



# **DELIVERING A RESILIENT, GREEN AND DIGITAL BUILT ENVIRONMENT**

MANIFESTO FROM EUROPEAN  
ENGINEERING CONSULTANCIES  
FOR 2030 AND BEYOND





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# 30 years of EFCA

representing the consulting  
engineers

EFCA's mission is to promote the European engineering consultancy industry at EU level and to represent it in the policy making process of the European institutions. As experts in our field, we work to contribute to the development of EU legislation that affects our industry. Working collaboratively in this way helps to achieve common European goals such as the Green Deal and climate objectives, digitalisation and innovation, promotion of fair competition, transparent procurement rules and training and supporting young professionals. We work with our Member Associations and firms, meeting and sharing experiences; and we also work in partnership with other federations representing the construction ecosystem across Europe.



#### Acknowledgements

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**EFCA President**  
Benoît Clocheret



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Inés Ferguson

# Introduction

On the occasion of its 30<sup>th</sup> Anniversary, the European Engineering Consultancies (EFCA) set out our manifesto for delivering a resilient, green and digital built environment. Welcoming the European Green Deal and other efforts by policy makers in 2021, such as working towards *Scenarios for a transition pathway for a resilient, greener and more digital construction ecosystem*<sup>1</sup>; EFCA is committed to supporting the twin transitions and wants to work proactively with EU policy makers to design and deliver climate-proof solutions for the built environment that not only take into account our Environment, Social and Governance (ESG) obligations, but also the additional major potential our sector has, in terms of improving its carbon handprint.

As key players in the construction value chain, consulting engineers have a growing contribution to societal value. This is evident from our role as planners and designers of comprehensive solutions for sustainable infrastructure, cities and industrial facilities, amongst other key physical assets. At a time when the climate emergency is impacting every single EU citizen, consulting engineers are stepping up. In order to maximise the potential of our sector, we call for a coherent approach to this existential crisis. We need joined-up policy making, developed not in silos but in collaboration at inter-institutional level and with the full participation of our sector. This should take into account the competence of consulting engineers in terms of planning, technical design, management, operation and maintenance; and regulatory

measures should remain technology- and material-neutral. Collaboration is ever more important with the economic backdrop that has emerged in recent months, during which we have seen soaring inflation and energy prices. These conditions are exacerbating the concerns of already risk-averse clients and insurers adding to the burden on consulting engineers, who continue to face more demanding contracts. Whilst firms in the sector fully acknowledge their responsibility and accountability for the highest possible quality of their work, the risk of litigation increases their own risk and reduces already small margins. In short, the challenges for consulting engineers are greater than ever before. In spite of this, EFCA and its Member Associations and their member companies pledge to invest time, energy and expertise, focusing on the future and the better built environment we all need.

In return for the fruitful partnership we seek with the EU institutions, we commit to proactive solution-seeking, engagement in policy development and professional and constructive dialogue with policy makers. We will work with our Member Associations and consulting engineering firms to analyse and improve legislative proposals, and we will collaborate with other players in the construction value chain to reduce fragmentation in the industry and accelerate the implementation of green and digital solutions.

Brussels, 16 November 2022

**EFCA Board of Directors**

<sup>1</sup> Ares (2021) 7679109 final

# Responding to the climate emergency

*Climate change is no longer a threat on the horizon. We are living its consequences right now and “once-in-a-hundred-years” floods, wildfires and droughts have recently given us a stark wake-up call. EU actions are being outpaced by the consequences and no-one is immune from these.*

The revised climate goals in the European Green Deal in 2021<sup>2</sup>, were accompanied by other measures that will absolutely require consulting engineers for their successful implementation. Separately, taxonomy has provided a classification system to direct finance towards environmentally sustainable projects. The increasing complexity of the assessment and certification that will be required under taxonomy, as well as by the upgraded Energy Performance in Buildings Directive and the circularity requirements in the Sustainable Products Initiative, can only be addressed by scientific brains.

Consulting engineers are on the front line in the effort to transform physical assets into resilient structures, which will

not only survive the kind of disasters previously only seen once in a generation but will also do no further harm to the environment providing a built environment that is part of the solution. Such assets include not only net-zero buildings, but a new generation of infrastructure that will protect citizens from life-threatening climate incidents, whilst remaining operational during the immediate aftermath of such incidents.

The contribution of consulting engineers to technological innovation is already well understood. What is becoming increasingly clear is the potential of the sector to increase its carbon handprint, by rolling out technical design solutions for a carbon-neutral built environment, helping citizens to reduce their own carbon footprint in the use phase. Added

<sup>2</sup> Revised target for the reduction of greenhouse gas (GHG) emissions: 55% decrease compared with 1990 levels



to this, by designing in the use of secondary materials and designing for the end of life, with deconstruction rather than demolition being the aim, consulting engineers design the technical blueprint for circularity. They also make an even wider contribution to society, protecting humanity from an existential crisis of its own creation. Policy makers need heroes in the coming years. Consulting engineers are not known for taking the limelight, but they will nevertheless be centre-stage and will be the drivers of change, as EU policy makers grapple to deliver the Green Deal.

### Policy recommendations

Ensure that all future legislative proposals aimed at the built environment be impact-assessed for climate vulnerability and resilience. From this point on, public procurement, climate and energy policy, buildings, infrastructure and products, industrial equipment and processes etc., every policy development that has a bearing on our physical assets needs to pass this test.

Make the New European Bauhaus an incubator for research activities aimed at developing climate solutions and give consulting engineers the same profile as architects in this important initiative. Engineers and architects are key partners and indeed, many consulting engineers are also architects. Where this is not the case, both professions can learn from each other and the Bauhaus can provide the perfect co-creation space, encouraging a meeting of minds between both professions.

Acknowledge EFCA as one of the leading industry partners in the Construction 2050 Alliance.

# Completing the digital transformation

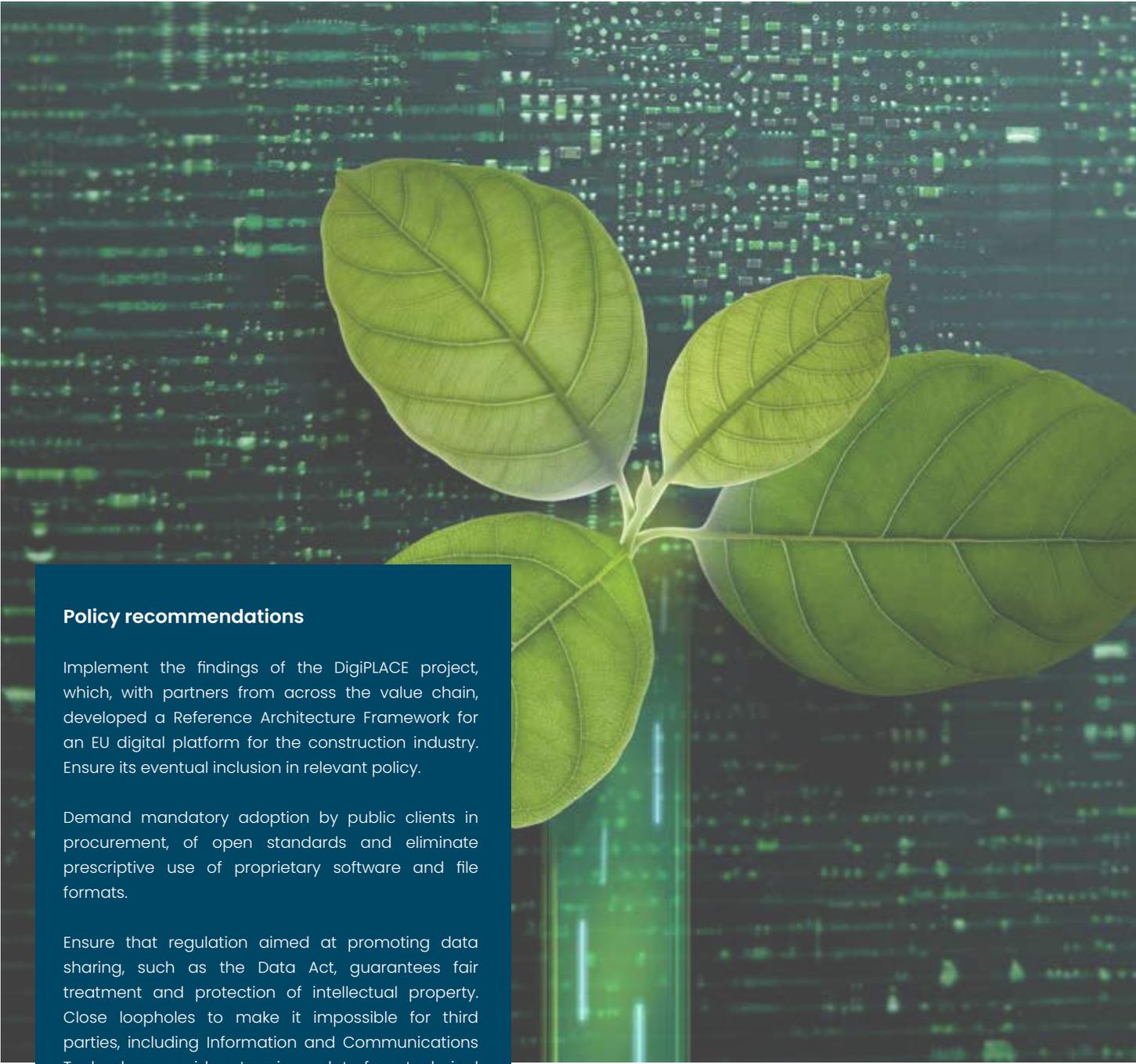
*For at least a decade, policy makers and stakeholders have been talking about the digital transformation of the construction and other industrial ecosystems. Whilst progress has been made, national and EU strategies are almost out of date as fast as they can be developed, because the rapid emergence and use of disruptive technologies is overtaking the implementation of even the best transition plans.*

In the construction value chain, the use of BIM, digital twins and augmented reality has been growing. On the policy side progress has also been made. For example, the standardisation of BIM is being addressed by CEN/TC 442, which has adopted most of the ISO standards on BIM. On the other hand, the extent to which BIM is required by the public sector in procurement is not yet consistent across Member States. Furthermore, while policy has been catching up, new challenges have arisen, including how to maximise the use of promising technologies, which bring both benefits and risks. Some new technologies create genuine dilemmas, such as the energy-intensive nature of the same processes that can accelerate the transformation. We have to deal with the trade-off between the benefits of, for example, distributed ledgers and big data and the emissions they generate. Therefore, there is still some way to go. Fortunately, in the meantime policy makers have produced a plethora of regulatory responses to wider challenges, such as cybersecurity, the risk of monopolies of non-EU software suppliers and how to address access to and control over data.

Consulting engineers are ideally placed to act as a catalyst for full digital transformation of the construction ecosystem.

Working at the heart of the industry, with clients, architects, contractors and other stakeholders, we understand the construction business and can orchestrate collaboration along the value chain. More importantly, we understand the benefits and constraints of data sharing and platforms; and we are advocating for open standards, interoperability and fair contracts with software providers.

Whilst wanting to protect the intellectual property of our technical design solutions, consulting engineers, under the umbrella of EFCA at EU level, strongly support policy and other initiatives aimed at reaching full digitalisation in our sector. These include buildingSMART International and recent EU projects such as DigiPLACE. Furthermore, we believe that digitalisation is a key enabler and accelerator for a sustainable built environment, which will also significantly contribute to solving the climate and energy crises. It provides a tool to design in compliance with emerging sustainability criteria and for gathering data for eventual calculation and reporting against these criteria.



### Policy recommendations

Implement the findings of the DigiPLACE project, which, with partners from across the value chain, developed a Reference Architecture Framework for an EU digital platform for the construction industry. Ensure its eventual inclusion in relevant policy.

Demand mandatory adoption by public clients in procurement, of open standards and eliminate prescriptive use of proprietary software and file formats.

Ensure that regulation aimed at promoting data sharing, such as the Data Act, guarantees fair treatment and protection of intellectual property. Close loopholes to make it impossible for third parties, including Information and Communications Technology providers, to misuse data from technical design solutions for commercial gain.

# Ensuring the success of sustainable development projects



*The achievement of the Sustainable Development Goals by 2030 and the Paris Agreement by 2050 are global challenges that require the commitment and involvement of all countries and industries worldwide.*

**G**lobal Gateway<sup>3</sup>, launched by President Von der Leyen in 2021, leverages Europe's development financing firepower through the "Team Europe" strategy and the creation of a common investment platform to channel EU investments where they have a more positive and long-lasting impact. Grants from the EU Global Europe Instrument are available for technical assistance for project preparation and implementation support.

Consulting engineers are critical to the success of Global Gateway, as they can support better project preparation, so that more quality infrastructure projects are included in project pipelines. Increasing EU funding for such project preparation is essential for the delivery of more efficient, well-dimensioned and policy-aligned investments in partner countries. Qualified consulting engineers apply quality standards and are well acquainted with individual country policies, strategies and regulations. Put simply, they can make the difference between a high return on investment of the Global Gateway initiative or wasted investment.

Moreover, projects need to respond to a green, digital and inclusive growth policy. To achieve this ambitious objective, reliable and comparable sustainability data should be available from the early stages to measure and monitor quality, relevance and impact throughout the project cycle. This aspect is critical to the credibility of EU investments and to attract the private sector; and European consulting engineers can significantly contribute to the creation and development of a data ecosystem that offers reliable and comparable data throughout the project cycle.

The private sector is a key partner in the success of the Global Gateway investment platform. To ensure maximum

take-up of technical assistance funding and private sector participation, procedures need to be transparent and business-friendly and should be further simplified and standardised. Early information also needs to be provided by the financing institutions.

### Policy recommendations

Increase EU technical assistance funds at country level and get the support of consulting engineers in the preparation of projects, through service contracts. European Union delegations should coordinate the funding and the project pipelines to ensure that they are relevant, and policy aligned.

Include the collection, analysis and integration of sustainability-related data in the planning and design phases, as well as data monitoring during the implementation phase, as part of EU-funded consultancy services.

Streamline and standardise procurement and contracting procedures in Team Europe development financing institutions to facilitate the participation of companies, particularly SMEs, in tenders and contracts.

<sup>3</sup> [https://ec.europa.eu/info/strategy/priorities-2019-2024/stronger-europe-world/global-gateway\\_en](https://ec.europa.eu/info/strategy/priorities-2019-2024/stronger-europe-world/global-gateway_en)

# Achieving the highest quality result in procurement

*Contracting and procurement play a key role in implementing the EU policy agenda for relevant aims, such as innovation, sustainability and inclusion.*

The European Procurement Directives from 2014 already reflect these aims, with the type of procedures and selection and award criteria available to public authorities. The Directives allow clients to implement their projects in a way that gets the best result or company, combined with a good price and quality.

Specifically, the Directives allow clients to choose from a wide range of award criteria and they are free to decide the relative weight of the quality criteria. Given the enormous sustainability challenges we all face in Europe, these powerful instruments could be more optimally used. EFCA has developed simple and easy-to-apply award criteria that support sustainability goals.

In order to apply sound 'green' award criteria, public sector buyers must have the skills and knowledge to do this

effectively. This is also necessary to ensure that the Most Economically Advantageous Tender (MEAT) is awarded. Although clients' expertise has undoubtedly grown in recent years, some lack of skills remains, which could account for the over cautious use of green criteria. EFCA will develop guidance, providing examples of effective green selection and award criteria.

At both European and global level, there is a growing tendency to move from transactional to collaborative contracts. The former uses a traditional approach, whereby there is little interaction between the relevant parties. The latter provides for more meaningful cooperation between parties. Instead of thinking and acting from one's own position, we are shifting towards a better, more integrated type of contract that serves a project's overall goals. The International Federation of Consulting Engineers (FIDIC) is



developing a new type of contract, in which the collaborative approach is adding value. EFCA will contribute to this project, in close corporation with the creators. We will also promote the use of collaborative contracts, because the enormous challenges of sustainability and climate change can only be overcome if clients, engineers and contractors work together more effectively. Collaborative contracts serve this goal and EFCA will develop guidance for these contracts.

When setting up a procurement procedure, clients can use MEAT for the award criteria. In order to maximise impact, the price/quality ratio should be a minimum of 30/70 or ideally even stronger on quality, i.e. 20/80. Only then will bidders be able to offer greater quality in their bid. EFCA will collect data and information that will show that it is really possible to encourage bidders to offer extra quality.

### Policy recommendations

Improve and increase the use of green procurement, by ensuring that public sector officials responsible for procurement have the relevant knowledge of not only green procurement policy, but of its benefits when applied.

Encourage public clients to award contracts to bidders that have adopted the collaborative contracting approach.

Adopt a minimum price/quality ratio of 30/70 in award criteria and aim for a 20/80 proportion.

# Making engineering the career of choice

*The recent pandemic changed work patterns forever, but also provoked a re-think about why, as humans, we work. As well as promoting Science, Technology, Engineering, Mathematics and Digital (STEMD) education and reinforcing continuing training and lifelong learning, we need to talk up the value of engineering, the essential role it plays in society and why our engineers are the invisible rock stars in the construction value chain.*

The skills shortage in the EU has been debated for many years, but to date, little has changed. More recently – and rightly so – the talk in board rooms amplified the theme of diversity. However, the pandemic turned everything upside down and caught us all off guard. The subsequent focus on our well-being, new ways of working, and blurred boundaries between work and private lives created by the sudden switch to teleworking means that when we talk about attracting new talent to our sector, we need to understand that in terms of work and careers, we are operating more than ever before in a market oriented towards the job-seeker rather than the employer.

The consulting engineering sector is experiencing the acute consequences of the competition for talent. The shortage of skilled staff makes the concerns over any “threat” posed by robots and drones and Artificial Intelligence as a risk to jobs seem increasingly unfounded. Indeed, any work that can be offloaded, accelerated, and improved could ensure that consulting engineers are deployed in the ways they are most needed. That said, this “offloading” must not include the development of technical design solutions. These must remain with consulting engineers – the experts. The sector must not be forced into buying and using solutions created by others.

Therefore, we welcome an accelerated digital transition as well as “homegrown” solutions within the sector. These could include:

- Flexible working patterns, which not only allow under-represented groups to work in the sector, but also offer skilled staff working conditions that suit their individual needs and lifestyles. Semi-retired engineers could be encouraged to come back to the sector.
- Further investment in training for existing employees on new tools and technologies.
- For recruitment of new skilled professionals, firms could also look for candidates from other industries that have already undergone a digital transformation.
- Re-thinking what an “engineer” really is. Traditional civil engineering is subject to disruption and our future engineers need additional skills, such as those associated with data and data processing.
- Celebrating and promoting engineering, inspiring young people from the earliest possible age to pursue a dream to become an engineer.

### Policy recommendations

Ensure that initiatives, such as the EU Pact for Skills boost education and training programmes that allow technicians to become engineers during the course of their careers and encourage female students to choose engineering.

Bring the New European Bauhaus into schools and vice-versa. Involve children, via workshops, play and curricula, to trigger aspirations and dreams to become an engineer.

Ensure that the European Year of Skills in 2023 addresses the skills shortage in the construction ecosystem.





# Pioneering solutions for future generations

*Consulting engineers are pioneers of innovation and their technical design skills are needed more than ever before, to face the current environmental and societal emergencies in the EU.*

Consulting engineers can transform the built environment by implementing their ideas with the use of existing and emerging digital technologies. From their side, EU policy makers need to clear the way for inventiveness in engineering.

Dramatic impact on the sector is being caused by both external challenges and industry-specific trends. In its recent report<sup>4</sup> EFCA cited “project demand” and “openness to markets” as key features in future scenarios, likely to impact engineering. The report predicts a more digital, sustainable and partly harmonised future for the industry.

These scenarios can only be managed by innovation, not only in technology and processes, but also by new business models.

In a world where data is replacing oil as the key commodity, customer relations will be fundamental to success. Capitalising on their customer proximity means that consulting engineers will act as solution architects with a leading role at the top of the value chain. Clients are demanding sustainable operations, spatial flexibility, greater energy efficiency and a better user experience. Engineering companies can translate and enhance their clients’ requirements in a digital model and advise on best practice, as well as maximise the project’s potential. They will

<sup>4</sup> Seizing opportunities in times of disruption <https://www.efcanet.org/publications/efca-future-trends-report-2022>



be the creative designers who act as the interface between the investor and the technology. Furthermore, in a world driven by sustainable finance, consulting engineers will become green engineering consultants for investors, construction companies and financial institutions.

Engineering consultants will drive the transformation of the construction ecosystem while sharing their knowledge in an increasingly collaborative value chain. In doing so, they will help the EU to reach its policy goals.

### Policy recommendations

Innovative solutions and emerging technologies must be systematically allowed as “variants” in public procurement.

Ensure that the Horizon Europe programme and the New European Bauhaus stimulate collaborative innovation, eliminate research in silos and ensure that the results of research, as well as innovative solutions developed outside of funding programmes, are rolled out for wider use.

Facilitate collaboration with experts from other industries, to allow the sharing of best practice and learning via European Commission-supported platforms and workshops. This will help to accelerate the transformation of the industry, while avoiding costly solution development that duplicates those that have already been found in other sectors.

