Feedback of HIFIS SAB 2023

The members of the HIFIS Scientific Advisory Board (SAB) met for the fourth time on July 13, 2023. The virtual meeting was held in GatherTown, a platform that allows for flexible formation of discussion groups, a closed session and also informal chats.

Overall the SAB has expressed a **very positive feedback on the HIFIS activities.** Several of the **proposed future topics** that have also been presented during the HIFIS Evaluation 2022 and further developed in the Incubator Workshop July 2023, have been discussed in detail:

Operational cybersecurity — Management of cybersecurity should be risk based. However, the consequence and probability may not be well understood. The consequences of a successful ransomware attack can be that a facility is unable to operate for multiple months with serious reputational damage with users, funders and partners. The probability of such an attack has changed in recent years, as attacks have moved from being statistical to are becoming targeted. A recognised step in terms of taking cybersecurity to next level is implementing two factor authentication (2FA). Currently implementation of 2FA is dependent of the individual Helmholtz centres deploying it to the IT services they deliver. This model leaves the overall federated service vulnerable to the weakest level of security. Setting cybersecurity standards consistently across all Helmholtz centres would appear to be appropriate part of delivering federated service. Further recommendations were to implement cross-center backups, to cooperate with other organizations, e.g. US Trusted Facilities network and to evaluate Security Information and Event Management systems (SIEM).

Related to this need for preparing business continuity plans and resource to provide effective management of an attack and so minimise its impact.

SAB recommends HIFIS takes the lead in defining and establishing consistent cybersecurity standards and practices across all Helmholtz centres.

Support of Research Software Development — The Education & Training work package and the Consulting work package are facing both a scaling and volume challenge. To address these challenges HIFIS suggests to add additional FTEs to the Consulting and an additional FTE to the Education & Training work package who can specifically deal with scalability of training offers. It was agreed that a central HIFIS Consulting team which initially receives consulting requests from Helmholtz scientists for triage is beneficial. By having a network of experts, the HIFIS team knows where expertise is available. Local groups might be diverse in terms of size or knowledge. Maintaining all competences in any centre does not seam feasible or sensible. This is why a close interaction with each research field is fundamental through dedicated resources.

Implementing more scalable learning methods can be tackled from multiple sides, e.g. by further implementing concepts like train-the-trainer or via hybrid approaches that combine self-learning with synchronous elements. The Open Life Sciences model for ambassadors which itself is based on the Mozilla Open Leaders model might serve useful in this regard. The train-the-trainer approach very often lacks dedicated decentralized resources in the centres though. Possible approaches are currently discussed and evaluated in other activities as well which gives the chance to learn from each other.

Enabling / Impulse Projects — It has been proposed by HIFIS to allow for open calls (and corresponding funding) to foster cloud-readiness of high potential scientific software. Specifically, features like federated login, role-based access models, multi-tenancy are frequently not included or well developed in scientific software, but they are prerequisite to roll out to larger audiences and other communities. The SAB stressed to:

- be aware of the transient effect of project based support: focus on up front buy-in and commitments beyond the support project and knowledge transfer to / capacity building within the research group,

- balance fragmentation of funds across multiple smaller / short projects *vs.* longer running initiatives addressing bottle necks, e.g. https://tdcc.nl/,

- clearly articulate academic benefits for research communities/groups supporting other groups,

- consider a focus more on workflow enabling across multiple services and software, rather than scaling up individual software initiatives.

- There could be more effective ways for attracting show cases and allocating resources (e.g. money, people) than calls, depending available anticipated demand *vs.* resources available, e.g. through a more structural competence group. HIFIS should study examples for call mechanisms and efficacy, e.g. Netherlands eScience Center, DFG, etc...

Ways to improve Helmholtz Cloud Portfolio — Cloud projects have been rated overall positively. With their feedback, the SAB members followed the perspective of a scientific usage of cloud services.

It is important for scientific groups to quickly find out which service best suits their needs. The Helmholtz Cloud Portal should therefore rather optimize the search and selection for scientists and less represent the provider's view of its specific service. To do this, services with the same purpose must be brought together, while at the same time making the differences clear. This also impacts the the FAQ to explain why similar services are provided. The advantages of a federated service architecture is not necessarily important for scientific use cases but shows advantages with respect to resilience in case of cyber attacks.

The SAB members also pointed out that services to be used in scientific projects must offer guaranteed capacities and runtimes. Existing information is already published on the Helmholtz Cloud Portal, but is often not sufficiently precise for scientific projects. The SAB recommends describing the standard level in more detail and negotiating with the provider if necessary. In use cases where additional commitments are required, HIFIS can provide support in designing an agreement and provide templates for a service level agreement (SLA). Even more far-reaching would be the question in which way HIFIS can provide support when use cases require additional features of a service that are not part of the offered service level.