

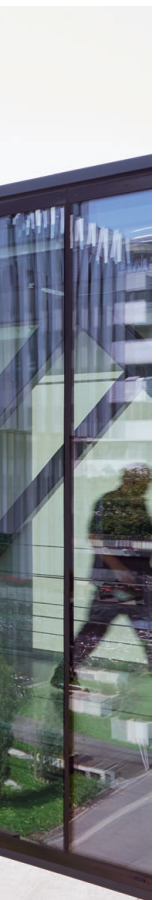
2021

ANNUAL
REPORT

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SCIENCE

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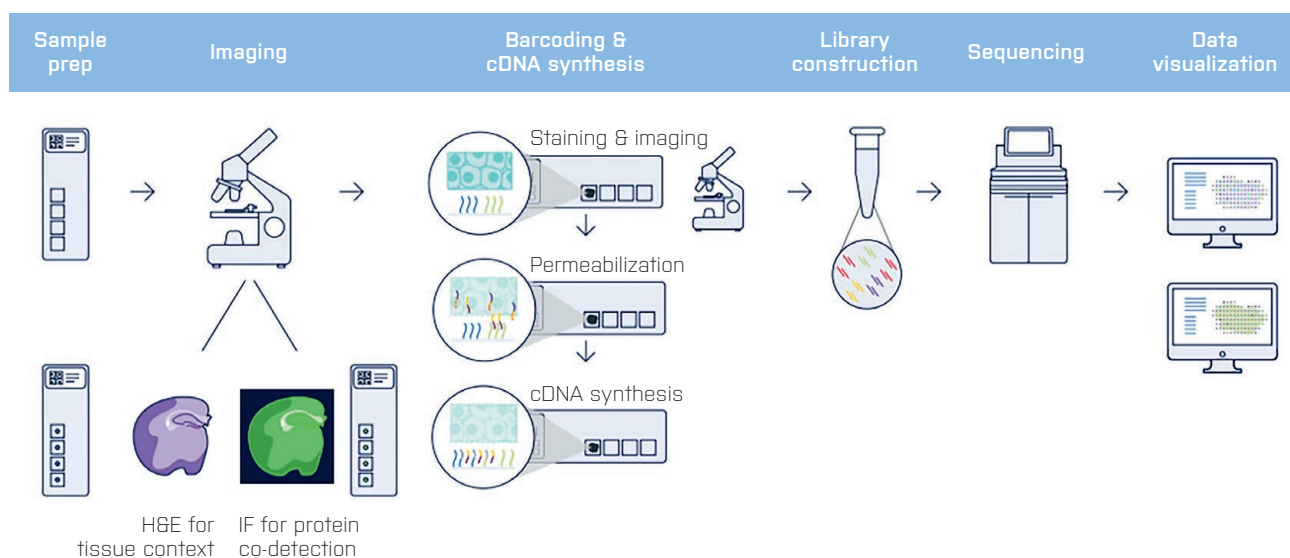
Research Infrastructures are key enablers of scientific and technological discoveries and incremental accumulation of knowledge.

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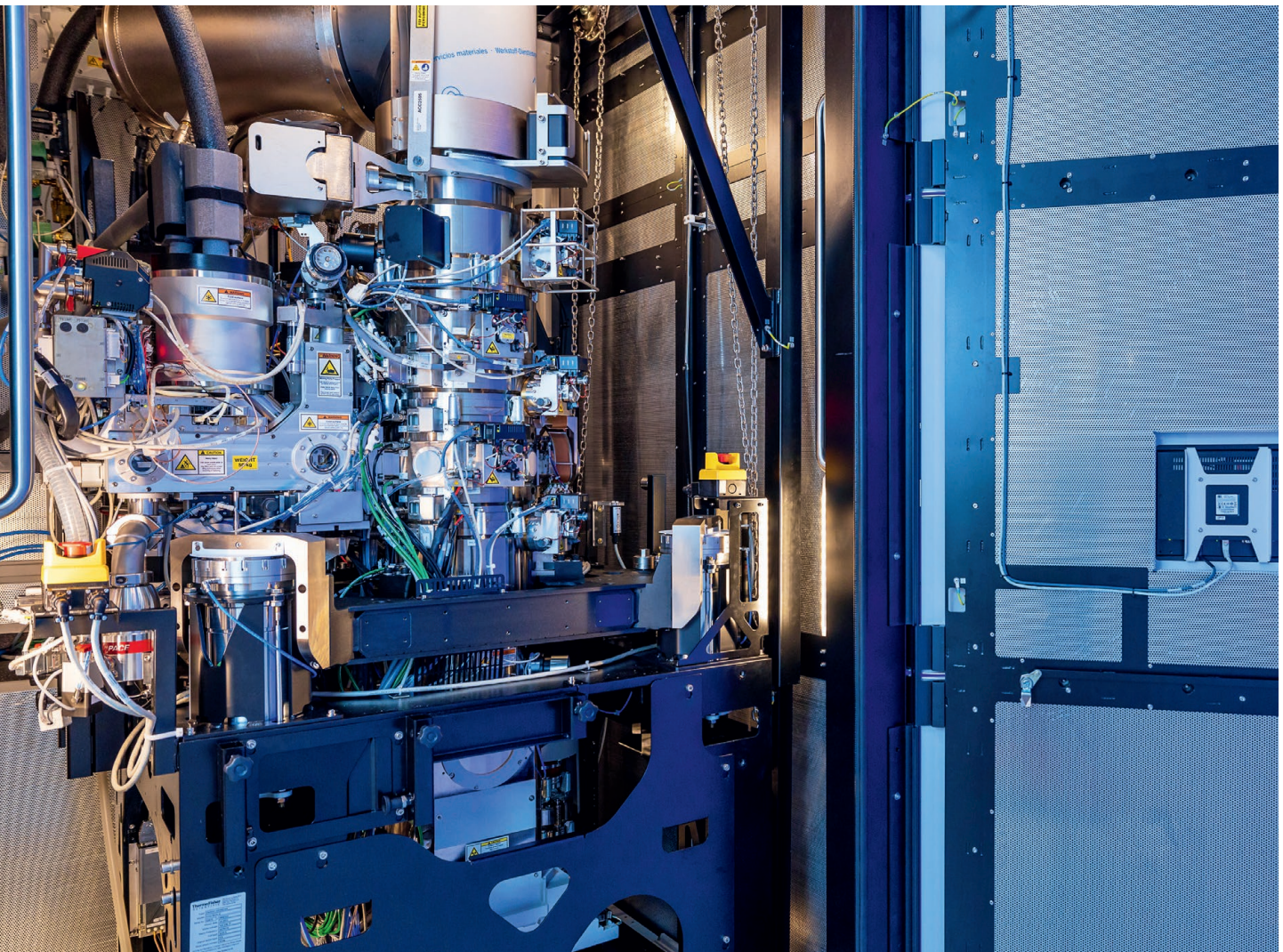
ESFRI Roadmap 2021

Our vision as a research infrastructure is to enable breakthrough discoveries at Vienna BioCenter and beyond. We strive to improve performance by systematically developing our infrastructure service and equipment portfolio. In 2021, one impressive example was the successful implementation of the PHENOPlant infrastructure, a multi-sensor, high-throughput plant phenotyping platform at our core facility (CF) **Plant Sciences**. This platform, funded through FFG, is unique throughout Europe and allows for the simulation of environmental conditions with unprecedented precision. This is increasingly relevant, e.g., for projected decreases in crop yields due to climate change. We can accurately simulate conditions predicted by climate models to analyze crop plants' performance under intensifying droughts, frost, elevated salinity, and pests. Thus, our facility already contributes to future food security in a changing climate.

Biological processes are characterized by a complex interplay of molecules inside cells, within tissues, and even across whole organs. Combining two or more research methods to investigate biological phenomena provides the basis for a comprehensive understanding of the underlying processes. Thus, in a collaborative effort, our CFs **Next Generation Sequencing (NGS)** and **Histology** teamed up and established their first cross-facility workflow for a method called spatial transcriptomics. Here, cell types (identified by whole genome sequencing) can be assigned to their locations in tissue slices. This method uncovers the cellular diversity of tissues as well as the subcellular distribution of transcripts in individual cells, thus providing a detailed molecular map of gene activity in a tissue sample. Spatial transcriptomics is an essential service provision for any research infrastructure and offers crucial insights into the fields of embryology, oncology, and immunology. In Austria, spatial transcriptomics is currently only available at VBCF.



Cross-facility workflow for spatial transcriptomics. The pipeline combines expertise from NGS and histology.



Krios G4 cryo transmission electron microscope at Research Institute for Molecular Pathology (IMP). VBCF scientists were vital in the successful implementation of this biggest single investment in the history of the VBC campus.

An integral part of our specialists' work is detailed customer consultancy on the feasibility of research ideas. To do so, we closely follow emerging research methods and technological developments. In close collaboration with the Research Institute of Molecular Pathology (IMP, Boehringer Ingelheim), our CF **Electron Microscopy (EM)** successfully implemented the biggest single investment in the history of the VBC campus - the installation of the Krios G4 cryo transmission electron microscope at IMP.

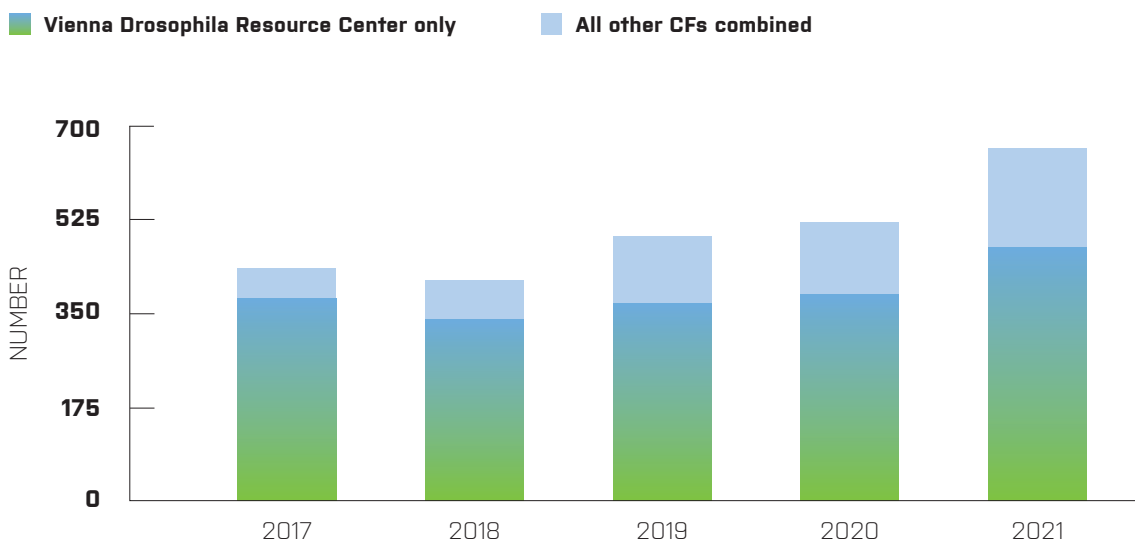
Our EM facility, and in particular Core Facility Head Thomas Heuser, was vital in the entire process, from finding and planning the suitable installation site to negotiating with and coordinating key suppliers, from overseeing delivery and deployment of the instrument to installing software, from selecting instrument operators to establishing analysis methods. This most advanced instrument of its kind opens a new chapter in structural biology at the VBC Campus.

SARS-COV2 TESTING
 was offered to all employees

Regular **SARS-CoV2 testing** was offered to all employees on campus through the Vienna Covid19 Detection Initiative (VCDI), founded initially as an inter-institutional effort of research institutions at VBC and the University of Vienna. A dedicated testing facility was established at VBCF (already in August 2020) and continued to deliver affordable, sustainable COVID-19 detection for all VBC employees throughout 2021. COVID testing and nearly complete vaccination coverage in the workforce allowed for minimal infrastructure services and equipment downtimes. This secured our operations and enabled VBC researchers to continue their research activities. The resulting locational advantage was essential to increasing the competitiveness of all researchers at VBC Campus during the pandemic. At the same time, most other life science hubs around the globe were severely affected by minimal operations.



SCIENTIFIC CONTRIBUTIONS OF VBCF
 OVER THE LAST FIVE YEARS



In 2021, our expert team contributed to 654 scientific, peer-reviewed publications in high-profile journals such as **Nature**, **Science**, and **Cell**, continuing a steady upward trend over the last five years.

FINANCE





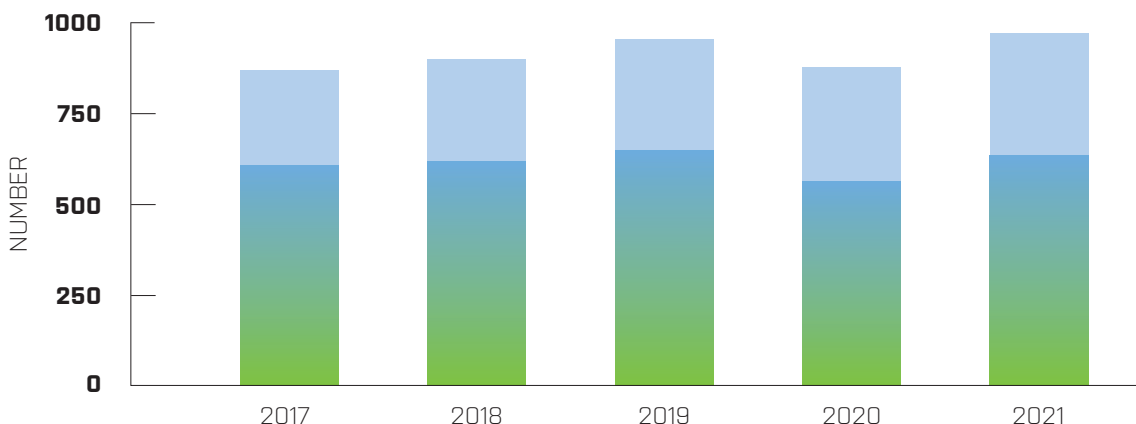
We are humbled by the performance of our colleagues, who have exceeded last year's user fees by 40% with fewer personnel.



After a decline in 2020, our user base returned to pre-pandemic levels with 968 research groups (overall +11%). Most research groups (633, 65%) are customers of our CF **Vienna Drosophila Resource Center (VDRC)**, illustrating that its resources are requested worldwide. Notably, the relatively new CF **Metabolomics** continued to grow and experienced an increase of 20% in its user base. Other CFs were able to maintain or slightly grow their number of users.

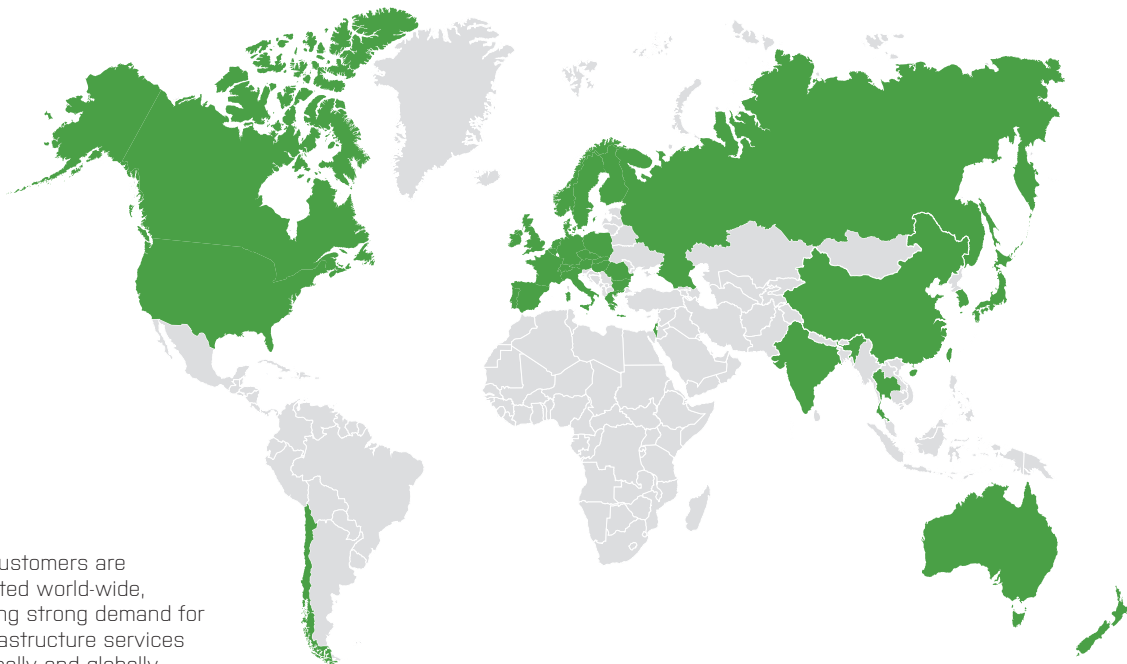
USER BASE ANALYSIS
OF THE LAST FIVE YEARS

■ Vienna Drosophila Resource Center only ■ All other CFs combined



VBCF CUSTOMERS

2021



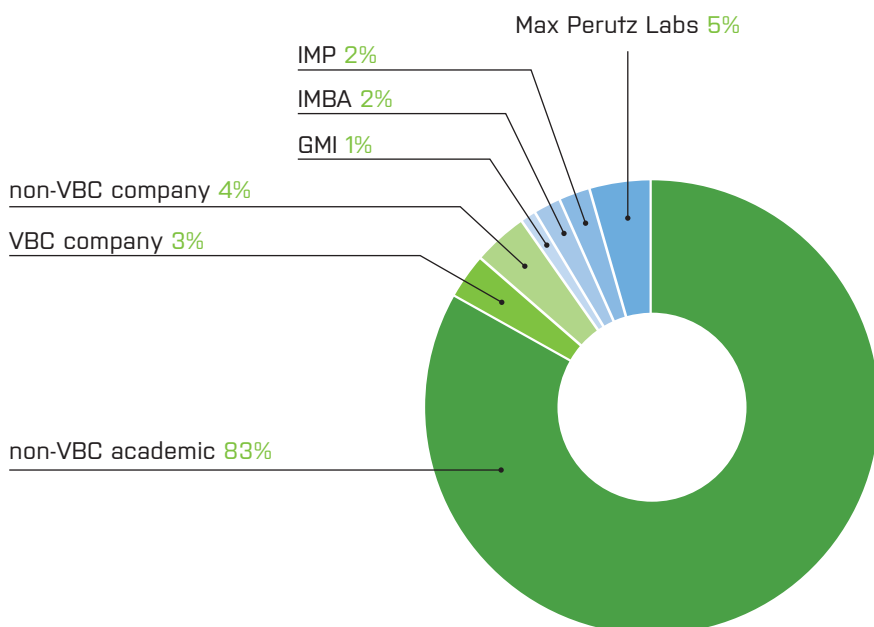
VBCF customers are distributed world-wide, indicating strong demand for our infrastructure services both locally and globally.

USER BASE ANALYSIS

2021

As in previous years, the distribution of users shows that 93% are academics, while companies account for ~7% of the total users. All research groups at GMI, IMBA, and IMP, as well as the

overwhelming majority of groups at the Max Perutz Labs, are users of VBCF, reflecting that our scientific service provisions are an excellent fit for their research requirements.



“ In terms of income, 2021 was a record year for VBCF. ”

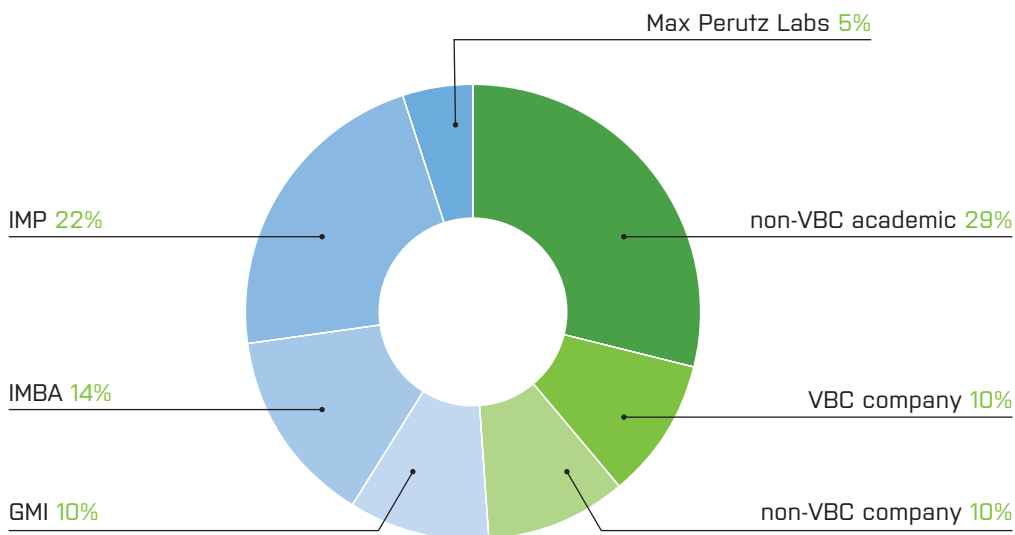
After the, until then, strongest year 2020, we were able to further increase our user fees by 36%. We see high growth numbers in user fees in our CFs **NGS** [+59%], **EM** [+28%], and **Strategic Information Management** [SIM, +76%] compared to the reference period of 2020. Our CFs **Protein Technologies** [ProTech, +5%] and **VDRC** [+7%] were able to top their strong 2020 results, despite undergoing significant restructuring.

INCOME DISTRIBUTION

2021

High growth numbers of user fees can be seen in all user categories, with double-digit gains all over the board. Academic users still contribute the majority of the income (81%). Nevertheless, their growth was outperformed by companies with a +75% increase from VBC companies and

almost tripling (+177%) the income from non-VBC companies. This illustrates our constant efforts to tailor our infrastructure service provision equally for commercial and non-commercial use. Following our mission, the focus on VBC users remains intense, with a share of 51% of our total income.



COMMUNITY



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We are proud that our engagement in the VCDI had a significant societal value.

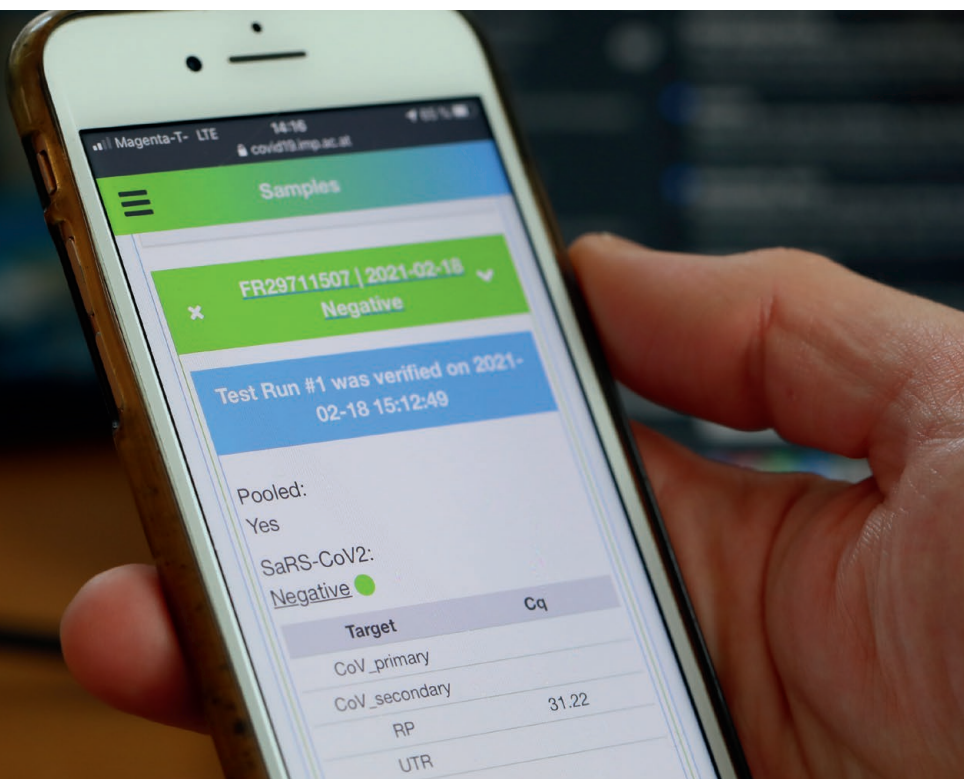
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Our role as the central service provider on VBC Campus also includes social services to everyone on campus. Our ongoing engagement in the operation and management of the VCDI secured our operations and enabled VBC researchers to continue their research activities. The VCDI also generated a subjective community feeling that the VBC was a COVID-free zone which had an enormous effect on mental health and was a morale booster for the entire VBC.

One should note that the reach of the VCDI goes far beyond the VBC. We are proud that our engagement had a significant societal value. We actively contributed to combating the spread of SARS-CoV-2 by monitoring schools and retirement homes and provided the proof-of-concept for more extensive monitoring programs such as "Alles Gurgelt".

Our CF **SIM** was vital to the success of the VCDI initiative. The in-house COVID19 application, developed by SIM, processed 200.000 samples from 37 VBC institutes and companies. In early 2021, the final extension of the application was developed – a connection to the Green Pass system of the Austrian government. Until the end of VCDI operations at the end of 2021, 2000 VBC users had registered, and 11270 EU Digital COVID Certificates were issued.

Apart from that, SIM provided software development services that benefited the entire VBC campus. In 2021, SIM introduced a campus-wide booking solution for instruments and equipment, a request management system for processing user requests and orders within core facilities, and a centralized data warehouse and reporting system.



Our CF SIM developed an app to retrieve the COVID19 test results and issue EU compliant certificates.

For many years, VBCF has operated the **VBC Childcare Center**, thus promoting the compatibility of career and family for all VBC employees. The Childcare Center was in normal operations during most of 2021.

Vaccination of kindergarten staff and cost-free testing procedures on campus and through "Alles Gurgelt" significantly increased safety for children, parents, and staff.



VBCF Administration took over administrative and marketing (branding) responsibilities for the VBC association. In 2021, we remarkably improved the services for VBC members as well as campus-internal and external communication. To this end, we prepared an informative quarterly VBC newsletter, developed an employee benefits program, and functioned as an information hub for campus-wide communication.

Through these successful marketing activities for the whole VBC campus, we hope to foster cohesion and a shared identity for all VBC employees, especially those working at VBC companies and the University of Vienna Biology Building – the most recent add-on to the VBC Campus. Ultimately, our activities will strengthen the umbrella brand 'Vienna BioCenter' and help portray the campus as an attractive workplace.



The quarterly VBC Newsletter provides information on research, events and social life at the VBC Campus.



IMPRESSUM

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