HPC and AI Talent Challenges

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HPC/AI Expertise Shortage

Growing scarcity of HPC experts to implement new technologies will be a roadblock for many sites

- **HPC workforce is shrinking as outflow of retirees exceeds pipeline of new HPC staff**
- **New enterprise IT entrants are increasing the number of HPC sites worldwide**
- **Existing HPC sites are becoming more complex: emerging technologies such as AI, cloud, and GPUs require different skillsets and are driving up the number of systems per site**
- **Competition for HPC staff will intensify**
- **HPC users need major improvements in ease-of-use, ease-of-selection, & ease-of-optimization**

On-Premises HPC Talent

68% of respondents reported on-prem talent concerns

Q: What are your top 3 most significant barriers to expanding use of HPC/technical computing on-premises?

		SECTOR			REGION		
	Overall	Industry	Government	Academia	EMEA	NA	APAC
Lack of knowledge, or skilled HPC/ technical computing support staff	31.9%	40.2%	21.7%	19.4%	31.4%	32.9%	31.3%
Difficulties in scaling/moving our work up to an HPC technical server	27.7%	30.5%	21.7%	25.0%	17.6%	30.1%	50.0%
Programming hurdles with hybrid environments	24.1%	18.3%	60.9%	13.9%	23.5%	24.7%	25.0%
Ease-of-use issues	16.3%	20.7%	8.7%	11.1%	13.7%	20.5%	6.3%

n = 141; 82; 23; 36; 51; 73; 16 (respectively) with 3 responses per respondent. Additional choices not shown.

Source: Hyperion Research, 2021

- **Industry sector is most concerned about overall lack of skilled staff while Government is most concerned about programming for hybrid environments**
- **Compared to WW trend, EMEA is less concerned about scaling HPC workloads while APAC is more concerned**

Cloud HPC Talent

55% of respondents reported cloud talent concerns

Q: What are your top 3 most significant barriers to expanding use of HPC/technical computing in the cloud?

		SECTOR			REGION		
	Overall	Industry	Government	Academia	EMEA	NA	APAC
Lack of knowledge, or skilled cloud computing support staff	28.4%	32.9%	8.7%	30.6%	25.5%	28.8%	37.5%
Difficulties in scaling/moving our work up to an HPC technical server	22.0%	24.4%	34.8%	8.3%	29.4%	16.4%	25.0%
Ease-of-use issues	17.0%	22.0%	4.3%	13.9%	9.8%	23.3%	12.5%

n = 141; 82; 23; 36; 51; 73; 16 (respectively) with 3 responses per respondent. Additional choices not shown.

Source: Hyperion Research, 2021

- **Industry sector is most concerned about overall lack of skilled HPC cloud staff while Government sector is most concerned about scaling cloud workloads**
- **Compared with the WW trend, EMEA is more concerned about scaling HPC cloud workloads and less concerned about ease-of-use**

AI HPC Talent

72% of respondents reported AI talent concerns

Q: Which of the following is a barrier to furthering your AI capabilities?

		SECTOR			REGION		
	Overall	Industry	Government	Academia	EMEA	NA	APAC
Access to AI expertise	51.1%	52.4%	56.5%	44.4%	39.2%	60.3%	50.0%
Skills in AI programming	46.8%	51.2%	26.1%	50.0%	41.2%	50.7%	50.0%
Skills in AI model development	44.7%	48.8%	34.8%	41.7%	35.3%	52.1%	43.8%

n = 141; 82; 23; 36; 51; 73; 16 (respectively) with 2.8 responses per respondent. Additional choices not shown.

Source: Hyperion Research, 2021

- **Half of all respondents reported concern about general AI expertise access**
- **Among these regions, North America is the most concerned about each aspect of AI talent while EMEA is the least concerned**
- **Overall, respondents were most concerned about talent in AI, followed by on-prem HPC and cloud**

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Questions?

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Our ISC22 Briefing Agenda

All registered attendees will receive the slide deck

- **Market Update and Forecasts**
- **Some Perspectives on European HPC**
- **Sustainability: No Longer a "Nice to Have"**
- **HPC and AI Talent Challenges**
- **Exascale Update**
- **Cloud Update**
- **Quantum Update**
- **AI Update**
- **Update on Storage & Interconnects**
- **Conclusions and Wrap-up**