

Territorial Action Plan (TAP) **for Digital Innovation in Circular Construction**

SLOVAKIA

Circular DigiBuild Project
Interreg Danube Region Programme

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List of Abbreviations

Abb.	English	Slovak
AI	Artificial Intelligence	Umelá inteligencia
APVV	Slovak Research and Development Agency	Agentúra na podporu výskumu a vývoja
BIM	Building Information Modelling	Informačné modelovanie stavieb
BIMaS	BIM Association of Slovakia	BIM Asociácia Slovenska
CDW	Construction and Demolition Waste	Stavebný a demolačný odpad
CIRCO	Circular Design Methodology	Metodológia cirkulárneho dizajnu
CPD	Continuing Professional Development	Kontinuálny profesijný rozvoj
CPR	Construction Products Regulation	Nariadenie o stavebných výrobkoch
DPP	Digital Product Passport	Digitálny pas výrobku
EDIH	European Digital Innovation Hub	Európske centrum digitálnej inovácie
EED	Energy Efficiency Directive	Smernica o energetickej efektívnosti
EIB	European Investment Bank	Európska investičná banka
EOTA	European Organisation for Technical Assessment	Európska organizácia pre technické posúdenie
EPC	Energy Performance Contracting	Zmluva o energetickom výkone
EPBD	Energy Performance of Buildings Directive	Smernica o energetickej hospodárnosti budov
ERDF	European Regional Development Fund	Európsky fond regionálneho rozvoja
ESF+	European Social Fund Plus	Európsky sociálny fond Plus
EU	European Union	Európska únia
EUSDR	EU Strategy for the Danube Region	Stratégia EÚ pre dunajský región
FM	Facility Management	Správa budov / facility manažment
GDP	Gross Domestic Product	Hrubý domáci produkt
GES	Guaranteed Energy Savings	Garantované úspory energie
GPP	Green Public Procurement	Zelené verejné obstarávanie
INCIEN	Institute for Circular Economy	Inštitút cirkulárnej ekonomiky
IVU	Individual Learning Accounts	Individuálne vzdelávacie účty
IoT	Internet of Things	Internet vecí
KPI	Key Performance Indicator	Kľúčový ukazovateľ výkonnosti
LCA	Life Cycle Assessment	Posudzovanie životného cyklu
LCC	Life Cycle Cost(ing)	Náklady životného cyklu
MD SR	Ministry of Transport of the Slovak Republic	Ministerstvo dopravy SR
MH SR	Ministry of Economy of the Slovak Republic	Ministerstvo hospodárstva SR

Abb.	English	Slovak
MIRRI SR	Ministry of Investment, Regional Development and Informatics of the Slovak Republic	Ministerstvo investícií, regionálneho rozvoja a informatizácie SR
MŠVVaM SR	Ministry of Education, Research, Development and Youth of the Slovak Republic	Ministerstvo školstva, výskumu, vývoja a mládeže SR
ME SR	Ministry of Environment of the Slovak Republic	Ministerstvo životného prostredia SR
NARA SK	National Recycling Agency Slovakia	Národná recyklačná agentúra Slovensko
NBRP	National Building Renovation Plan	Národný plán obnovy budov
OECD	Organisation for Economic Co-operation and Development	Organizácia pre hospodársku spoluprácu a rozvoj
RMSG	Regional Multi-Stakeholder Group	Regionálna skupina viacerých zainteresovaných strán
RRF	Recovery and Resilience Facility	Mechanizmus na podporu obnovy a odolnosti
SAV	Slovak Academy of Sciences	Slovenská akadémia vied
SAŽP	Slovak Environment Agency	Slovenská agentúra životného prostredia
SBA	Slovak Business Agency	Slovak Business Agency
SEA	Strategic Environmental Assessment	Strategické environmentálne posúdenie
SIEA	Slovak Innovation and Energy Agency	Slovenská inovačná a energetická agentúra
SIH	Slovak Investment Holding	Slovenský investičný holding
SKA	Slovak Chamber of Architects	Slovenská komora architektov
SKGBC	Slovak Green Building Council	Slovenská rada pre zelené budovy
SKSI	Slovak Chamber of Civil Engineers	Slovenská komora stavebných inžinierov
SME	Small and Medium-sized Enterprise	Malý a stredný podnik
SOH SR 2035	Waste Management Strategy of the Slovak Republic to 2035	Stratégia odpadového hospodárstva SR do roku 2035
SR	Slovak Republic	Slovenská republika
STU	Slovak University of Technology in Bratislava	Slovenská technická univerzita v Bratislave
SÚTN	Slovak Institute for Technical Standardisation	Slovenský ústav technickej normalizácie

Abb.	English	Slovak
SWOT	Strengths, Weaknesses, Opportunities, Threats	Silné stránky, slabé stránky, príležitosti, hrozby
TAB	Technical Assessment Body	Orgán technického posúdenia
TAP	Territorial Action Plan	Územný akčný plán
TCO	Total Cost of Ownership	Celkové náklady vlastníctva
TSÚS	Building Testing and Research Institute	Technický a skúšobný ústav stavebný
TUKE	Technical University of Košice	Technická univerzita v Košiciach
UNIZA	University of Žilina	Univerzita v Žiline
UUPV	Office for Territorial Planning and Construction of the Slovak Republic	Úrad pre územné plánovanie a výstavbu SR
ÚVO	Office for Public Procurement	Úrad pre verejné obstarávanie
VET	Vocational Education and Training	Odborné vzdelávanie a príprava
WGG	Working Group on Governance	Pracovná skupina pre riadenie
ZSPS	Slovak Construction Industry Union	Zväz stavebného priemyslu Slovenska

1. Introduction / Executive Summary

The Slovak Republic reaffirms its commitment to advancing circular economy principles in the construction sector, in line with national strategic frameworks such as the Waste Management Strategy of the Slovak Republic to 2035 (SOH SR 2035) and related policy instruments. This commitment reflects both national priorities and alignment with broader European objectives on resource efficiency and circular construction, including the 2030 Danube Region Digital Innovation Strategy for Circular Construction. This Territorial Action Plan outlines specific national actions, targets, and responsibilities to achieve the transnational strategy's vision within the Slovak Republic.

Construction is a structurally significant sector across Europe and in Slovakia alike. At the EU level, the sector contributes approximately 5–6% of GDP and accounts for around 7.5% of total employment but generates more than one-third of overall waste and is the single largest waste-generating sector. Slovakia broadly mirrors these proportions. According to estimates from the Ministry of Environment of the Slovak Republic, the country generates approximately 4.7 million tonnes of construction waste annually¹, including backfilling material.

This TAP is addressed to policymakers, public procurers, industry leaders, and civil society actors who shape the Slovak construction sector. Its purpose is twofold: to provide an honest assessment of where Slovakia stands, and to define concrete actions that can accelerate the transition toward circular and digital construction within a realistic institutional and financial context.

The benefits of this transition are tangible and distributed across all stakeholder groups. For the **state and public administration**, circular construction reduces long-term infrastructure costs through lifecycle-based procurement, improves resource security by reducing dependence on virgin raw materials, and supports compliance with an accelerating body of EU regulatory obligations. For **businesses and entrepreneurs**, it opens new market opportunities in renovation services, secondary materials processing, digital building management, and energy performance contracting — with Slovak companies well positioned to develop competitive capacity that extends beyond the domestic market. For **citizens**, it means better-quality, healthier, and more energy-efficient buildings, lower operational costs over time, and reduced environmental burden from construction waste in their communities. At the broadest level, the circular construction transition directly addresses one of the most significant sources of environmental pressure in the Slovak economy: a sector that consumes large volumes of primary raw materials, generates nearly one third of all waste, and is responsible for a substantial share of energy consumption and carbon emissions — and that has the technical and economic means to do significantly better.

Slovakia enters this TAP as an *emerging country* within the 2030 Danube Region Digital Innovation Strategy — positioned neither as a leader nor at the starting line. The sector is highly fragmented, dominated by SMEs with limited capacity for digital or circular innovation. Digitalization and circularity continue to develop in separate silos, and cross-ministerial coordination between ME SR, the Office for Territorial Planning and Construction, and other

¹ Information provided by the Ministry of Environment of the Slovak Republic

policy actors remain insufficient. These structural realities shape the ambition and scope of the actions defined in this plan.

2. Vision and Mission (Territorial Adaptation)

Vision: To position Slovakia as an active bridge between advanced and early-stage Danube Region countries by 2030 — absorbing and locally adapting proven best practices from frontrunners, while embedding digital and circular construction solutions into national policy, education, and industry. Learning fast, adapting smart.

Mission: To facilitate collaboration, knowledge sharing, and the adoption of proven digital and circular solutions among Slovak stakeholders — connecting national industry, academia, and public authorities with Danube Region networks to accelerate Slovakia's construction sector transformation toward a circular economy.

3. Alignment with EU Strategy for the Danube Region (EUSDR)

The Slovak Territorial Action Plan is developed within the framework of the EU Strategy for the Danube Region (EUSDR), adopted in 2011 and revised in 2020, which provides the overarching macro-regional cooperation framework for 14 countries. Slovakia, as one of nine EU Member States in the strategy, is committed to embedding EUSDR priorities into its national actions.

The actions outlined in this TAP directly contribute to all four EUSDR pillars:

Connecting the Region - through adoption of digital tools (BIM, digital platforms, material passports) that improve interoperability and cross-border data exchange in the construction sector.

Protecting the Environment - through circular construction practices that reduce construction and demolition waste, improve resource efficiency, and lower CO₂ emissions.

Building Prosperity - through support for SME innovation, digital skills development, and creation of new circular economy business models in the construction sector.

Strengthening the Region - through active participation in transnational knowledge networks, the Circular DigiBuild cluster, and harmonization of standards with Danube Region partners.

4. Strategic Pillars, Objectives, and Key Actions (National KPIs)

Slovakia approaches implementation as an emerging country - neither at the starting line nor among the frontrunners. The strategy is not one of invention but of disciplined adoption and local adaptation of proven practices from Danube Region frontrunners. The actions defined across the following four pillars address the full lifecycle of circular construction - from design and BIM standardisation through construction procurement, building operations, demolition, and secondary materials - complemented by targeted investment in skills, certification, and awareness. The details behind each action, including current status, challenges, and evidence base, are set out in Chapter 5.

The key actions listed across the four pillars below are divided into two distinct categories. The first category comprises actions to which SBA, as national coordinator of this TAP, explicitly commits as part of its facilitative and knowledge-dissemination role within the Circular DigiBuild project and beyond. The second category comprises actions that emerge from the national analysis in Chapter 5 and are formulated as recommendations addressed to the relevant public authorities, ministries, and sectoral stakeholders identified throughout this document. This distinction reflects the institutional reality described in Chapter 7: SBA does not hold statutory authority or a dedicated implementation budget, and it would be misleading to present regulatory, procurement, or legislative actions as SBA commitments. Both categories are essential to achieving the TAP's objectives - SBA's role is to advocate, facilitate, and support the actions it does not directly lead.

SBA Actions

ID	Proposed Action	KPI	Target 2030
A	Submission of New Project Proposals → Actively participate in and submit new EU-funded project proposals related to these thematic areas in order to ensure continuity, further development of expertise, and long-term sustainability of project outcomes.	Continuous participation in EU-funded project initiatives related to the thematic areas.	2 new EU project proposals submitted as a project partner or an associated partner
B	Project Capitalization, Dissemination and Sharing of Project Results → Ensure the continued dissemination of project results and outputs after project completion. Relevant deliverables, methodologies, lessons learned, and best practices will be shared through meetings, workshops, and collaboration activities within other projects and with relevant stakeholders in the field.	Regular dissemination of project results ensured through stakeholder and other thematic-related projects activities.	10 dissemination activities organized 50 stakeholders reached
C	Sustaining and Expanding the Stakeholder Network → Maintain and further develop the existing stakeholder group by connecting stakeholders with new and ongoing projects	An active and sustainable stakeholder network	15 stakeholders connected to follow-up initiatives

ID	Proposed Action	KPI	Target 2030
	in the relevant thematic areas. Where direct continuation is not possible, stakeholders will be linked with other relevant initiatives and invited to participate in events, workshops, and networking activities related to these topics.	maintained beyond the project duration.	
D	Internal Capacity Building and Knowledge Transfer → Strengthen internal capacities through the dissemination of relevant project outputs to the <i>National contact point of Slovak Business Agency for the circular economy</i> , enabling further distribution of knowledge and good practices to relevant organizations and sectoral stakeholders. Internal knowledge-sharing activities will help ensure the long-term use and sustainability of project results.	Continued knowledge-sharing and dissemination supported through existing stakeholder networks (e.g. Circular DigiBuild stakeholders group and Platform Circular Slovakia) and SBA activities implemented within national projects, state programs or other cooperations.	5 knowledge-sharing activities implemented through existing stakeholder networks and SBA activities
E	Sharing of Relevant Good Practices → Relevant good practices and useful examples identified during and after the project will be shared through the project platform in order to support the continuous exchange of knowledge and the collection of good practice examples in Slovakia.	Continuous exchange and collection of relevant good practice examples supported through the project platform.	10 good practice examples shared on the platform 15 contributions uploaded to the platform
F	Active participation in shaping the priorities of the new programming period → SBA's representatives are members of the COSME Committee and the EUSDR Priority Area 8 Competitiveness of enterprises - Working Group on Circular Economy and Bioeconomy. SBA will communicate the relevance of this topic and its incorporation among future priorities to the responsible authorities.	Sharing TAP within the working group of EUSDR and the COSME Committee and actively promoting the circular and digital construction to be explicitly recognised as a funding priority in the new programming period of Interreg Danube Region.	2 EU programmes reached out to consider the topic within the priorities in the new programming period

Pillar 1: Enabling Policy & Regulatory Frameworks

ID	Proposed Action	KPI	Target 2030
1.1	Develop a national BIM strategy defining adoption targets, standards, and an implementation roadmap	National BIM strategy adopted (Y/N)	Strategy adopted by 2027

ID	Proposed Action	KPI	Target 2030
1.2	Accelerate building permitting processes through digitalisation, building on the Digital Image of the Country programme	% of permit applications processed digitally	50% by 2030
1.3	Mandatory BIM documentation for all new publicly procured and renovated buildings throughout full lifecycle	% of new public buildings with BIM requirement in procurement	100% above threshold by 2030
2.1	Extend and enforce GPP requirements across all state-commissioned construction projects, with phased extension to municipal procurement	% of state construction contracts with GPP criteria applied	70% by 2030
2.2	Enforce the target that at least 70% of the total public procurement value is implemented through GPP by 2030	% of total public procurement value through GPP	70% by 2030
2.3	Enforce the target that 70% of the total number of public procurement contracts are implemented through GPP by 2030	% of total contracts through GPP	70% by 2030
2.4	Shift procurement evaluation from lowest price to TCO, incorporating LCA and LCC methodologies	% of public construction contracts using TCO/LCC as an evaluation criterion	30% of qualifying contracts by 2030
4.1	Comply with EPBD EU/2024/1275 - transposition and submission of National Building Renovation Plan	EPBD transposed (Y/N); NBRP submitted (Y/N)	Both completed by the end of 2026
5.1	Establish a comprehensive system for CDW data collection and public disclosure of waste information	Disaggregated CDW reporting methodology adopted (Y/N)	Adopted by 2028
5.2	Adopt and implement mandatory pre-demolition audits and selective demolition requirements for building removals	% of demolitions above the statutory threshold with completed audit	80% compliance by 2030
6.1	Finalize and adopt the update to Decree No. 344/2022 to clarify the transition from demolition waste to recycle	Updated decree adopted (Y/N)	Adopted by 2027

Pillar 2: Fostering Digital Innovation & Technology Adoption

ID	Proposed Action	KPI	Target 2030
2.5	Promote LCA/LCC methodologies as best practices via pilot projects on public buildings	Number of completed and published LCA/LCC pilot projects	5 pilot projects by 2030
3.1	Establish mandatory BIM handover quality standards for publicly procured buildings	% of newly commissioned public buildings with a verified as-built BIM model at handover	50% of qualifying buildings by 2030

ID	Proposed Action	KPI	Target 2030
3.2	Prepare a roadmap for passportization of existing public buildings	Roadmap adopted (Y/N); number of public buildings passportized	Roadmap by 2027; 500 buildings by 2030
3.3	Integrate LCC requirements into green public procurement criteria for building operations	% of public building procurement documents including LCC operational cost requirements	50% of qualifying procurements by 2030
3.4	Promote digital twin adoption through targeted support for public building operators	Number of public buildings with an operational digital twin deployed	10 pilot deployments by 2030
5.3	Develop and promote regional digital construction material exchange platforms (material banks)	Platform operational (Y/N); projects registered; volume listed (tonnes)	Piloted by 2028; 50 projects annually by 2030
6.2	Integrate secondary material requirements into green public procurement criteria	% of public construction contracts specifying minimum recycled content requirements	20% of qualifying contracts by 2030
6.3	Prepare for Digital Product Passport compliance with special attention to SMEs	Number of Slovak SME manufacturers with DPP-compliant certified secondary material products	20 SME manufacturers by 2030
6.4	Promote secondary materials use in the design phase via BIM libraries and material databases	Number of certified secondary materials listed in BIM libraries/databases used by Slovak architects	50 certified products listed by 2030
6.5	Establish a state-supported certification assistance scheme for SMEs processing secondary construction materials	Number of SMEs supported through certification assistance scheme; number of certified secondary material products brought to market	30 SMEs supported by 2030; 15 certified secondary material products on the market by 2030
8.4	Develop a dedicated online knowledge hub aggregating best practices, case studies, legislative updates, and practical tools	Platform live (Y/N); unique visitors annually	Live by 2027; 10,000 visitors annually

Pillar 3: Building Skills & Capacity

ID	Proposed Action	KPI	Target 2030
7.1	Integrate BIM literacy into secondary vocational school curricula as a baseline competency requirement	Number of vocational schools with BIM in the standard curriculum	20 schools by 2030
7.2	Establish a national certification framework for BIM and circular construction professionals	Framework adopted (Y/N); number of certified professionals	Framework by 2028; 500 certified professionals by 2030

ID	Proposed Action	KPI	Target 2030
7.3	Register circular and digital construction courses within the IVU system (vzdelavamsa.sk)	Courses in the IVU catalogue; number of participants	10 courses by 2027; 1,000 participants by 2030
8.2	Document and disseminate Slovak reference cases as the backbone of awareness activities	Number of published Slovak circular/digital construction case studies	30 case studies by 2030
8.3	Establish an annual national event on circular and digital construction	Events held annually; number of participants per event	Annually from 2027; 500+ participants per event

Pillar 4: Raising Awareness & Changing Mindsets

ID	Proposed Action	KPI	Target 2030
8.1	Launch a coordinated national awareness campaign for circular and digital construction	Estimated reach (number of people); construction companies reached	50,000 people; 2,000 companies by 2030
8.2	Document and disseminate Slovak reference cases as the backbone of the campaign	Number of published case studies publicly available	30 case studies by 2030
8.3	Establish an annual national event on circular and digital construction	Events held annually; participants per event	Annually from 2027; 500+ participants
8.4	Develop a dedicated online knowledge hub aggregating best practices, case studies, legislative updates, funding instruments, and practical tools	Platform live (Y/N); unique visitors annually	Live by 2027; 10,000 visitors annually

5. National Context and Challenges

Slovakia's construction sector is entering a period of accelerating regulatory and technological change - one that will either widen the gap with more advanced Danube Region countries or close it, depending on the policy decisions made in the next five years. The sector contributes approximately 5-6% of GDP, employs 7.5% of the national workforce, and generates nearly one third of all waste - yet it operates without a national BIM strategy, without a green procurement framework that meaningfully reaches construction, and without reliable data on its true circular performance. The following SWOT analysis provides a structured snapshot of Slovakia's starting position across the four dimensions most relevant to this TAP.

Diagram 1.: SWOT Analysis - Circular & Digital Construction in Slovakia

STRENGTHS	WEAKNESSES
- Active BIM community since 2013; building adoption at 36.5% (2025) - Functional CDW legislative baseline (Act 79/2015, Decree 344/2022, SOH SR 2035) - Active civil society ecosystem — BIMaS, INCIEN, Circular Slovakia, SBA	- BIM driven exclusively by private sector; only 3.1% cite public authority requirement - GPP at 17% by value vs. 70% national target; lowest-price criteria in 90%+ of procurements - BIM model quality breaks down at construction-to-handover transition - CDW recovery at 89% includes backfilling — true recycling rate unknown - Fragmented governance across ME SR, Office for Territorial Planning, MIRRI SR
THREATS	OPPORTUNITIES
- Public investment largely dependent on EU fund with fragmented calls — risk of losing circular dimension when cycles end - Lowest-price procurement lock-in systematically excludes circular solutions - Foreign firms from advanced Circular DigiBuild countries capturing Slovak renovation market - Ageing workforce — average age 47 and rising; insufficient skilled pipeline - Greenwashing risk — without robust data and certification, circular claims cannot be verified	- EPBD transposition + National Building Renovation Plan obligation — policy window for circular/digital requirements - Draft Waste Act: mandatory pre-demolition audits — data foundation for secondary materials market - CPR 2024/3110 — Digital Product Passports mandatory from 2028 - IVU Individual Learning Accounts (April 2026) — state-subsidised upskilling channel - Digital Picture of the Country — entry point for BIM integration into permitting

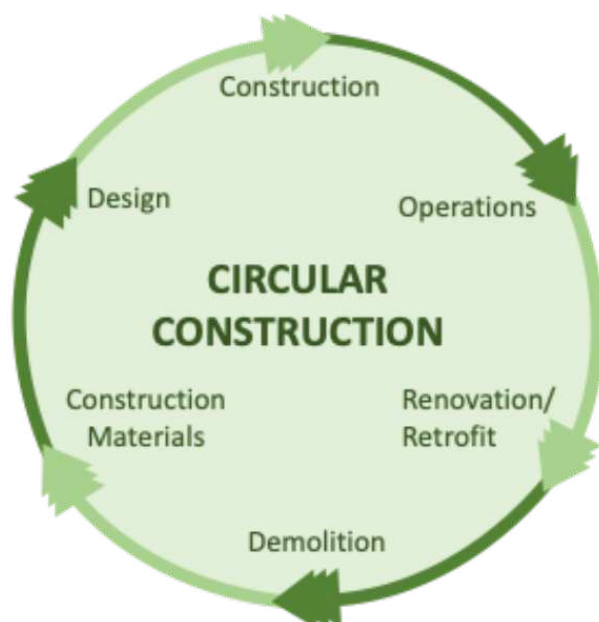
Source: Author's own processing

The actions defined across the lifecycle phases and four strategic pillars in this chapter directly target the weaknesses and threats identified above, while building on existing strengths and the policy windows that the current moment presents. The analysis below provides the evidence base and rationale behind each intervention - organised first by the six phases of the circular construction lifecycle, then by the two cross-cutting pillars of Skills & Capacity and Raising Awareness.

5.1 The Full Lifecycle of Circular Construction in Slovakia

Circular construction is not a single intervention - it is a system that spans the entire lifecycle of a construction, from initial design through construction, operation, renovation, and ultimately demolition. The diagram below illustrates this cycle encompassing six interconnected phases: **Design, Construction, Operation, Renovation/Retrofit, Demolition, and Construction Materials.**

Diagram 2.: Circular Construction



Source: Author's own processing

This TAP was developed with full awareness of all six phases. The analysis below identifies the current status and key challenges in each phase, and where the evidence and stakeholder input support actionable intervention, proposes concrete measures to accelerate digital innovation and circularity.

Phase 1: Design

The design phase represents Slovakia's strongest entry point into circular construction. Architectural and engineering firms, particularly in Bratislava, have an increasing awareness of BIM tools. According to the BIM Association of Slovakia (BIMaS), the overall BIM implementation rate reached 28.5% in 2025, with the rate for building construction even higher at 36.5%. The sector's own growth projections are optimistic: BIMaS estimates BIM could be used on up to 70% of projects within the next five years².

However, a structural anomaly undermines this progress. BIM adoption in Slovakia is driven almost exclusively by the private sector - in 2025, 56.3% of practitioners reported adopting BIM based on employer initiative, with only 3.1% citing a requirement from a public authority³. This stands in direct contrast to the experience of advanced countries within the Circular DigiBuild

² BIM Association of Slovakia (BIMaS). (2025). Aktuálny stav BIM na Slovensku (BIM Current Status in SR). Presented by Doc. Ing. Tomáš Funtík, PhD., Slovak Technical University, Bratislava.

³ BIM Association of Slovakia (BIMaS). (2025). Aktuálny stav BIM na Slovensku (BIM Current Status in SR). Presented by Doc. Ing. Tomáš Funtík, PhD., Slovak Technical University, Bratislava.

initiative, where state policy and regulation were the primary drivers of sector-wide adoption. The absence of a national BIM strategy and any public procurement mandate means that growth remains organic, uneven, and fragile.

A further structural barrier is the building permitting process. Despite the increasing volume of BIM documentation produced during design, permitting procedures continue to be based exclusively on 2D documentation, rendering BIM data irrelevant for regulatory purposes and eliminating incentives for its systematic use. In March 2026, the Government of the Slovak Republic approved the programme intent *Digital Image of the Country (Digitálny obraz krajiny)*, submitted by the Office for Territorial Planning and Construction, which aims to digitalize permitting processes. This is a significant step, though implementation timelines remain to be confirmed.

Proposed actions:

- Develop a national BIM strategy defining adoption targets, standards, and an implementation roadmap
- Accelerate building permitting processes through digitalisation, building on the *Digital Image of the Country* programme
- Introduce a mandatory requirement for all new publicly procured and publicly renovated buildings - at the state and municipal level - to maintain BIM documentation throughout the full lifecycle of the structure

Phase 2: Construction

Slovakia's construction sector is highly fragmented, with small and medium-sized enterprises (SMEs) accounting for the majority of market participants⁴. For these companies, the transition toward circular and digital construction practices presents a disproportionate burden - the investment required in tools, training, and process change is difficult to absorb without the scale that larger firms enjoy.

A critical structural factor shapes the entire sector: the state and public administration together commission approximately half of all construction output in Slovakia⁵ - highways, railways, schools, and public buildings. This concentration of public demand makes the state the single most powerful lever for sector-wide transformation. If the state does not require circular and digital practices, and is not willing to pay for them, market-wide adoption will not follow.

The current public procurement framework works against this ambition. Contracts are awarded predominantly on the basis of the lowest price. This systematically eliminates investment in innovation, education, and higher-quality materials, including recycled and secondary construction materials that carry a cost premium. While Slovakia has set an ambitious national target - the

⁴ Based on the interview with ZSPS

⁵ Based on the interview with ZSPS

Strategy of Environmental Policy of the Slovak Republic until 2030 aims for green public procurement to represent at least 70% of the total value of public procurement - the 2023 baseline stands at 17.04% by value and 19.57% by number of contracts, confirming a significant implementation gap⁶.

The solution lies in transitioning public procurement toward a Total Cost of Ownership (TCO) approach, incorporating Life Cycle Cost (LCC) and Life Cycle Assessment (LCA) methodologies. Under this framework, procurement decisions would account not only for construction cost, but for operational costs, energy performance, material durability, recyclability, and end-of-life value - reframing the economics of circular construction across the full building lifetime.

Proposed actions:

- Extend and enforce green public procurement requirements across all state-commissioned construction projects, with phased extension to municipal procurement
 - Enforce the original target of Slovakia that at least 70% of the total value of public procurement is implemented through green public procurement by 2030
 - Enforce the original target of Slovakia that 70% of the total number of public procurement contracts are implemented through green public procurement by 2030
- Shift the procurement evaluation framework from lowest price to Total Cost of Ownership (TCO), incorporating LCA and LCC methodologies as standard assessment criteria
- Promote LCA/LCC methodologies as the best practices via pilot projects

Phase 3: Operation

Evidence from standardised LCC methodologies consistently show that the operational phase accounts for the majority of total building costs over a structure's lifetime - estimates place this figure at 80% or more, significantly exceeding initial construction and fit-out costs. This makes the operational phase not only the longest, but economically the most consequential stage of any building's life. Equally, decisions made at the design stage - modelled in BIM - have a decisive and largely irreversible impact on operational costs, energy performance, and the building's long-term circular potential: what materials were chosen, how systems were designed, and how easily components can be accessed, maintained, or replaced.

Facility management (FM) software platforms form the operational backbone of modern building management. Their core functions span energy efficiency monitoring, planned and reactive maintenance, asset lifecycle tracking, space utilisation, occupant comfort and indoor environment quality, health and safety compliance, and operational cost control. When properly implemented, FM systems transform building operations from reactive to predictive - reducing costs, extending asset lifetimes, and providing the data foundation for LCC and LCA analysis.

⁶ Waste Management Strategy of the Slovak Republic to 2035, p. 36, available at https://www.minzp.sk/files/sekcia-enviromentalneho-hodnotenia-riadenia/odpady-a-obaly/registre-a-zoznamy/strategia_odpadoveho_hospodarstva_sr_do_2035.pdf

The critical challenge in Slovakia is that this foundation is systematically absent. Industry stakeholders, including operators of leading FM platforms active on the Slovak market, report that the transition from construction to operations is the point at which BIM data most consistently fails. Delivered BIM models routinely do not reflect as-built reality - discrepancies in geometry, systems, and material specifications are common. To date, it is difficult to identify a Slovak building that has been handed over with a BIM model of sufficient quality for direct operational use without significant correction. The consequence is that building operators are forced to conduct their own asset surveys - a process known as passportization - which typically takes months to years, is labour-intensive, and represents a significant avoidable cost that ultimately burdens building owners, tenants, and in the case of public buildings, taxpayers.

Where the full data chain is intact - quality BIM at handover, integrated FM system, and IoT sensor infrastructure - the results are demonstrably positive. Digital twins, which connect a live BIM model to real-time building data, have proven effective for modelling future investment scenarios, optimising maintenance cycles, and enabling continuous LCC monitoring. These are not experimental tools: they are in active use by leading developers and operators in more advanced markets but also in Slovakia, and the underlying technology is accessible. The barrier in Slovakia is not technological readiness - it is the absence of data quality standards at handover that would make these tools viable at scale.

Proposed actions:

- Establish mandatory BIM handover quality standards for publicly procured buildings
- Prepare a roadmap for passportization of existing public buildings
 - This is a precondition for cost cutting and deployment of LCC/LCA methodologies, digital twin projects and reconstruction/retrofit planning based on data
- Integrate LCC requirements into green public procurement criteria for building operations
- Promote digital twin adoption through targeted support for public building operators

Phase 4: Renovation & Retrofit

Slovakia faces a significant and growing obligation under the revised EU Energy Performance of Buildings Directive (EPBD, EU/2024/1275, entered into force May 2024, to be transposed by May 2026). Key requirements include:

- Renovation of the **16% worst-performing non-residential buildings by 2030** and 26% by 2033
- **3% annual renovation** of central government buildings by floor area
- All new public buildings to meet **zero-emission standards by 2028**
- Each Member State to submit a **National Building Renovation Plan**

Translated into Slovak reality, Slovakia has not yet transposed the Directive nor submitted a National Building Renovation Plan. Targets are extremely challenging and significantly exceed current capacity and pace. **This TAP identifies this as a critical national issue. However, given**

its complexity and cross-ministerial scope, a full treatment of the renovation and retrofit challenge exceeds the boundaries of this document and should be addressed by relevant Ministries, especially the Ministry of Transport and the Ministry of Economy.

However, it is important to mention that the EPBD obligations represent not only a compliance challenge but a significant economic opportunity for Slovakia. The scale of building renovation required over the coming years creates direct demand for energy services, digital building management, and circular material flows - precisely the areas this TAP addresses. Energy Performance Contracting (EPC) and guaranteed energy savings schemes (known as GES - *garantované energetické služby*) offer a model where renovation is financed through future energy savings, reducing upfront barriers for building owners and creating long-term revenue streams for Slovak service providers. Slovak companies that develop competitive capacity in these areas - in renovation technologies, FM platforms, BIM-integrated LCC tools, or circular material supply chains - are positioned to expand into neighbouring markets across the Danube region and beyond.

The financing architecture also offers an underexplored opportunity. EIB Group financing in Slovakia reached €649 million⁷ in 2025, with energy upgrades among the top priorities. A deliberate shift toward revolving financial instruments - channelling a portion of EU structural funds through loan and guarantee vehicles rather than non-repayable grants - would allow the same public capital to support a significantly larger volume of renovation activity over time. Slovak Investment Holding (SIH) already operates such mechanisms in other investment areas and could provide the institutional framework for scaling this approach in the building sector. Failing to act on this window carries a symmetric risk: markets that Slovakia does not capture domestically will be entered by more prepared competitors from more advanced EU countries, displacing local firms from their own renovation supply chain.

There is an additional structural problem: renovation and energy retrofit cannot currently be easily combined in a single project under Slovak regulatory and procurement frameworks, despite being logically and economically complementary. Removing this barrier would materially accelerate Slovakia's renovation pipeline.

Proposed actions:

- Comply with the EU regulation
- Out-of-scope of this study

Phase 5: Demolition

Construction and demolition waste generation in Slovakia has remained stable over the past five years at approximately 4.7 million tonnes annually. According to the Ministry of Environment of the Slovak Republic, the CDW recovery rate calculated using the European Commission

⁷ European Investment Bank (EIB). Press Release, March 2026 <https://www.eib.org/en/press/all/2026-118-slovakia-financing-from-eib-group-jumps-60-to-eur649-million-in-2025-with-focus-on-energy-upgrades-and-urban-development>

methodology stands at 89%⁸ - a figure that places Slovakia nominally above the EU's 70% target established under the Waste Framework Directive. Slovakia has met this target continuously since 2020.

From a circularity perspective, the current 70% recovery target measured by weight across all CDW streams is a necessary but insufficient metric. A more meaningful framework would disaggregate targets by individual waste streams - distinguishing, for example, between concrete, masonry, metals, wood, and hazardous materials - and set stream-specific reuse and recycling targets that reflect the actual circular potential of each material. This would shift the policy focus from aggregate tonnage compliance (easy-to-achieve) toward genuine material quality and circularity outcomes.

On top of this, Slovakia itself acknowledges significant weaknesses in waste data collection and reporting. The reported recovery rate includes backfilling - the use of demolition material to fill excavations or level terrain - which, as discussed in the methodological context of this TAP, does not constitute genuine circularity. The share of the reported 89% attributable to backfilling versus actual material recycling and reuse is not currently disaggregated in publicly available Slovak statistics. This means the true circularity performance of the demolition phase is unknown, and so is the gap between reported compliance and genuine circular material flows.

A significant legislative step is currently in preparation. The draft amendment to the Waste Act introduces a mandatory pre-demolition audit for all building removals. The audit requires the originator of waste to conduct a systematic inventory of all materials and components prior to demolition, determine which materials are suitable for reuse or recycling, identify the presence of hazardous substances and define a waste management plan that maximises the application of the waste hierarchy and minimises landfill disposal. This is a substantive and necessary intervention. Currently, it is ineffective as the existing implementing Decree No. 344/2022 lacks a defined audit methodology and enforcement mechanisms - the planned amendments to both the Waste Act and the implementing decree aim to address this.

Beyond compliance, there is a significant untapped opportunity in developing regional digital platforms for construction material exchange. Recoverable materials are routinely lost to lower-value applications not because demand is absent, but because supply is undiscoverable - and this problem is fundamentally regional, they are highly relevant to one within the same region. Slovakia's administrative regions provide a natural framework for piloting such an approach, where pre-demolition audit data feeds directly into a regional materials catalogue, making secondary materials visible and accessible to local contractors, processors, and developers before demolition commences.

Proposed actions:

- Establish a comprehensive system for waste data collection and public disclosure of waste information

⁸ Information provided by the Ministry of Environment of the Slovak Republic

- Adopt and implement the mandatory pre-demolition audits and selective demolition requirements
- Develop and promote regional digital construction material exchange platforms (material banks)

Phase 6: Building Materials

The building materials phase is the point at which the entire value of the demolition and recovery process is either realised or lost. Recovered demolition waste only delivers genuine circular value if secondary and recycled materials are actively promoted, quality-certified, and integrated into new construction. This phase is therefore the logical continuation of Phase 5 - what is recovered from demolition must find its way back into the material supply chain as a verified, market-ready product.

The overarching regulatory objective is clear: maximise the utilisation of CDW as secondary raw material and minimise landfill disposal. Slovak legislation addresses both sides of this equation. On the utilisation side, Act No. 79/2015 Coll. as amended by Act No. 230/2022 Coll. obliges originators of waste from buildings with a built-up area exceeding 300 m² to ensure recovery, recycling, or reuse of at least 70% by weight of construction and demolition waste. The practical conditions under which recovered demolition materials can be reclassified from waste to recycle - and the requirements for placing them on the market - are defined in Decree No. 344/2022 Z.z. on construction and demolition waste. The Ministry of Environment is currently preparing an update to this decree, with the intention of revising the criteria for classifying removed construction materials as by-products and establishing clearer conditions for their market use. This update is significant: the rules governing the transition from waste to secondary material are the legal foundation on which any secondary materials market depends.

However, cost remains a critical barrier: recycled materials must meet the testing, load-bearing, and conformity requirements - a process that is disproportionately expensive for the SMEs that dominate Slovakia's construction sector. Public investment in shared testing infrastructure and subsidised conformity pathways would materially lower the market entry barrier for secondary construction materials - enabling Slovak SMEs to compete on quality rather than absorb certification costs that currently make circularity commercially unviable.

On the landfill minimisation side, Slovakia has progressively increased landfill fees for industrial and construction waste, making disposal the most expensive waste management option and creating a financial incentive to seek recovery alternatives. This pricing pressure is an important but insufficient driver - it pushes material away from landfill without necessarily directing it toward high-value reuse.

A further and significant regulatory shift is approaching at the EU level. The revised Construction Products Regulation (EU) 2024/3110, in force since January 2025, introduces mandatory Digital Product Passports (DPP) for construction products - including products made from used and recycled materials - providing structured data on composition, recycled content, environmental performance, and end-of-life guidance. DPPs become mandatory for manufacturers from

approximately January 2028, with full compliance required by 2032. The Ministry of Transport is the key national institution responsible for product certification under this framework. DPPs are directly relevant to secondary materials: they will require manufacturers of recycled construction products to document and disclose the material composition and environmental performance of their outputs in a standardised, machine-readable format - creating the transparency that buyers, architects, and procurement authorities need to confidently specify secondary materials.

Despite this evolving framework, the Slovak market for secondary construction materials remains underdeveloped. The circular potential of demolition waste can only be realised if secondary and recycled materials are actively promoted, quality-certified, and integrated into new design. This requires development of innovative construction products from demolition-sourced materials, a certification and quality assurance framework for secondary materials, financial or procurement incentives favouring their use, and mechanisms to bring these new material options to the attention of architects and designers at the earliest design stage - where material choices are made and where substitution is still cost-effective.

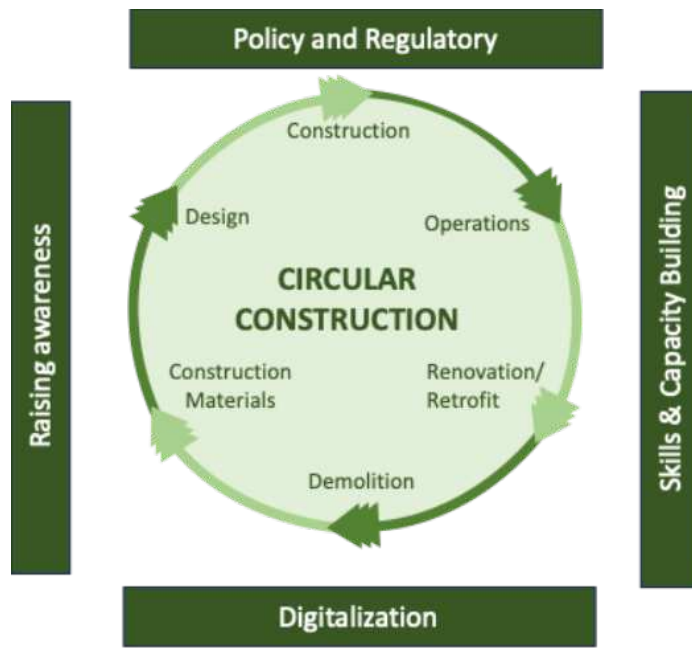
Proposed actions:

- Finalize and adopt the update to Decree no. 344/2022 to clarify the transition from demolition waste to recycle
- Integrate secondary material requirements into green public procurement criteria
- Prepare for Digital Product Passport compliance with special attention to SMEs - to make certification affordable for them
- Promote secondary materials use in the design phase
- Establish a state-supported certification assistance scheme for SMEs processing secondary construction materials

5.2 The Four Pillars of Slovakia's Circular Construction Transition

The lifecycle phases analysed in the preceding section do not operate in isolation - they are enabled, accelerated, or constrained by four cross-cutting pillars that form the structural backbone of this TAP, as suggested by the central project template.

Diagram 3.: Circular Construction and the Pillars



Source: Author's own processing

As illustrated in the diagram, the six construction lifecycle phases sit at the centre of a framework shaped by Policy & Regulatory conditions, Digitalization, Skills & Capacity Building, and Raising Awareness. These pillars are not sequential - they operate simultaneously and reinforce each other: the best BIM mandate is ineffective without trained professionals to implement it; the most comprehensive awareness campaign delivers little without the regulatory framework to back it up. For Pillars 1 (Policy & Regulatory) and 2 (Digitalization), the detailed action tables and KPIs are set out in the preceding lifecycle analysis, where each phase-specific intervention has already been mapped to its policy and digital enablers. This section focuses on Pillars 3 and 4 - Building Skills & Capacity and Raising Awareness - which cut across all six lifecycle phases and require dedicated treatment as standalone strategic priorities.

Pillar 3. Building skills & capacity

The construction sector employs approximately 7.5% of Slovakia's workforce. According to the Sectoral Council's *Strategy for Human Resource Development to 2050* (2025)⁹, the shortage of

⁹ Stratégia rozvoja ľudských zdrojov v nových demografických, technologických

qualified labour is one of the most pressing challenges, compounded by unfavourable demographic trends, an ageing workforce averaging 47 years, low wage attractiveness, and accelerating technological change that existing educational pipelines are not equipped to address.

Higher Education

Slovakia has four universities with construction-relevant faculties: STU Bratislava (the largest, with nearly 2,000 students), the University of Žilina, the Technical University of Košice, and the Technical University in Zvolen, which specialises in timber construction. While these institutions provide solid technical foundations, circular construction, LCA, CDW management, and digital-circular integration are absent as standalone programmes at all four - relevant content appears only as fragmented elective modules.

Secondary and Vocational Education

BIM is currently implemented in only a handful of Slovak vocational schools, despite the industry expecting it to become a baseline competency at every level of the workforce. The ability to open and read a BIM model is fast becoming a basic professional skill, and the gap between this expectation and school curricula is widening.

On the circular construction side. INCIEN - the Institute for Circular Economy - is developing a five-module training methodology for secondary vocational schools under the Sus-Con VET project. The modules cover legislation, education, materials, and waste management, and are designed to be equally applicable at higher vocational and university level. Completion is expected in 2027.

Industry reports some impact on state curricula but translating sectoral signals into updated school programmes typically takes years.

A broader recommendation emerging from stakeholder consultations is to strengthen the link between vocational schools and local employers - moving beyond occasional internships toward structured arrangements where students work on real projects at real worksites as an integrated part of their curriculum.

Lifelong Learning

Slovakia's newly launched Individual Learning Accounts (IVU, April 2026¹⁰) allow every citizen from age 16 to select a course from certified providers and receive a state subsidy - with €10.4 million¹¹ budgeted over three years. The reform also introduces micro-credentials and recognition of competencies acquired through practice, directly relevant for construction workers. Circular and digital construction courses are not yet present in the IVU catalogue - a gap and an immediate opportunity.

a environmentálnych podmienkach dostupná na <https://www.ruzsr.sk/media/9f282694-209f-4e72-82de-116ca7f2dc07.pdf>

¹⁰ <https://vzdelavamsa.iedu.sk/>, <https://epale.ec.europa.eu/en/content/slovakia-starts-individual-learning-accounts-april-1st>

¹¹ <https://www.minedu.sk/ministerstvo-skolstva-spusta-individualne-vzdelavacie-ucty-pre-dospelych/>

In Slovakia no national BIM or circular construction certification programme exists. This is one of the common tools for support in neighbouring more advanced countries.

Proposed actions:

- Integrate BIM literacy into secondary vocational school curricula as a baseline competency requirement
- Establish a national certification framework for BIM and circular construction professionals
- Register circular and digital construction courses within the IVU system
- Develop a national repository of Slovak circular construction case studies
- Launch co-financed upskilling support for SMEs through EU structural fund instruments, targeting circular and digital construction skills for SME owners, site managers and technicians, linked to the national certification framework

Pillar 4. Raising Awareness

Slovakia has no coordinated national awareness campaign specifically targeting circular or digital construction. Relevant activities exist but are fragmented across multiple organisations, each covering a different audience segment without systemic coordination or sustained public funding. The result is that awareness of circular and digital construction practices remains confined largely to early adopters and innovation-oriented firms - while the majority of the sector, dominated by SMEs, remains largely unreached.

The landscape of active organisations is as follows. **INCIEN** is the most active player in circular economy awareness, delivering training for businesses and public institutions, educational programmes for schools, and collaborative projects with international partners. **Circular Slovakia** is a national cluster bringing together more than 50 members from the public, private, and non-governmental sectors. The cluster is the organizer of Circular Summits in Slovakia, aimed at helping businesses and the public understand the circular economy as a sustainable and competitive model.

BIMaS is the primary awareness platform for digital construction, reaching practitioners through the National BIM Conference, BIM Summit and BIM4FREE events - but operating entirely on membership fees and sponsorship without state support. **Slovak Business Agency (SBA)** runs several projects relevant to circular economy adoption by SMEs, including awareness workshops, business vouchers for advice and diagnostics in the circular economy and business advisory services through a national contact point for the circular economy. **SAŽP** manages environmental awareness activities and the GPP monitoring portal, but without construction-specific campaign content. **ME SR** communicates on waste management and circular economy at the policy level, again without a targeted construction sector campaign.

The common thread across all these actors is capacity constraint: each operates within its own mandate and funding envelope, reaching its own audience, without a shared communication platform or joint campaign infrastructure. Slovak reference cases - real projects demonstrating circular and digital construction in practice - are poorly documented and not systematically disseminated, which limits the persuasiveness of any awareness effort directed at sceptical SME audiences.

Proposed Actions

- Launch a coordinated national awareness campaign for circular and digital construction
- Document and disseminate Slovak reference cases as the backbone of the campaign
- Establish an annual national event on circular and digital construction
- Develop a dedicated online knowledge hub aggregating best practices, case studies, legislative updates, available funding instruments, and practical tools

6. Financial Strategy (National Level)

6.1 Funding Sources

Slovakia's financial strategy for circular and digital construction is shaped by a fundamental structural constraint: the national budget carries a significant infrastructure debt with limited capacity for new sectoral investment. Approximately 80%¹² of public investment is financed through EU sources - predominantly EU Structural and Cohesion Funds and the Recovery and Resilience Facility. This dependency defines both the near-term opportunity and the medium-term risk: EU funds provide the scale that national budgets cannot match, but their fragmentation across thematic calls and managing authorities creates the coordination inefficiencies identified throughout this TAP, and their availability is not permanent.

Looking ahead, the role of the national budget will inevitably grow. Discussions on the post-2027 programming period - covering 2028-2034 - suggest that the overall envelope available to Slovakia may be smaller, and that a portion of funding will be redirected toward so-called dual-use technologies. This redirection is worth monitoring closely: energy infrastructure has been designated as critical infrastructure and may qualify for several dedicated calls under dual-use funding mechanisms, creating a financing opportunity that Slovak stakeholders in circular construction - particularly in building renovation and energy efficiency - could proactively explore.

In the near term, the following funding sources remain the primary financing vehicles:

EU Structural and Cohesion Funds (ERDF, ESF+, Cohesion Fund) are the backbone of Slovak public investment in construction, environment, and skills. Within the 2021-2027 programming period, the Programme Slovakia allocates funds across themes directly relevant to this TAP -

¹² This is generally accepted consensus quoted by policy makers, researchers or media. See i.e. public quotes by Supreme Audit Office of the Slovak Republic (NKU) or Head of the Representation of the European Commission in the Slovak Republic

including building renovation, environmental infrastructure, digitalisation, and workforce development. Circular and digital construction requirements should be systematically embedded as eligibility conditions across relevant calls to avoid the fragmentation identified in Phase 2 and Phase 4 of this TAP.

Critically, the next programming period (2028-2034) is currently being shaped. Budgets, thematic priorities, and eligibility conditions are under active negotiation - and this window will close. **Slovakia must engage proactively in the design of the new programmes to ensure that circular and digital construction is explicitly recognised as a funding priority,** that integrated renovation calls are enabled rather than fragmented by theme, and that SME support instruments are included from the outset. Influence at this stage costs significantly less than trying to retrofit priorities into a programme already agreed.

Recovery and Resilience Facility (RRF) had dedicated allocation €620 mil within the Component 2 which makes it the single largest dedicated financing instrument for building renovation in Slovakia's recent history. It is nearing the end of its operational life and cannot be relied upon as a sustained financing vehicle beyond the current programming cycle.

Horizon Europe and Digital Europe provide competitive research and innovation funding directly accessible to Slovak universities, research institutions, and companies. Experience however shows that the programme is extremely competitive.

Interreg Danube Region Programme is the direct funding vehicle for Circular DigiBuild and its successor activities. Slovakia should maintain active participation and position national stakeholders as consortium partners and, where possible, lead partners in future calls.

European Investment Bank (EIB) and revolving instruments - EIB Group financing in Slovakia reached €649¹³ million in 2025, with energy upgrades among the stated priorities. A deliberate shift toward revolving financial instruments - channelling a portion of ERDF allocations through loan and guarantee vehicles administered via Slovak Investment Holding (SIH) rather than non-repayable grants - would allow the same public capital to support a significantly larger volume of renovation and circular construction activity over time. This shift is particularly relevant as grant-based RRF funding winds down.

Private investment and Public-Private Partnerships - Energy Performance Contracting (EPC) and guaranteed energy savings schemes (GES) offer a model where renovation is financed through future energy savings, reducing upfront public expenditure and creating long-term revenue streams for Slovak service providers. Targeted de-risking instruments - guarantees and first-loss tranches administered through SIH - could accelerate private market entry, particularly for SMEs developing capacity in renovation services, FM platforms, and circular material supply chains.

¹³ European Investment Bank (EIB). Press Release, March 2026 <https://www.eib.org/en/press/all/2026-118-slovakia-financing-from-eib-group-jumps-60-to-eur649-million-in-2025-with-focus-on-energy-upgrades-and-urban-development>

6.2 Budget Allocation

It is important to be transparent about the institutional reality: the Slovak Business Agency (SBA) serves as the national coordinator and knowledge dissemination hub for this TAP. SBA does not hold a dedicated implementation budget and is financed through project-based mechanisms. Its primary contribution to TAP implementation is therefore coordinative and facilitative - connecting stakeholders, disseminating knowledge, contributing to the project platform, and advocating for the integration of circular and digital construction priorities into the financing instruments administered by other bodies.

7. Implementation Plan, Stakeholder Engagement and Sustainability (National Level)

7.1 Institutional Reality and Governance

Slovakia's implementation model is shaped by a clear institutional reality: SBA, as the national coordinator of this TAP, operates as a knowledge and facilitation hub without a dedicated implementation budget or statutory authority over the sector. This is not a weakness to be hidden but a starting condition to be designed around. The TAP's implementation, therefore, depends on SBA's ability to connect, convene, and advocate - mobilising the authority and resources of other institutions rather than substituting for them.

Effective implementation of this TAP requires the active engagement of all four helices of the innovation ecosystem: public authorities providing regulatory frameworks and funding, industry and SMEs implementing and investing, research and education institutions generating knowledge and building capacity, and civil society ensuring public legitimacy and demand-side pressure. This quadruple helix logic underpins the stakeholder engagement model described below - no single actor can drive Slovakia's circular construction transition alone, and SBA's coordinative role is precisely to activate and connect these four groups around shared objectives.

The TAP's coordination model is built around Slovakia's active participation in the International Circular Construction Platform,¹⁴ one of the key outputs of the Circular DigiBuild project. SBA, as national TAP coordinator, will proactively engage Slovak stakeholders - key ministries, industry associations, research institutions, and civil society organisations - in this international platform, ensuring that Slovak perspectives are represented and that relevant knowledge, methodologies, and best practices from across the Danube Region flow back into the national context. At the national level, SBA will disseminate platform outputs, facilitate stakeholder connections, and advocate for the integration of circular and digital construction priorities into relevant policy and funding processes - without the overhead of a formal national governance body.

7.2 Timeline and Monitoring

Implementation of this TAP operates on two distinct tracks. The first comprises SBA's own continuous commitments, which run across the full 2025–2030 horizon without fixed phase boundaries. Progress against the KPIs defined for each commitment will be tracked on an ongoing basis, with an annual summary review conducted to assess overall advancement and inform any necessary adjustments.

The remaining proposed actions set out in Chapter 4 — those formulated as recommendations addressed to public authorities, ministries, and sectoral stakeholders — are accompanied by indicative implementation timelines in the respective pillar tables. These timelines reflect the analytical findings of this TAP and serve as a reference framework for the responsible actors. SBA does not assume a monitoring obligation in respect of these actions and cannot commit to their

¹⁴ As of now the proposed name is B2B Platform for Circular and Digital Construction

delivery; however, SBA reserves the right to include selected recommended actions in its monitoring scope where this is deemed relevant and feasible.

7.3 Risk Management

The principal risks to TAP implementation and their mitigations are as follows. Fragmented political ownership across multiple ministries is the highest-probability risk - mitigated by embedding TAP priorities into formal inter-ministerial processes (the new programming period negotiations, EPBD transposition working groups, and the SOH SR 2035 review cycle) rather than relying on voluntary coordination alone. Low industry uptake, particularly among SMEs, is addressed through the awareness, skills, and financial instruments defined in Chapters 4-6. Funding discontinuity after the conclusion of Circular DigiBuild is expected to be partially mitigated by the project consortium's plan to contribute to the international platform through project-based financing and progressively embedding key actions in regulatory and procurement mechanisms that are intended to reduce reliance on project funding. Political will and regulatory capacity remain external risks that this TAP cannot fully control but can partially address by building a visible, evidence-based constituency for action.

7.4 Stakeholder Engagement

The project platform serves as a collaborative space that connects and engages diverse stakeholder groups, but different stakeholder groups require tailored approaches. **Public authorities** - national ministries and municipalities - will be engaged through formal policy processes: programming period negotiations, legislative consultations, and procurement framework reviews. **Industry associations and SMEs** will be reached through BIMaS, ZSPS, and Circular Slovakia's existing networks, with SBA providing direct SME advisory support through its existing business development infrastructure.

Research and education institutions will be engaged through the curriculum development processes identified in Chapter 5, Horizon Europe consortia, and the case study documentation programme. **Financial institutions** - EIB, SIH, and commercial banks active in building renovation financing - will be engaged in the design of revolving instruments and EPC frameworks. **Civil society and the general public** will be reached through the national awareness campaign and knowledge hub defined in Chapter 4.

7.5 Sustainability and Scalability

The long-term sustainability of this TAP rests on three mechanisms.

First, regulatory embedding: actions that are translated into legislative requirements - BIM handover standards, pre-demolition audits, GPP criteria, DPP compliance - become self-sustaining once enacted and do not depend on project funding.

Second, market development: as secondary material markets, EPC services, and digital building management platforms mature, commercial incentives replace public subsidy as the primary driver of adoption.

Third, institutional continuity: the project platform, envisioned as a digital portal combining information sharing, best practice dissemination, and stakeholder networking, represents the core institutional legacy of this TAP. The project consortium's plan to sustain this platform beyond the project completion provides the organisational anchor for long-term coordination.

8. Annexes

Annex A: List of Key National Stakeholders Involved.

Annex B: Utilized National Policy Documents or Reports.

Annex A: List of Key National Stakeholders

TAP Coordinator

Slovak Business Agency (SBA) National coordinator of this Territorial Action Plan within the Circular DigiBuild project. SBA serves as the primary knowledge dissemination and stakeholder coordination hub without a dedicated implementation budget - its contribution is coordinative and facilitative. Following the conclusion of the Circular DigiBuild project, SBA plans to contribute to the project's knowledge and stakeholder platform for circular and digital construction, envisioned as a digital portal combining information sharing, best practice dissemination, and stakeholder networking.

Public Authorities and Regulatory Bodies

Ministry of Environment of the Slovak Republic (Ministerstvo životného prostredia SR — ME SR) Responsible for circular economy policy, waste management legislation, and implementation of parts of the Recovery and Resilience Plan (Component 2 - Building Renovation, REPowerEU chapter). Primary authority for CDW recovery policy, demolition waste regulation, the Waste Management Strategy of the Slovak Republic to 2035 (SOH SR 2035), and the update of Decree No. 344/2022 on construction and demolition waste. Also responsible for monitoring and reporting on green public procurement indicators. Key institution across Pillars 1, 2, and 4.

Office for Territorial Planning and Construction of the Slovak Republic (Úrad pre územné plánovanie a výstavbu SR - UUPV) Established in 2022 as the central state authority for building legislation, construction permits, and digitalisation of construction processes. The new Building Act (No. 25/2025 Z.z.) mandates digitalisation of territorial plans for all regional cities by 2026 and the entire country by 2032. UUPV submitted the Digital Image of the Country (Digitálny obraz krajiny) programme intent - approved by the Government of the Slovak Republic in March 2026 - which aims to digitalise building permitting processes with a planned timeline to end of 2026. Key institution for BIM mandate development, permitting reform, and BIM handover quality standards under Pillars 1 and 2.

Ministry of Transport of the Slovak Republic (Ministerstvo dopravy SR) Primary national authority responsible for the transposition of EPBD (EU/2024/1275) into Slovak law via amendment of Act No. 555/2005 Z.z. on energy performance of buildings, and for submission of the National Building Renovation Plan (NBRP) - deadline end of 2026. Key partner for renovation framework and energy efficiency policy actions under Pillar 1. Under CPR 2024/3110, the Ministry of Transport also serves as the designated national competent authority responsible for market surveillance of construction products and oversight of the Digital Product Passport framework in Slovakia.

Ministry of Economy of the Slovak Republic (Ministerstvo hospodárstva SR) Supervisory ministry of the Slovak Business Agency. Co-responsible for the transposition of the Energy Efficiency Directive (EED) alongside the Ministry of Transport. Relevant for SME support instruments and green economy initiatives.

Ministry of Investment, Regional Development and Informatisation of the Slovak Republic (MIRRI SR) Responsible for Slovakia's digital transformation strategy, coordination of EU structural funds, and preparation of Slovakia's Partnership Agreement for the 2028–2034 programming period. Lead authority for digital infrastructure and key institution for knowledge hub development and revolving financial instrument design under Pillars 2 and 4.

Ministry of Education, Research, Development and Youth of the Slovak Republic (Ministerstvo školstva, výskumu, vývoja a mládeže SR - MŠVVaM SR) Responsible for the national education system including vocational schools and the newly launched Individual Learning Accounts (IVU) system - operative from April 2026 via vzdelavamsa.sk. Key institution for curriculum reform, national certification framework, and upskilling programme under Pillar 3.

Office for Public Procurement (Úrad pre verejné obstarávanie - ÚVO) National authority responsible for public procurement legislation and monitoring. Key partner for implementing green public procurement requirements, TCO/LCC evaluation criteria, and recycled content mandates under Pillar 1.

Slovak Innovation and Energy Agency (Slovenská inovačná a energetická agentúra — SIEA) Intermediary body for the Slovakia Programme 2021–2027, administering calls for energy efficiency in public buildings and enterprises. Coordinator of EDIH EXPANDI 4.0 (co-financed by the Digital Europe Programme and RRF). Key institution for financial instruments and SME digitalisation support under Pillars 1 and 2.

Slovak Environment Agency (Slovenská agentúra životného prostredia - SAŽP) Technical body under ME SR responsible for monitoring circular economy indicators, administering the green public procurement monitoring portal (gpp.sazp.sk), organising capacity building workshops, and producing analytical publications on circular economy in Slovakia. Key institution for data collection, baseline measurement, and monitoring framework implementation across all pillars.

European Investment Bank (EIB) - Slovak Operations The EIB Group is Slovakia's largest multilateral financing partner, with total financing reaching €649 million in 2025 - a 60% increase year-on-year - with energy upgrades and urban development among the stated priorities. The EIB provides both direct lending to public entities and guarantees supporting SME financing through intermediary banks. In the context of this TAP, the EIB is a key partner for structuring revolving financial instruments for building renovation and circular construction, in coordination with Slovak Investment Holding (SIH). EIB financing is particularly relevant for scaling Energy Performance Contracting (EPC) schemes and for de-risking private investment in circular construction services.

Statistical Office of the Slovak Republic (Štatistický úrad SR - ŠÚ SR) National statistical authority responsible for publishing construction sector statistics, waste generation data, and employment figures. Key institution for improving CDW data disaggregation and monitoring framework under Pillar 1.

Technical and Certification Bodies

TSÚS - Technický a skúšobný ústav stavebný, n.o. Slovakia's notified body (No. 1301) for construction product certification under the EU Construction Products Regulation (CPR). Also designated as a Technical Assessment Body (TAB) and a member of EOTA. Supports the Ministry of Transport for implementing the new CPR 2024/3110 requirements, including Digital Product Passports (DPP) and for developing accessible certification pathways for SME processors of secondary construction materials.

SÚTN - Slovenský ústav technickej normalizácie National standardization body responsible for transposing EU harmonized standards into Slovak national standards. Key institution for standard harmonization actions under Pillar 1.

Industry Associations

BIM Association of Slovakia (BIMaS) Professional association active since 2013, representing BIM professionals across architecture, engineering, and construction. Organises the annual National BIM Conference, BIM Summit, and BIM4FREE educational events. Conducts the annual national BIM implementation survey - the primary source of BIM adoption data in Slovakia. Developed a national BIM implementation strategy in collaboration with SKSI and SKA. Participant in the EU BIM Task Group and buildingSMART International. Key institution for BIM adoption, training, certification framework development, and awareness activities under Pillars 2, 3, and 4.

Slovak Construction Industry Union (Zväz stavebného priemyslu Slovenska - ZSPS) Primary industry association representing construction companies. Chairs the Sectoral Council for Construction, Geodesy and Cartography, which published the Strategy for Human Resource Development to 2050. Active in discussions on digitalisation, decarbonisation, and workforce development. Provided direct stakeholder input to this TAP on GPP, BIM adoption barriers, and SME capacity constraints. Key institution for industry engagement under Pillars 1, 3, and 4.

Slovak Chamber of Civil Engineers (Slovenská komora stavebných inžinierov - SKSI) Professional chamber representing authorised civil engineers. Responsible for mandatory continuing professional development (CPD) for licensed professionals. Key institution for integrating circular and digital construction content into CPD requirements and for developing the national certification framework under Pillar 3.

Slovak Chamber of Architects (Slovenská komora architektov - SKA) Professional chamber representing authorised architects. Key institution for integrating circular design principles, secondary material specifications, and BIM-based lifecycle thinking into architectural practice, and for CPD reform under Pillar 3.

Civil Society and Circular Economy Organizations

INCIEN - Inštitút cirkulárnej ekonomiky - Leading Slovak civil society organisation focused on circular economy education, research, and advocacy. Delivers circular economy training for businesses and public institutions in collaboration with SBA. Developing the Sus-Con VET five-

module training methodology for secondary vocational schools (completion 2027) in partnership with organisations from Latvia, Spain, Cyprus, and Bulgaria. Provided direct stakeholder input to this TAP on capacity building gaps and awareness challenges. Key institution for education, training, and awareness activities under Pillars 3 and 4.

Circular Slovakia is a public-private platform and cluster supporting Slovakia's transition to a circular economy. It brings together more than 50 members from the public, private, and non-governmental sectors. As an umbrella organization, it builds a network of active stakeholders and creates space for dialogue, networking, and the exchange of knowledge and experience at both national and international levels. Through education and awareness-raising activities, it also helps strengthen capacities in the field of circular economy and provides practical tools for its implementation. The platform is the organizer of Circular Summit in Slovakia, aimed at helping businesses and the public understand the circular economy as a sustainable and competitive model. Key institution for stakeholder networking, business model innovation, and knowledge dissemination under Pillar 4.

Slovak Green Building Council (SKGBC) Founded in 2010, SKGBC is the primary ambassador for sustainable construction in Slovakia, bringing together companies from across the construction ecosystem to advance ecological, economical, and social aspects of sustainable building. With 90 members, the council organises the annual Green Building Summit and Green Building Academy, participates in the legislative process, and connects Slovak practitioners to international best practice through the World Green Building Council network. Key institution for awareness and sustainable design integration under Pillars 3 and 4.

Research and Education Institutions

Slovak University of Technology in Bratislava - Faculty of Civil Engineering (STU SvF) Largest construction education and research institution in Slovakia, with nearly 2,000 students across eight accredited programmes. The Faculty of Civil Engineering participates in the EU BIM Task Group. Primary academic partner for BIM research, LCA/LCC pilot projects, curriculum development, and Horizon Europe consortium participation. Key institution under Pillars 2 and 3.

Slovak University of Technology in Bratislava - Faculty of Architecture and Design (STU FAD) The Faculty of Architecture and Design at STU Bratislava is an active contributor to digital construction research and education, with BIM integrated into its curriculum and research activities. The faculty operates the XR Lab - a specialised research and teaching centre focused on extended reality (XR) technologies

Technical University of Košice (Technická univerzita v Košiciach - TUKE) Second major technical university with relevant civil engineering and construction faculties. Key institution for regional capacity building and curriculum development under Pillar 3.

University of Žilina - Faculty of Civil Engineering (UNIZA) Third major civil engineering faculty in Slovakia. Key institution for curriculum development and regional engagement under Pillar 3.

Technical University in Zvolen (Technická univerzita vo Zvolene) Trains construction professionals with a particular emphasis on timber as a structural material — directly relevant to circular material flows and bio-based construction innovation. Key institution for timber construction and circular materials research under Pillars 2 and 3.

Slovak Academy of Sciences (Slovenská akadémia vied - SAV) Relevant for R&D collaboration in advanced materials and circular construction innovation.

Slovak Research and Development Agency (Agentúra na podporu výskumu a vývoja - APVV) National R&D funding agency. Key instrument for co-financing collaborative research projects on digital tools for circular construction

Others

Cyrkl Slovak digital platform for secondary materials exchange, already operational in the Slovak market. Identified as a potential foundation or institution for a national demolition materials marketplace under Pillar 4.

bAvenir develops a digital platform supporting the upcycling process in the construction and manufacturing industries, with a focus on timber and concrete material streams as part of the **CIRCULess project** (Horizon Europe).

NARA SK — National Recycling Agency Slovakia - A non-profit expert organisation dedicated to improving circular economy processes and addressing environmental issues in Slovakia. NARA SK is actively engaged in national and international projects focused on the transition to a circular economy, conducts life cycle assessments (LCA) and life cycle costing (LCC) of buildings and products, builds research and innovation partnerships, and provides expert consultancy on green infrastructure.

Annex B: Utilized National Policy Documents or Reports

National Legislation

Waste Management

Document	Key Provisions	Status
Act No. 79/2015 Coll. on Waste, as amended by Act No. 230/2022 Coll.	Primary waste management act. Amendment introduced mandatory selective demolition, on-site waste sorting, reporting obligations, and a 70% recycling target by weight for construction waste from buildings above 300 m ²	In force
Decree ME SR No. 344/2022 Coll. on construction and demolition waste	Specifies procedures, documentation requirements, and conditions for by-products classification of removed construction materials	In force; update under preparation
Decree No. 382/2018 Coll. on waste landfilling	Defines inert waste categories relevant to CDW management	In force
Decree ME SR No. 371/2015 Coll. implementing provisions of the Waste Act	Implementing regulations for the Waste Act	In force

Construction and Planning

Document	Key Provisions	Status
Act No. 200/2022 Coll. on Territorial Planning	Legal framework for digital territorial planning, in effect from 1 April 2024	In force
Act No. 25/2025 Coll. — New Building Act	Replaces Act No. 50/1976 Coll. Introduces mandatory digitalisation of construction processes, a new permit system, and Portál výstavby platform. Mandates digitalisation of territorial plans for regional cities by 2026 and the entire country by 2032	In force from 1 April 2025
Act No. 555/2005 Coll. on Energy Performance of Buildings	Primary legislative instrument for EPBD transposition; amendment in preparation	Amendment pending; deadline May 2026

National Strategic Documents

Document	Responsible Body	Status
Envirostratégia 2030 — Strategy of Environmental Policy of the Slovak Republic until 2030	Ministry of Environment SR	In force; identifies Slovakia's main environmental challenges
Stratégia odpadového hospodárstva SR do roku 2035 (SOH SR 2035) — Waste Management Strategy to 2035	Ministry of Environment SR	SEA process initiated April 2025; consolidates Waste Management Plan, Waste Prevention Programme, and Food Waste Prevention Programme; CDW explicitly addressed as priority material flow
Circular Economy Roadmap for Slovakia — <i>Closing the Loop in Slovakia</i> (OECD, 2020)	ME SR + OECD + European Commission	Published; construction sector explicitly addressed with over 30 concrete policy recommendations
Waste Prevention Programme	Ministry of Environment SR	In force from 2019
Waste Management Programme 2021–2025	Ministry of Environment SR	Current framework document
Recovery and Resilience Plan — Component 2: Building Renovation (€620 million) + REPowerEU Building Renovation (€403 million)	Government of SR / ME SR	Active; includes Reform 3 on construction waste management and a platform for energy performance data of public buildings; operational deadline 2026
Digitálny obraz krajiny (Digital Image of the Country)	Office for Territorial Planning and Construction SR (UUPV)	Approved by the Government of SR in March 2026; aims to digitalise building permitting, automate construction approvals, and improve the quality of territorial plans; expected implementation by the end of 2026
Slovakia's Digital Transformation Strategy 2030	MIRRI SR	In force; covers AI, IoT, and blockchain relevant to construction digitalisation
Slovakia RIS3 2021+	MIRRI SR	In force; circular economy and digital technologies included as priority areas
Guide to Construction and Demolition Waste Management (<i>Príručka nakladania so stavebným odpadom a odpadom z demolácií</i>)	Ministry of Environment SR	Published; practical guidance for waste producers, contractors, and authorities on selective demolition, waste sorting, documentation, and recovery pathways
Human Resources Development Strategy (<i>Stratégia rozvoja ľudských zdrojov v nových demografických, technologických a</i>	Sectoral Council for Construction, Geodesy and Cartography	Published 2025; identifies BIM, digitalisation, automation, and green transformation as priority competency areas. Available at: ruzsr.sk

Document	Responsible Body	Status
<i>environmentálnych podmienkach do roku 2050)</i>		
Green Public Procurement Action Plan (<i>Akčný plán zeleného verejného obstarávania</i>)	Ministry of Environment SR	In force; national GPP target of 70% by value and by number of contracts; 2023 baseline: 17.04% by value, 19.57% by number of contracts

EU Legislation with Direct Impact on Slovakia

Document	Key Provisions	Status
Directive 2008/98/EC on Waste (as amended by 2018/851/EU)	Establishes the waste hierarchy and key definitions applicable to CDW management	In force
Construction Products Regulation (EU) 2024/3110 (CPR)	Introduces mandatory Digital Product Passports, Environmental Product Declarations, and sustainability requirements for construction products, including recycled and secondary materials. Replaces Regulation 305/2011. DPP mandatory from approximately January 2028; full compliance by 2032	In force from January 2025
Energy Performance of Buildings Directive (EU/2024/1275, EPBD)	Sets mandatory renovation targets, zero-emission building standards; requires each Member State to submit a National Building Renovation Plan (NBRP). Slovak transposition deadline: May 2026; NBRP submission deadline: December 2026	In force May 2024; transposition pending in Slovakia

EU Strategic Documents

Document	Key Provisions	Status
European Green Deal (2019)	Overarching EU policy framework within which all circular construction and digitalisation initiatives are positioned	In force
EU Circular Economy Action Plan (2020)	Identifies construction as one of eight priority sectors. Expected to be replaced by the Circular Economy Act in 2026, which is anticipated to introduce binding requirements on secondary raw material use and resource recovery targets	In force; successor legislation in preparation
EU Construction and Demolition Waste Management Protocol (updated 2024)	Technical framework for CDW management, including guidelines for pre-demolition and pre-renovation audits; directly referenced in the national gap analysis in Chapter 5	Published 2024

Document	Key Provisions	Status
EU Strategy for a Sustainable Built Environment	Expected to provide a comprehensive framework integrating CDW, energy efficiency, digitalisation, and circular economy policy into a coherent built environment strategy	In preparation
2030 Danube Region Digital Innovation Strategy for Circular Construction	Transnational strategy of the Circular DigiBuild project upon which this Territorial Action Plan is based	Adopted; this TAP is the national implementation instrument for Slovakia