

## EMBL IT Services and Support Review Summary and Response

The review of EMBL IT Services and Support took place in a hybrid format on March 05-07 at EMBL-EBI, Hinxton, United Kingdom. The review panel comprised ten international experts, including two members of EMBL's Scientific Advisory Committee (SAC). The review was chaired by M. Madan Babu from St. Jude Children's Research Hospital (USA). Several observers were present: EMBL Council Vice Chair Amanda Collis; Director General Edith Heard; Deputy Director General Ewan Birney; Director of EMBL Heidelberg Peer Bork; and Head of Strategy Jessica Vamathevan. Line managers Chief Operating Officer Matti Tiirakari and Deputy Director of EMBL-EBI Jo McEntyre were also present.

### Evaluation Summary

The panel remarked on the overall outstanding performance of the EMBL IT services based on the quality of IT services, staff and user training and integrated activities in the European Life Sciences. The calibre of the scientific computing services from EMBL IT Services was found to be world-class and to be a benchmark facility for life science. The reviewers also commended EMBL-EBI on its commitment to globally providing open data, and described EMBL as a "beacon for FAIR-ness".

This was the first pan-EMBL review of IT Services and Support, bringing together the IT functions at EMBL's six sites. Previously, EMBL Heidelberg IT was reviewed in the EMBL Core Facilities and IT Services Review (last reviewed in 2018) and EMBL-EBI IT Services was reviewed as part of the EMBL-EBI Services review (last reviewed in 2019).

This EMBL IT Services and Support review covers activities between 2020 and 2023, and there were three areas of review: (i) EMBL IT Services comprising of the EMBL Heidelberg IT Services (which support the Heidelberg research groups, core facilities and service users and EMBL administration) and the IT Services at EMBL Grenoble, Hamburg, Barcelona and Rome (which cover local infrastructure and site-specific scientific needs); (ii) EMBL-EBI IT Services (which provide very large external bioinformatics services and data resources and EMBL-EBI computational research groups); and (iii) One-EMBL IT Services.

A significant change over the review period was the conception and implementation of the One-EMBL IT initiative. Over the years, local IT services have evolved to serve the needs of each site. The One-EMBL IT strategy, launched in 2023, applies a more integrated approach to tackle key

challenges facing IT, such as the increase in data growth, data diversity and the use of HPC and AI; increasing levels of collaboration in research; expansion of cybersecurity needs; advances in administrative processes; and rising complex workflows.

The strategy introduces a new structure and innovative solutions for identity, collaboration, email, productivity, security and networking, while balancing standardisation with site-specific needs. Additionally, under the direction of Rupert Lück, IT at the sites in Heidelberg, Grenoble, Barcelona, Rome and Hamburg have unified their IT services to operate more cohesively. The panel was very positive towards the launch of the One-EMBL IT initiative and noted the tangible outputs, despite significant resource constraints.

During the review period, Andy Cafferkey took over as the Head of EMBL-EBI IT Services and Technical Services and there was a reorganisation of teams to support growth and transformation. The panel noted the exceptional outcomes that have arisen from these changes. EMBL-EBI also experienced a significant increase in usage of their data resources, with this demand met by IT via operationally efficient technologies such as the FIRE application, improved data governance and standardisation of infrastructure.

The pandemic saw EMBL IT support the move to hybrid working, handle an overall increase in usage of IT and accommodate thousands of external scientific services users and participants of EMBL courses and conferences.

The reviewers found the joint leadership of and cooperation between Rupert Lück, Head of EMBL IT Services, and Andy Cafferkey, Head of EMBL-EBI IT and Technical Services, to be exemplary. Of note was how essential their dual leadership has been in advancing the new organisation-wide One-EMBL IT strategy.

The panel positively noted the impressive progress in delivering substantial technical transformation, resulting in a 20% reduction in power usage with improved service levels and performance. EMBL's excellent progress in developing a culture and awareness around IT security was also appreciated by the panel.

This praise is echoed in the feedback from user groups across the sites who were generally pleased with the quality and breadth of the IT services and the positive and proactive collaboration with the IT teams.

The One-EMBL IT initiative was considered by the panel to be a major achievement and a key future priority that requires appropriate resource and funding allocation. Further to this, the panel also recommended that EMBL further develop the One-EMBL IT strategy to extend beyond tactical enablement and also span digital, data and organisation strategies. Such an overarching strategy would provide a vision on how IT can contribute to fostering scientific excellence across EMBL in line with strategic themes.

Several suggestions were made by the panel to improve efficiencies in large-scale compute and storage infrastructure operations. These include finding additional opportunities to reduce power costs in alignment with EMBL's green agenda; reducing reliance on small operational teams with single points of failure; continued development of a hybrid cloud strategy; a structured mechanism to develop roadmaps of IT needs; and a formal equipment life-cycle approach.

Although the progress in creating a simpler IT organisational structure was welcomed by the panel, they also recommended, ahead of the next Indicative Scheme, an evaluation of the overall organisational structure of IT, with a review of resourcing levels and the development of a unified IT organisation with single executive management.

The development of a fit-for-purpose information security policy was deemed to be of high priority by the panel, along with introduction of an executive-level information security officer role and dedicated IT security resources to improve the security posture of EMBL.

The panel also advised EMBL to place additional focus on the training and career development of IT staff. They encouraged schemes which would allow staff to grow in their role and to be rewarded for new skills and which have wider sector and industry equivalence.

Overall, the panel congratulated EMBL IT services on their achievements and ambitious future plans to support the world-class standing of EMBL.

## Response to the Panel's Recommendations

I would first like to extend my sincere thanks to panel chair Madan Babu and the entire panel. I appreciate the time and dedication that they put into the review preparation, particularly as this was the first time we have reviewed all the EMBL IT Services and Support departments together.

I want to echo the panel's commendation of the excellent services and support provided by EMBL IT Services under the leadership of Rupert Lück and EMBL-EBI IT & Technical Services under the leadership of Andy Cafferkey. They have tackled and overcome a number of challenges and have positioned EMBL to offer excellent IT capabilities and be more robust to future challenges. I join the panel in praising the One-EMBL IT initiative and recognise the immense amount of work that has gone into beginning the work to unify the disparate IT networks of six different sites to create a seamless and productive environment for our scientists, researchers and staff.

I also share the panel's positive assessment of EMBL-EBI's consummate handling of huge amounts of data, a feat invisible to the millions of daily users of EMBL-EBI's data services and to the researchers who deposit their research data, which EMBL-EBI IT staff ensure is open and

free to be reused by the scientific community. It truly is a remarkable achievement and it is affirming to see the achievement recognised by the panel.

As the panel highlighted, IT Services and Support at EMBL have made excellent progress on infrastructure integration, migration, and sustainability initiatives. I am particularly proud of how EMBL colleagues in IT focused on generating energy savings which were not only financially remarkable with 20% reduction in costs, but outstanding for their result in improved efficiency and services.

As EMBL begins preparation for its next scientific programme and Indicative Scheme, we take seriously the panel's recommendation to further develop the One-EMBL IT initiative to encompass digital, data and organisation strategies. The panel's related recommendations on IT organisation and operating model are also much appreciated. IT organisation has been an active area of discussion at EMBL, as we strive to build a structure that matches and will support the One-EMBL ambition.

Regarding the panel's suggestions around IT infrastructure and planning, we will explore additional opportunities to find efficiencies in hosting or operations to reduce costs and be more environmentally conscious, as suggested, which is well in line with EMBL's sustainability strategy. We take seriously the risks inherent in having a small IT team; while budgets are tight, we recognise that ensuring sufficient resourcing to allow our organisation to function appropriately is paramount and we will work to make our staffing more robust. Finally, as the panel recommended, we are already committed to developing a hybrid cloud strategy and we will continue to advance this project.

EMBL also takes IT security and risk management seriously and we are grateful to the panel for their advice and feedback on this topic. We agree with their insight that it would be beneficial for EMBL to create an appropriate information security policy note and their recommendation that EMBL create an executive-level IT security role. We will begin discussions to evaluate how to best ensure that IT security is appropriately staffed.

The panel's final recommendations on IT talent recruitment and career development address some of EMBL's key concerns in this area. We recognise how essential IT talent is to any organisation, and how fortunate EMBL is to have dedicated and innovative IT professionals working in the organisation. We will evaluate their recommendations for training schemes, as we are committed to not only developing IT careers for EMBL's own sake, but also in line with our training mission to contribute expert professionals to the wider sector.

In conclusion, I would like to congratulate Rupert Lück and Andy Cafferkey on their leadership and everyone working in IT across EMBL for their contributions to this review and their work towards ensuring EMBL has world-class IT services and support. I also want to again thank the panel for their insightful feedback and recommendations presented in the report. I greatly look

forward to seeing IT Services and Support plans materialise and witnessing the impact of the One-EMBL IT strategy.



Professor Edith Heard, FRS  
Director General  
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