benefit analysis on BIM.

Mr KARAKI then continued by listing some **other actions to increase the digitalisation of SMEs**. First, he argued that the barriers to SMEs digitalising have to be reduced. Second, clients and especially public clients should be educated on digitalisation to incentivise the SMEs in the construction sector to do the same. Third and finally, investments from the public sector are needed to support the implementation of digitalisation, specifically project guarantees that could help SMEs in the process.

With this final input, *Mr QUINTIERI* ended the session by stating the importance of a tailored approach to each case at hand, which is especially needed for micro-enterprises. *Mr QUINTIERI* questioned if, for these micro-enterprises, BIM will be the solution and acknowledged the proposition by *Ms LUPU* on creating a framework for calculating ROI as a possible solution.

Concluding the first Digital Cluster Group meeting

The concluding part of the first meeting of the Digital Cluster Group started with reports on the three breakout sessions by *Mr Jaan SAAR* (session 1), *Mr Riccardo VIAGGI* (session 2) and *Mr Eugenio QUINTIERI* (session 3). After the reports, a Q&A session was opened with a question about the **link between digitalisation and the green and resilient transition**.

Mr VIAGGI emphasised the enabling, instrumental role of digitalisation for other processes. A resilient green industry will not be a non-digital industry. Digitalisation will enhance the safety and security of the sector, allow for environmental monitoring and play other important functions. *Mr QUINTIERI* agreed that digitalisation will play a key enabling role for the development of a resilient and green sector. In particular, digitalisation will help to convey the necessary information within the sector. *Mr SAAR* stated that, to achieve a better living environment, there is no other option but to digitise the sector. He thinks that data will be key: with better data, we can make better decisions by analysing them in multiple ways and extracting more and more useful insights.

In response to these statements, participants raised the question of **affordability and the cost of digitalisation**. Digitalisation comes at a cost that must be balanced out over the whole life cycle of the built asset. *Mr SAAR* responded that, from the Estonian experience, digitalisation is actually a money-saving measure and the lack of money could be one of the drivers for it. The benefits (access to data, better and resilient services, etc.) outweigh the costs. However, the Estonian experience may not be applicable to other countries due to national specifics (e.g. legacy systems).

Mr VIAGGI also pointed out that the **costs of digitalisation can be balanced out by efficiency and productivity gains**. There is already a certain level of digitalisation (automation) among the companies, and adding other elements (e.g. higher connectivity) comes at a small cost. At the same time, *Mr VIAGGI* cautioned against the high cost of regulation, which would increase the compliance cost for the companies and lead to less affordability. *Mr QUINTIERI* noted that, while in the long run digitalisation may save money, it invokes high costs for the sector and customers in the short term. *Mr SAAR* responded to this that non-digitalising is not an option. All companies are becoming technology companies and will come out as winners, while the laggards will not survive at all.

Ms Milena FEUSTEL, suggested that the cost-benefit analysis should be used to more adequately understand the affordability, including indirect costs (e.g. for environment). Saving costs and saving the planet is a great motivator that should be advertised. She also proposed **highlighting and better marketing the many successful digital projects in construction to raise awareness of digital tools and what they can achieve**. The role of data – presently and in the future – should be highlighted. At the

same time, we need to be pragmatic and see what works today. There are organisations that want to digitalise but fear difficulties; we need to intervene and support them. The meeting participants considered *Ms FEUSTEL's* views crucial to persuade businesses to digitalise. Construction clusters and DIHs can be good ambassadors for this but need to be resourced appropriately.

Mr Giampiero RELLINI LERZ, Italian Association of private construction contractors (ANCE), raised the question of the shortage of digital skills and skills in general in the construction sector. **Digital tools could be used to provide training and educate the workforce.** Digitalisation could also help to find ways to change working and organisational processes, not least to better integrate the new kind of human resources and complement human work with automation.

At the end of the Q&A, *Ms Ilektra PAPADAKI* asked the session moderators what surprised them most in the discussions during the Digital Cluster Group meeting and what the contribution of their organisation is to the digital transformation.

Mr Riccardo VIAGGI said that he was not surprised by anything, but expected more contributions from the participants. *Mr VIAGGI* explained that the Committee for European Construction Equipment has been contributing to digital transformation for a long time already, developing, integrating and supporting digital tools and technologies and providing them to the sector. They continue working on more tools and supporting R&D in digitalisation.

Mr Eugenio QUINTIERI found it interesting that public authorities do not always play their role in investments and technical assistance. He found it positive that there is a shared opinion that a tailored approach is necessary for the construction sector because the horizontal approach does not work. The European Builders Confederation has been very active in digital transformation so far (e.g. BIM) and will stay so in the future.

Mr Jaan SAAR was surprised that skills were not emphasised by participants as a challenge to the more widespread use of digital technologies. He thinks that this is probably because it is seen as a part of the implementation, which was considered the biggest challenge. At the same time, the pandemic showed how quickly humans can learn to use new tools and develop new habits. While humans can change quickly, changing organisations is difficult and takes time. *Mr SAAR's* contribution is to keep evangelising digitalisation until it is embedded in our DNA and is part of government solutions. We often struggle to make the legislation a supporting (not mandating) tool for digitalisation.

Ms Ilektra PAPADAKI closed the first meeting of the Digital Cluster Group by thanking all participants and inviting them to submit their comments and opinions after the meeting, by email. She also explained the next steps by the European Commission leading up to the development of the transition pathway. This process is an interactive one, and the European Commission hopes for active participation of all stakeholders. While the meetings of the three cluster groups are part of this process, the European Commission will also organise an open public consultation later in 2021, to gather the stakeholders' views more broadly and systematically on specific scenarios that will be developed by the European Commission.

Next steps in the development of the transition pathway



Annex – List of participating organisations

#SustainablePublicAffairs
ANCE
Austrian Institute of Construction Engineering (OIB)
Autodesk
BIBM - Federation of the European Precast Concrete industry
BlmA (Institute for Federal Reals Estate)
Build Europe
Building information foundation RTS
Bundesarchitektenkammer BAK
CASAIS Engenharia e Construção (PT)
CEN/TC442 (NO)
Centro tecnológico de la Construcción de la Región de Murcia (ES)
CINEA
COBATY International
Cobuilder
Concular (DE)
Confartigianato Imprese (IT)
Confederación Nacional de la Construcción (CNC)
Construction Products Europe AISBL
CSTB
Danish Housing and Planning Authority
DBC
DG CNECT
DG GROW
Digital Findet Stadt GmbH
EBC
ECAP
ECCE - European Council of Civil Engineers
ECSPA - European Calcium Silicate Producers Association
EFBWW
EISMEA
EMO
Estonian Ministry of Economic Affairs and Communications
EUEW - European Union of Electrical Wholesalers
EURIMA
EuroACE & Renovate Europe Campaign
EUROLUX

European Aluminium
European Asphalt Pavement Association (EAPA)
European Builders Confederation
European Cellulose Insulation Association
European Council of Civil Engineers
European Environmental Bureau
European Floorcoverings Association (Eufca)
European Panel federation
Eurovent
Federal Office for Constructions and Logistics
FEP
FFB
FIEC
FIPEC
Fraunhofer ISI (DE)
Government Offices of Sweden
ILNAS-Market Surveillance Authority (LU)
Instytut Techniki Budowlanej (PL)
ISG Ltd (DE)
ITeC (ES)
JRC
Kadaster (The Netherlands' Cadastre, Land Registry and Mapping Agency)
Karuk"Asher Ltd InoV-A-SioN
Ministry for Ecological transition (FR)
Ministry for Infrastructure (MT)
Ministry for Innovation and Technology (HU)
Ministry of Economic Affairs and Communications (EE)
Ministry of Economic Development and Technology (PL)
Ministry of Environment (LT)
Ministry of Industry and Trade (CZ)
Ministry of Regional Development and Public Works (BG)
Ministry of the Interior and Kingdom Relations (NL)
Ministry of the Regional Development and Public Works (BG)
Ministry of Transport and Construction (SK)
MPO (CZ)

MRPiT (BE)
NBN Owens Corning
Permanent Representation of Croatia to the EU
PwC
RAECOM Oy
RetroKit Ltd
RICS
Rina Consulting S.p.A.
Sluamor Ltd
Small Enterprises' Institute (IME GSEVEE)
SMEunited
Spanish Association for Standardisation (UNE)

Stora Enso (ES)
Sunthalpy (SE)
Svenskt Trä (SE)
Tata Steel
Technical Chamber of Greece
Teicos UE Srl (IT)
TNO
Ulrich Paetzold EU-Consulting
UNI (IT)
Università degli Studi di Brescia
World Green Building Council
ZDB German Construction Confederation
ZDH

Disclaimer: The list of participating organisations is based on the registrations.

HIGH LEVEL

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