

HPC, AI and Upskilling Needs in Kosovo

Results of the EuroCC 3 National Demand Survey

Nevojat për HPC, AI dhe ngritje të kapaciteteve në Kosovë: rezultatet e anketës kombëtare EuroCC 3

Project:	EuroCC 3 – National Competence Centres in the framework of EuroHPC (GA No 101306701)
Prepared by:	NCC Kosovo Team (AIUP and KREN)
Institutions:	University of Prishtina – Center for Artificial Intelligence (AIUP); Kosovo Research and Education Network (KREN)
Survey period:	24 September – 2 October 2026
Survey responses:	26 organisations
Coverage:	Industry, academia and public sector, Kosovo
Report version:	Draft for review, October 2026



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Primary data source	EuroCC 3 Kosovo online survey on HPC and AI needs (Google Forms), 26 organisational responses, collected 24 September – 2 October 2026.

Methodological note

The results describe the 26 organisations that responded to an open, non-probability survey. They identify needs and priorities among early-engaged stakeholders and should not be read as statistically representative estimates for all organisations in Kosovo. ICT companies and Prishtina-based organisations are over-represented, while ministries and municipalities are absent. Findings will be complemented by the planned stakeholder interviews.

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Executive Summary

Within EuroCC 3, NCC Kosovo conducted a national survey to identify demand for high-performance computing (HPC), artificial intelligence (AI) support, and training and upskilling, and to inform the selection of the first services in the NCC service catalogue. Between 24 September and 2 October 2026, 26 organisations responded: 17 private companies (including 2 startups), 4 universities or research organisations, 2 public agencies and 3 other organisations. Most respondents (18 of 26) hold management or leadership roles.

58%

Have never used HPC

65%

Unaware or unsure of EuroHPC access

77%

Expect computing needs to grow

58%

Need support with GenAI / LLMs

Key message

Kosovar organisations are active users of standard digital and AI tools, but only a small minority use HPC. Demand for computing and AI is expected to grow, yet awareness of EuroHPC access routes is low. The main gap is not interest but the step from awareness to practical, supported use. NCC Kosovo should combine low-threshold onboarding with hands-on, project-based support.

Main findings

- **Mainstream digital use, limited HPC use.** Use of standard IT, cloud and off-the-shelf AI tools is almost universal (22–25 of 26). In contrast, 15 organisations (58%) have never used HPC, and only 6 (23%) used HPC in the past 12 months. GPU use is more common (12 recent users, 46%).
- **Growing demand.** Twenty organisations (77%) expect their computing needs to grow over the next year, 11 of them significantly. Ten (38%) report that computing limitations already slowed or reduced the scope of their work.
- **Low EuroHPC awareness.** Twelve organisations (46%) had never heard of EuroHPC access, and a further 5 knew of it but not how access works. Only one had applied. Fourteen (54%) would consider applying once suitability has been assessed.
- **AI support focuses on GenAI and ML.** The most requested AI support is use or adaptation of generative AI and LLMs (15, 58%), predictive or machine-learning model development (13, 50%) and identifying valuable AI use cases (12, 46%).
- **Strong training demand, practical formats.** Machine learning and AI devel-

opment, and generative AI and LLMs, are the top training topics (13 each). Short hands-on workshops are the preferred format, and 16 organisations (62%) prefer training in English. Indicatively, at least 140 staff could participate in training over the next 12 months.

- **Three distinct user groups.** Using a transparent maturity score, organisations were classified as Beginner (10), Emerging (8) and Advanced (8). Their needs differ clearly: Beginners prioritise introductory and hands-on training, Emerging users prioritise AI development and data engineering, and Advanced users prioritise EuroHPC access, GPU computing and SME/startup support.
- **Clear service priorities.** The services most often selected as priorities are EuroHPC access support (13), Introduction to HPC and AI (11), AI development support (10), hands-on workshops (9) and HPC readiness assessment (8).

Priority recommendations

1. Prioritise five Year-1 services: EuroHPC access and readiness support; Introduction to HPC and AI; AI and GenAI development support; hands-on training workshops; and SME/startup innovation support.
2. Run a structured onboarding pathway (awareness → readiness assessment → supported pilot → EuroHPC application) instead of isolated events.
3. Offer group-specific tracks for Beginner, Emerging and Advanced users, delivered mainly in English with Albanian-language introductory sessions.
4. Launch an EuroHPC awareness campaign targeting ICT companies and universities, with guided support for the first applications.
5. Use the 18 organisations that agreed to follow-up contact to validate the classification and service shortlist through interviews, and actively recruit public-sector and non-ICT respondents.

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Acronyms and Key Terms

Term	Definition used in this report
AI	Artificial intelligence.
EuroCC 3	Third phase of the EuroHPC project establishing National Competence Centres for HPC, AI and related technologies.
EuroHPC JU	European High-Performance Computing Joint Undertaking.
GenAI / LLM	Generative AI / Large Language Models.
GPU	Graphics processing unit used for general-purpose and AI computation.
HPC	High-performance computing.
NCC	National Competence Centre.
SME	Small and medium-sized enterprise.
Maturity score	Exploratory 0–7 score combining advanced-compute experience, most advanced technical work and technical independence (Chapter 4).
S01–S15	Codes of the 15 candidate NCC services assessed in the survey (Chapter B).

CHAPTER 1

Introduction

1.1 Context

EuroCC 3 (Grant Agreement No 101306701, 1 April 2026 – 31 March 2029) supports National Competence Centres that help industry, academia and the public sector use HPC, AI and related technologies. In Kosovo, the University of Prishtina, through its Center for Artificial Intelligence (AIUP), and the Kosovo Research and Education Network (KREN) participate in the project as NCC Kosovo. An early task of NCC Kosovo is to establish national demand for HPC computing, AI support and training, and to translate it into a prioritised service catalogue.

1.2 Purpose

This report summarises the national demand survey. It aims to:

1. characterise current use of computing and AI technologies;
2. classify respondents into Beginner, Emerging and Advanced users;
3. identify the main needs for HPC, AI support, training and upskilling, and the barriers to adoption; and
4. recommend priority services for the first year of NCC Kosovo.

CHAPTER 2

Methodology

2.1 Survey design and data

The survey was administered online (Google Forms) in Albanian and covered organisational profile, technology experience, computing and AI needs, data readiness, training, barriers, EuroHPC awareness, and rated need for 15 candidate services. The dataset contains 26 responses, each representing one organisation or unit, collected between 24 September and 2 October 2026. All respondents gave consent to participate. Item non-response was negligible for closed questions.

2.2 Analysis

Percentages use all 26 responses as the denominator unless stated otherwise. For multiple-choice questions (up to three or five selections), shares may sum to more than 100%. Open answers were reviewed thematically. Contact details were not used in the analysis, and organisations are reported only in aggregate.

Methodological note

With 26 responses, one organisation corresponds to about 4 percentage points, and group-level results rest on 8–10 organisations. Differences between groups should therefore be read as indicative patterns. The sample is concentrated in ICT (16 of 26) and in Prishtina (20 of 24 with a named location). Ministries and municipalities did not respond, so public-sector demand is under-represented.

CHAPTER 3

Respondent Profile and Digital Maturity

3.1 Who responded

Small and medium-sized enterprises form the largest group (9), followed by other private and large enterprises (6) and universities or research organisations (4). Organisation size ranges from micro (5 with 1–9 staff) to large (3 with 1 000 or more staff); the median category is 10–49 employees.

3.2 Technology experience

Respondents are experienced users of mainstream technologies, but experience falls sharply for advanced computing (Fig. 3.2). HPC is the least used technology: 15 organisations have never used it. Specialised AI infrastructure for training or hosting models was used by 9 organisations in the last year.

Self-reported technical depth confirms this picture. For the most advanced work carried out in the last 12 months, 12 organisations (46%) used only standard software or ready-made AI tools, 10 (38%) developed their own analysis code or AI models on ordinary computers or cloud servers, and only one ran workloads on HPC, GPU or specialised AI infrastructure. Fifteen organisations (58%) consider themselves able to carry out most technical computing or AI tasks independently, while 10 (38%) need considerable external support.

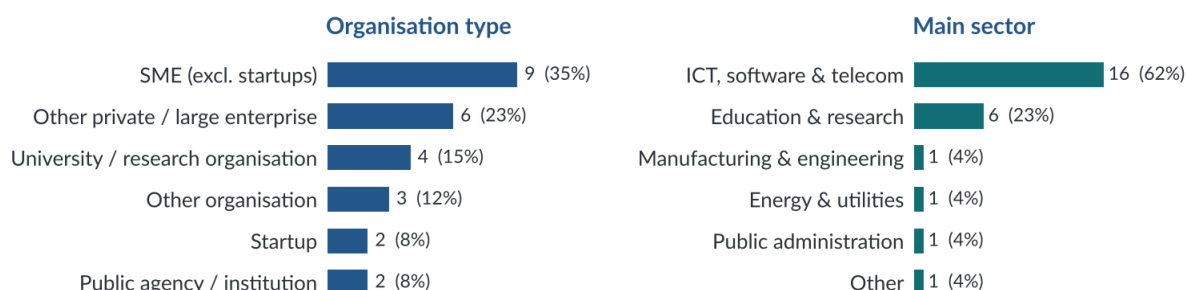


Figure 3.1. Organisation type and main sector of respondents

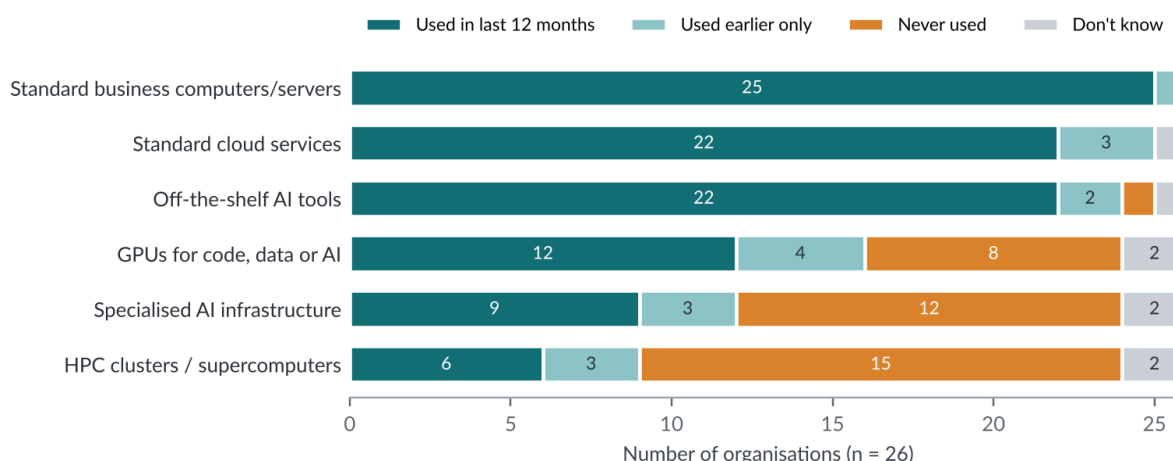


Figure 3.2. Experience with computing and AI technologies

Key message

There is a clear gap between using AI tools and developing or running compute-intensive workloads. This gap, rather than a lack of digital adoption, is the main entry point for NCC support.

CHAPTER 4

User Classification: Beginner, Emerging and Advanced

4.1 Classification criteria

Organisations were classified using a transparent maturity score $M = A + W + I$ on a 0-7 scale, built from three questions that capture actual capability rather than interest (Table 4.1). Equal weight was given to each item because the survey provides no empirical basis for differential weighting.

4.2 Distribution of users

Ten organisations (38%) are classified as Beginner, eight (31%) as Emerging and eight (31%) as Advanced (Fig. 4.1). Advanced-compute experience is the component that differentiates the groups most strongly; technical independence is relatively high even among Emerging users.

Table 4.1. Criteria used for the maturity classification

Component	Survey item	Coding
A – Advanced-compute experience (0-3)	Q04: HPC, GPU, specialised AI infrastructure	Per technology: 1 = used in last 12 months; 0.5 = used earlier only; 0 = never used or don't know.
W – Most advanced work (0-2)	Q05	0 = standard tools only, none or don't know; 1 = own code or models on ordinary computers or cloud; 2 = workloads on HPC, GPU or specialised AI infrastructure.
I – Technical independence (0-2)	Q06	0 = no practical skills; 1 = some tasks with considerable external support; 2 = most tasks independently.

Thresholds: **Beginner** $M \leq 2.5$ **Emerging** $3 \leq M \leq 4.5$ **Advanced** $M \geq 5$

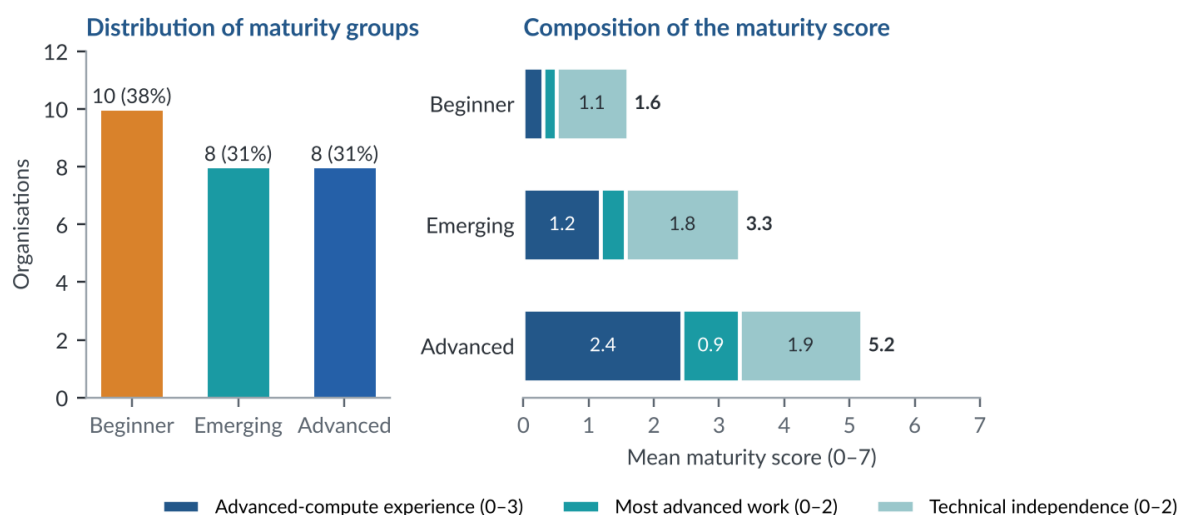


Figure 4.1. Distribution of maturity groups and composition of the maturity score

Methodological note

Advanced is relative to the Kosovar sample, not to established European HPC users: only one Advanced organisation reported having actually run HPC or GPU workloads (Q05), and two reported recent use of advanced infrastructure while describing their most advanced work as standard tools, which suggests some over-reporting in Q04. Six of the eight Advanced organisations score exactly at the threshold ($M = 5$), so the boundary between Emerging and Advanced is sensitive. The classification should be validated in the follow-up interviews.

4.3 Characteristics, needs and gaps by group

Beginner (n = 10): awareness and first steps

Profile. The most heterogeneous group: three of the four universities or research organisations, one of the two public agencies, and a mix of SMEs, a startup and other organisations. Little or no advanced-compute experience (mean $A = 0.3$) and limited own development work.

Needs. Introduction to HPC and AI (7 of 10 priority), hands-on workshops (6), EuroHPC access support (5) and AI development support (5). Identifying useful AI use cases is the top AI need (7). Six expect computing needs to grow significantly.

Gaps. Limited knowledge of possible uses (5), funding (5) and software licensing (5). Data are ready in only 2 of 10 cases. Preference for short formats (half/one-day workshops, short online sessions) and the highest demand for Albanian-language training (4 of 10).

Emerging (n = 8): from tools to development

Profile. Mainly ICT companies of 10–49 staff (5 of 8) that develop software and use GPUs or AI infrastructure occasionally.

Needs. GenAI/LLM adaptation (6) and ML model development (5). Priorities are EuroHPC access, AI development support and data engineering (4 each). Preference for 2–3 day practical courses and mentoring on own projects; 7 of 8 prefer English.

Gaps. Data confidentiality and permissions (3) are a more prominent barrier than elsewhere. This is the most ready group to engage: 6 of 8 can assign staff or already have a concrete project, and 2 have a concrete EuroHPC project in mind.

Advanced (n = 8): scaling and access

Profile. Private companies (7 of 8), mostly ICT, with recent experience of GPU and specialised AI infrastructure (mean $A = 2.4$). Workloads include image, video and geospatial analysis (6) and large-scale data analytics (4).

Needs. GPU capacity (7 of 8). Priorities are EuroHPC access support (4), GPU computing (3) and SME/startup support (3); highest rated need is SME/startup support (5). Little interest in introductory training.

Gaps. Half had never heard of EuroHPC access, despite being the most natural users. Engagement is mixed: 4 of 8 can commit staff or have a project, while 2 do not expect to use NCC services. Only 4 agreed to a follow-up interview.

	Beginner (n = 10)	Emerging (n = 8)	Advanced (n = 8)
Never heard of EuroHPC	50%	38%	50%
Need suitability assessment before EuroHPC	60%	50%	50%
Demand expected to grow strongly	60%	12%	50%
Data available & mostly ready	20%	38%	38%
Can assign staff or has concrete project	50%	75%	50%
Prefers training in English	50%	88%	50%
Priority: S01 Intro to HPC & AI	70%	38%	12%
Priority: S11 Hands-on workshops	60%	38%	0%
Priority: S03 EuroHPC access support	50%	50%	50%
Priority: S05 AI development support	50%	50%	12%
Priority: S07 Data engineering	10%	50%	12%
Priority: S08 GPU computing	10%	12%	38%
Priority: S12 SME & startup support	20%	25%	38%
Barrier: limited knowledge of uses	50%	12%	12%
Barrier: funding / costs	50%	25%	25%
Barrier: data confidentiality / permissions	10%	38%	12%

Figure 4.2. Key indicators by maturity group (share of organisations in each group)

Key message

One generic offer will not fit all users. Beginners need awareness and confidence, Emerging users need applied AI and data support, and Advanced users need access to GPU/HPC resources and a fast route to EuroHPC allocations. EuroHPC awareness is low in all three groups.

CHAPTER 5

Needs for HPC, AI Support and Training

5.1 HPC and EuroHPC access

Computing needs for the next 12 months combine conventional and advanced resources: more powerful standard computers (15), GPU capacity (14), standard cloud and storage (14) and HPC capacity (11). The main use cases are large-scale data analysis and forecasting (14), business-process automation (12), image, video or geospatial analysis (10) and local-language text processing (9).

Awareness of EuroHPC access is the clearest gap (Fig. 5.1). Only one organisation had applied, but interest is substantial: 14 would consider applying after a suitability assessment and 3 already have a concrete project.

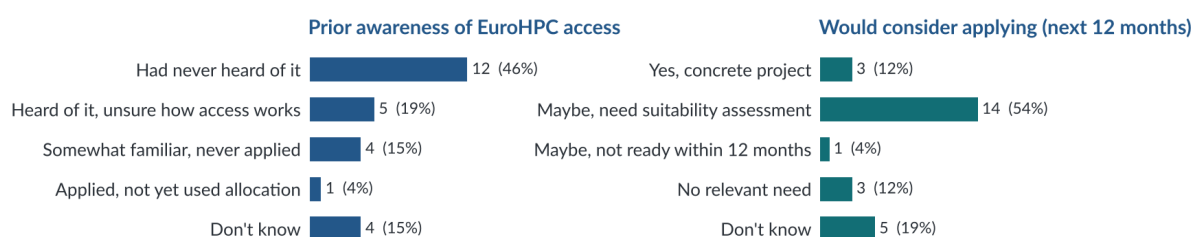


Figure 5.1. Prior awareness of EuroHPC access and willingness to apply

5.2 AI and data support

Requested AI support is dominated by generative AI and applied machine learning, followed by strategic help in identifying where AI creates value (Fig. 5.2). Data readiness is a limiting factor: data are accessible and largely ready in only 8 cases (31%), exist but require collection, cleaning or permissions in 9 (35%), and have not yet been identified in 6 (23%).

Concrete use cases described by respondents include AI for industrial SCADA and district-heating management, AI-enabled access to business data, learning analytics on student test and olympiad results, computation of structures for 3D printing, scalability testing of software products, and a statistical-office pilot on automatic classification of text responses and anomaly detection.

5.3 Training and upskilling

Training demand is strong and practically oriented (Fig. 5.3). Machine learning and AI development and generative AI/LLMs are each selected by half of respondents, followed by responsible data preparation and an introduction to HPC and AI. Half- or one-day hands-on workshops are the preferred format. English is preferred by 16 organisations and Albanian by 6.

Based on the lower bound of each reported range, respondents could realistically send at least 140 staff to relevant training in the next 12 months; the most common answer is 3–5 participants per organisation (9 of 26).

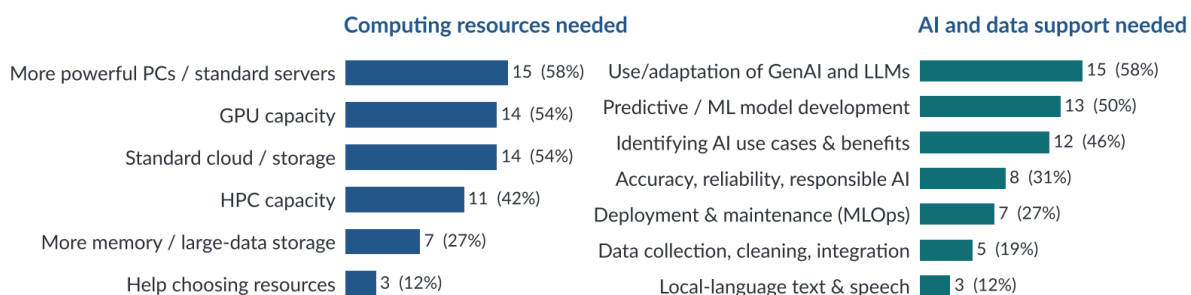


Figure 5.2. Computing resources and AI/data support needed in the next 12 months

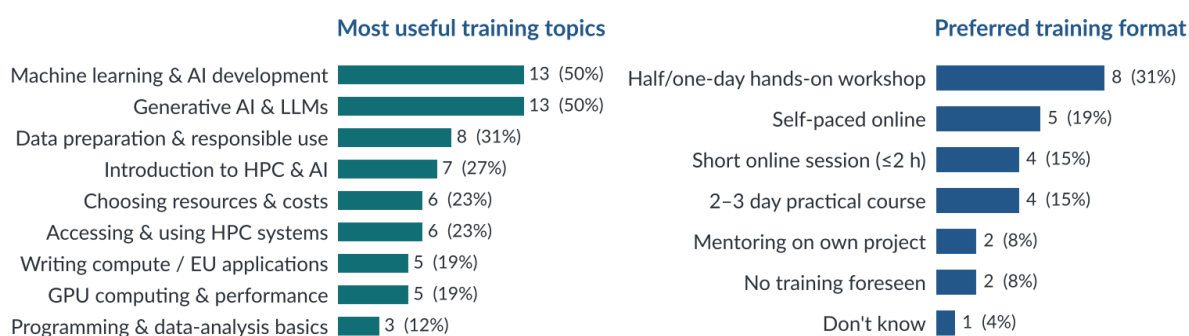


Figure 5.3. Training topics and preferred formats

5.4 Barriers to adoption

Barriers are spread across cost, software and infrastructure access, and knowledge (Fig. 5.4). Six organisations, mostly Emerging and Advanced, report no significant barriers.

CHAPTER 6

Service Demand and Year-1 Priorities

6.1 Rated need versus priority

All 15 candidate services received high or medium need ratings from at least 18 organisations, so rated need alone does not discriminate well. The forced choice of up to five priority services (Q22) is more informative (Fig. 6.1). Twenty-two organisations selected at least one priority service.

Two services show a marked difference between rated need and priority: funding and EU project support (S15) has the highest share of “high need” ratings (16) but is a priority for only 4, and training courses (S10) are rated highly (10) but prioritised by 3. This suggests that these are valued as cross-cutting or complementary services rather than stand-alone priorities. Reported timing is mostly 4–12 months; “within 3 months” is most frequent for the introduction to HPC and AI (6).

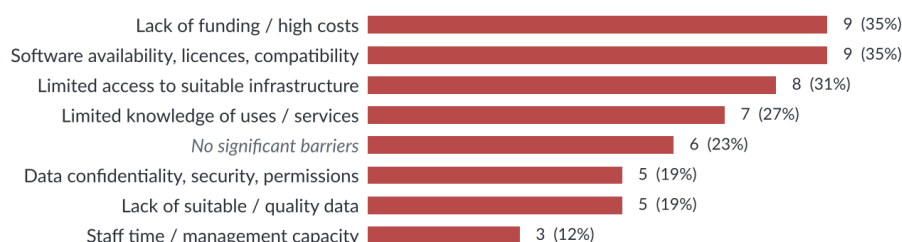


Figure 5.4. Main barriers to better use of HPC and AI

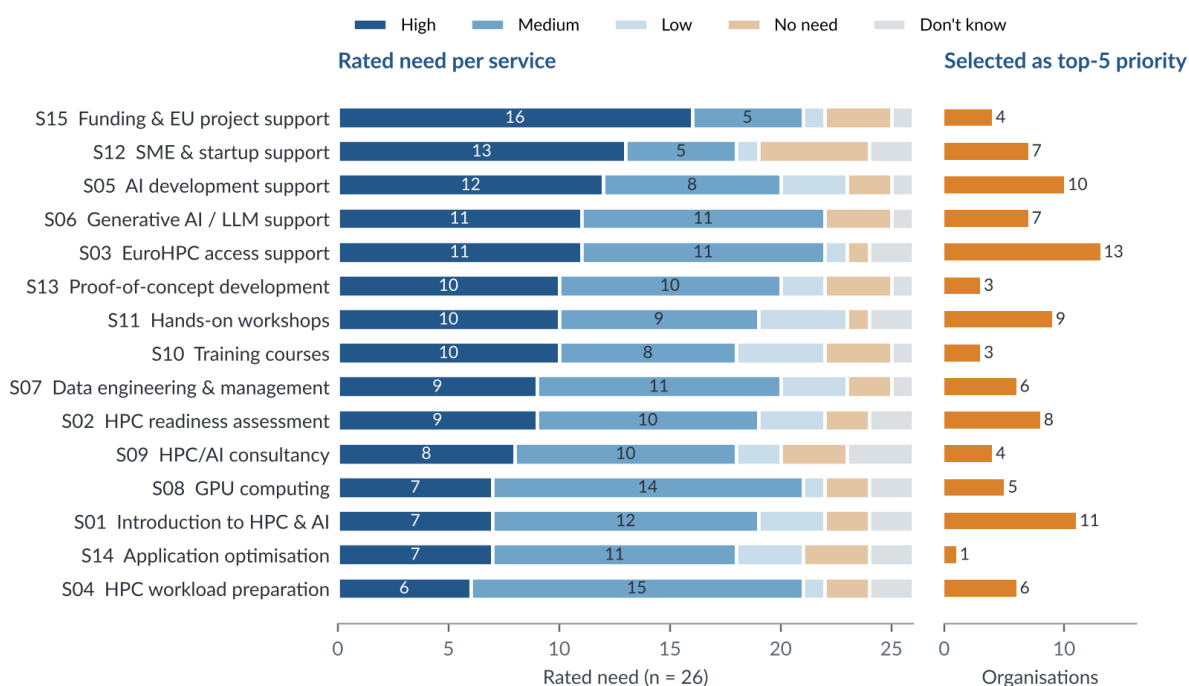


Figure 6.1. Rated need per service and selection as a top-five priority

6.2 Proposed Year-1 service shortlist

Table 6.1. Proposed five Year-1 services

Service (survey codes)	Priority votes	Main target group and rationale
1. EuroHPC access and readiness support (S03, S02)	13; 8	All groups. Top priority overall; closes the awareness gap and converts the 14 “maybe” respondents into applications.
2. Introduction to HPC and AI (S01)	11	Beginner. Second priority overall; most often needed within three months.
3. AI and GenAI development support (S05, S06)	10; 7	Emerging and Beginner. Matches top AI needs (GenAI/LLMs, ML models) and connects to data preparation.
4. Hands-on training workshops (S11, S10)	9; 3	Beginner and Emerging. Preferred delivery format; top training topics ML and GenAI.
5. SME and startup innovation support, incl. funding guidance (S12, S15)	7; 4	Advanced and Emerging companies. Highest “high need” ratings (13 and 16) and the EuroCC focus on industry uptake.

Source and note: Priority votes from Q22 (up to five selections, n = 26). Data engineering (S07, 6 votes) and GPU computing (S08, 5 votes) are close alternatives and can be integrated into services 3 and 1 respectively.

CHAPTER 7

Recommendations

Recommended action

1. Adopt the five Year-1 services in Table 6.1 as the basis of the public service catalogue, with a clear entry point, target group and expected outcome for each.

Recommended action

2. Build an onboarding pathway rather than isolated events. Link awareness sessions, readiness assessments, supported pilots and EuroHPC applications, so that organisations progress from Beginner to Emerging and from Emerging to Advanced.

Recommended action

3. Differentiate by user group. Beginners: short introductory and hands-on sessions, partly in Albanian, with use-case identification. Emerging: 2–3 day applied courses and mentoring on own projects in ML, GenAI and data engineering. Advanced: GPU/HPC access, EuroHPC application support and SME/startup innovation support.

Recommended action

4. Run a targeted EuroHPC awareness campaign for ICT companies and universities, and support a first cohort of EuroHPC applications (for example, development or AI access calls) as a visible early result.

Recommended action

5. Address data readiness explicitly. Combine AI support with guidance on data collection, quality, permissions and confidentiality, which are recurring constraints across groups.

Recommended action

6. Strengthen the evidence base. Use the 18 organisations that agreed to follow-up contact for the planned 15–20 interviews, deliberately include Advanced users and the public sector, and repeat the survey with broader outreach to ministries, municipalities and non-ICT sectors.

CHAPTER 8

Conclusions

The survey shows a digitally active community that already uses cloud services and AI tools, but has limited experience with HPC and little awareness of EuroHPC access routes. Demand for computing and AI is expected to grow, and organisations are interested in practical support, especially in generative AI, machine learning and hands-on training.

The Beginner, Emerging and Advanced classification shows that NCC Kosovo must serve distinct needs at the same time: awareness for Beginners, applied development support for Emerging users and access to advanced resources for Advanced users. Half of the respondents can already assign staff to an initial assessment, which provides a realistic starting point for the first services.

Key message

The priority for NCC Kosovo in Year 1 is to turn interest into supported use: a small, focused service catalogue, a clear onboarding pathway, and early EuroHPC applications that demonstrate value to Kosovar industry, academia and the public sector.

CHAPTER A

Key Indicators

Indicator	n	Percent (n = 26)
Used off-the-shelf AI tools in last 12 months	22	85%
Used GPUs for computation in last 12 months	12	46%
Used specialised AI infrastructure in last 12 months	9	35%
Used HPC in last 12 months	6	23%
Never used HPC	15	58%
Most advanced work: standard or ready-made tools only	12	46%
Can carry out most technical tasks independently	15	58%
Computing limitations slowed or reduced work	10	38%
Expect computing needs to grow	20	77%
Had never heard of EuroHPC access	12	46%
Would consider EuroHPC after a suitability assessment	14	54%
Have a concrete project for EuroHPC	3	12%
Data accessible and mostly ready	8	31%
Prefer training in English	16	62%
Can assign a person for an initial assessment	13	50%
Concrete project, responsible person and staff time	2	8%
Agreed to a follow-up interview	18	69%

CHAPTER B

Candidate Services Assessed

Code	Service	High need	Priority votes
S01	Introduction to HPC and AI	7	11
S02	HPC readiness assessment	9	8
S03	Support for access to EuroHPC supercomputers	11	13
S04	Preparation of HPC workloads	6	6
S05	AI development support	12	10
S06	Generative AI / LLM support	11	7
S07	Data engineering and data management	9	6
S08	GPU computing	7	5
S09	HPC/AI consultancy	8	4
S10	Training courses	10	3
S11	Hands-on workshops	10	9
S12	Support for SMEs and startups	13	7
S13	Proof-of-concept development	10	3
S14	Application optimisation	7	1
S15	Funding and European project support	16	4

CHAPTER C

Data-Protection Note

The survey collected organisation names and, optionally, contact details for follow-up. This report presents aggregated results only; no names, contact details or organisation-level answers are disclosed. Use of contact details should remain limited to the follow-up interviews for which consent was given.