Annex 7: Indicators for the ERA Scoreboard[1] [*'red': added compared to Tender Specifications-NEW*]

	ERA Scoreboard indicator	ERA Pact sub-priorities	Source	Rationale
1	Gross Domestic Expenditure on R&D (GERD) as a percentage of GDP	R&D Investment	Eurostat (variable code: rd_e_gerdtot)	Monitors progress towards the 3% R&D target
2	Researchers (in full-time equivalent) per million inhabitants	R&D Investment	Eurostat (variable code: rd_p_persocc)	Direct measure of the number of R&D workers per 1 million people. It is identical to UN SDG indicator 9.5.2
3	Expenditure on R&D procurement as a percentage of GDP	R&D Investment	EC/European Innovation Procurement Observatory	Indicator measures the total country expenditure on public procurement of R&D services; to be aggregated for EU-level
	Deepening a truly functioning internal market for knowledge			
4	Share of publications available in open access (green, gold and diamond)	Open Science	OpenAIRE	Measures share of publications available in open access
5	Share of national public R&D expenditure committed to European research infrastructures	Research Infrastructures	ESFRI	Measures the share of national public R&D expenditure for European research infrastructures
6	Share of women in grade A positions in higher education institutes	Gender Equality	Women in Science database	Tracks progress in improvements of women in the highest levels of academia
7	Job-to-job mobility of Human Resources in Science & Technology	Researchers' careers and mobility	Eurostat (variable code: hrst_fl_mobsex)	Measures the exchange of knowledge resulting from people between one job and another. Not all changes in jobs include the creation of knowledge or the diffusion of knowledge, but one may assume that it is more likely that knowledge creation and diffusion takes place when more employees move between jobs
8	Share of innovating firms collaborating with HEI/PRO out of all innovative firms	Knowledge Valorisation	Eurostat: Community Innovation Survey	Measures the collaboration and thus exchange of knowledge between the business and public sector

[1] In addition to this list of Scoreboard indicators, the Contracting Authority will provide to the contractor with about five additional indicators for the ERA Scoreboard at the start of the contract.

	ERA Scoreboard indicator	ERA Pact sub-priorities	Source	Rationale
9	Number of scientific publications among the top-10% most cited publications worldwide as a percentage of all publications	Scientific leadership	Web of Science or Scopus	Measure for the efficiency of the research system, as highly cited publications are assumed to be of higher quality. There could be a bias towards small or English-speaking countries given the coverage of Scopus' publication data
10	International co-publications with non-EU partners per 1,000 researchers in the public sector	Global engagement	Scopus and Eurostat	International scientific co-publications are a proxy for the quality of scientific research as collaboration increases scientific productivity Non-EU is defined as non-Member States
	Taking up together the green transition and digital transformation and other challenges with impact on society, and increasing society's participation in the ERA			
11	Environmentally related government R&D budget as percentage of total government R&D	Challenge-based ERA actions	OECD Green Growth Indicators Database: https://stats.oecd.org/Index.aspx?DataSetCode=GREEN_GROWTH	Monitors progress on research activities supporting the EU's Green deal
12	Purchased or licensed-in patents or other IPRs from public research organisations, universities or higher education institutions	Synergies with education and the European Skills Agenda	Eurostat CIS	
13	Direct government support and indirect government support through R&D tax incentives as a percentage of GDP	Synergies with sectorial policies and industrial policy	Eurostat for data on direct support OECD R&D Tax Incentive Database (http://oe.cd/rdtax) for data on indirect support	Public financing of R&D can take two forms: Direct funding for R&D through instruments such as grants and public procurement, and Indirect support through the tax system. Over time, more and more countries have introduced R&D tax incentives
14	Research on social innovation (publications on 'social innovation' or 'social entrepreneurship')	Active citizen and societal engagement in R&I	OpenAIRE	Captures contributions from public and private sector R&I towards solving societal problems
	Enhancing access to research and innovation excellence across the Union and enhancing interconnections between innovation ecosystems across the Union			
15	Increase in total R&D expenditure, expressed as a percentage of GDP	More investments and reforms in countries and regions with lower R&I performance	Eurostat (variable code: rd_e_gerdtot)	Monitors widening countries' share in EU research activities *Widening countries include Bulgaria, Croatia, Cyprus, Czechia, Estonia, Greece, Hungary, Latvia, Lithuania, Malta, Poland, Portugal, Romania, Slovakia, Slovenia*

	ERA Scoreboard indicator	ERA Pact sub-priorities	Source	Rationale
16	Number of Seal of Excellence projects published on the InvestEU Portal that have received funding per 1,000 R&D personnel (in FTEs)	Synergies between Union, national and regional funding programmes	InvestEU Portal, Eurostat	The Seal of Excellence is a quality label awarded by the Commission to proposals which have been assessed in a call for proposals under a Union instrument and are deemed to comply with the quality requirements of that Union instrument but could not be funded. These projects are judged to deserve funding and might receive support from other Union or national sources of funding. The Seal of Excellence certificate recognises the value of the proposal and helps other funding bodies take advantage of the high-quality Commission evaluation process
17	Number of collaboration networks of RPOs in Widening countries with other EU countries	Increased collaborative links and excellence-based integration of research-performing organisations from countries and regions with lower R&I performance	CORDIS Datalab (https://cordis.europa.eu/datalab/datalab.php)	Monitors the number of collaborations between Widening countries and other EU countries *Widening countries include Bulgaria, Croatia, Cyprus, Czechia, Estonia, Greece, Hungary, Latvia, Lithuania, Malta, Poland, Portugal, Romania, Slovakia, Slovenia*
	Advancing concerted research and innovation investments and reforms			
18	Share of public R&D expenditures financed by the private sector	Support to prioritise and secure long-term R&I investments and policy reforms	Eurostat (variable code: rd_e_gerdfund)	Measures public-private co-operation in research. The willingness of the private sector to co-fund public R&I projects could be a proxy for how closely companies work with universities and public research organisations
19	Government budget allocations for R&D (GBARD) allocated to Europe-wide transnational, as well as bilateral or multilateral, public R&D programmes per FTE researcher	Coordination of R&I investments	Eurostat (variable codes: gba_tncoor & rd_p_persocc)	Reflects the emphasis on collaboration and sharing of experiences in R&D across borders, whether national, regional or organisational. Europe-wide transnational public R&D programmes include R&D programmes that involve the flow of funds across borders for research purposes, as well as those that include transnational cooperation. Bilateral or multilateral public R&D programmes comprise non-European Commission funded R&D research conducted jointly by at least two Member State governments, involving either the flow of funds or transnational cooperation. This indicator is a good proxy to measure government support to transnational collaborations across the ERA