University Alliance for Sustainability

Final Report: Junior Research Stay at the University of British Columbia

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Visiting the University of British Columbia (UBC) in Vancouver for a junior research stay was a unique opportunity to receive inspiration for my PhD project and of course a great cultural experience. My primary contact persons were Martin Schulz, David Clough, Alexander Eggeling and Paul Cubbon as well as Nancy Tang and Elaine Cho from the faculty of the Sauder Business School (of the UBC). During my research stay, I had the chance to get in touch with them as well as with several other researchers from the UBC. The goal of my research stay was thereby to benefit from professional discussions with scientists working on similar research fields at the UBC as I am doing. My research topic is about an investigation of a collaboration of three independent high-tech organizations from different fields, who work together in inter- and transdisciplinary teams on a research project concerning the development of innovative UV-LED-modules for plants and vegetables by focusing on their acting together. These modules imitating the sun's UV-light allow plants to grow everywhere, also in many places far away from natural sun light. For the purpose of sustainability, this means these UV-LED-modules will enable both, functional natural food and urban farming or gardening. I am thereby interested in how these three organizations act together to realize their goals. Concerning my research topic, the discussions and meetings with the researchers at the UBC helped me to further think about my research topic and related topics for potential cooperation in terms of publications or exchanges. At the UBC, I therefore had not only the chance to speak to scholars from the Sauder Business School, but also with scholars from the Centre for Interactive Research on Sustainability (CIRS) or the Institute for Resources, Environment and Sustainability (IRES). They shared their research projects with me and gave me useful insights and views concerning my work.

Having meetings and discussions with scientists at the Sauder Business School gave me especially more profound insights in specific topics of organizational theory. I received many useful links and literature tips regarding my research, especially for my theoretical lens on routines and the network theory. While focusing on the actions need to be done by the organizations involved for the development of the UV-LED-modules, I therefore mainly focus on routines. Routines, actions, and processes are thereby interlinked. Working on this basis, helped me to get in touch with other researchers. Routines are considered as the

central aspects of repetitive actions, that are omnipresent within organizations as well as across organizations and can be studied from different perspectives. At the Sauder Business School, I also received a student card giving me access to the shared PhD office (which is called fish bowl), to the library, as well as to other facilities. I was also invited to several meetings and colloquia in which I took part. These were general department lunches or meetings concerning specific research topics with guest speakers. We had also meetings for PhD students and advanced scholars in which we talked about individual possibilities in the academic career for the post-doc phase. We thereby compared the Canadian, the US, and the German systems. Having the chance to work in the Canadian system would thereby be a great future opportunity.

Cooperating with scientists from the CIRS or IRES further allowed me to focus on topics of sustainability in depth. Surprisingly, research about UV-LEDs and UV-LED-modules for plants and vegetables are also a highly investigated topics at the UBC – like in Germany. Therefore, in terms of taking responsibility for the ecology, economy, and the society, we found several linkages between our works and research interests. In this context, we had very interesting discussions about the differences between how organizations act according to and how they speak about responsibilities related to sustainability. However, the UV-LED-modules, that imitate the UV-light of our sun, stimulate the metabolites in plants, with the result that they produce more glucosinolates, carotenoids, and flavonoids. These so-called secondary metabolites have a strong impact on food, humans eat as they positively influence the health of human beings. But there is still research needed concerning these advantages and possible downsides. Moreover, as these UV-LED-modules are pretty small and can be installed in every dark corner, we also discussed urban farming and urban gardening. The UV-LED-modules thereby also come along with the chance to decrease air pollution as well as transportation costs as they cause a decline in importing and exporting vegetables. Here, we spoke about possible downsides regarding these UV-LED-modules. These modules are still in their development phase and are therefore still under construction. Like in Germany, also in Canada, different organizations collaborate together, especially physics and biologists. Nevertheless, in both countries, there is still a lot to do until the UV-LED-modules become ready for the market. Therefore, many parameters are currently still unclear. However, while both countries, Canada and Germany, are still struggling with the development and the right arrangement of technical and several other parameters, the people at the UBC spoke more open what they indent to do and what ideas they have. In fact, by also researching the Seeds database from the CIRS, I got access to many past research results concerning similar topics what also helped me to further find additional interview partner and to get new ideas for my research project.

Moreover, I also got the possibility to visit the Centre for Interactive Research on Sustainability (CIRS). It is the UBC's sustainability flagship and an impressive building for showing sustainable design and technologies. Based on this visit, the several talks to researchers of the UBC and working on the campus (in the PhD office or the NEST building) gave me further insights into the sustainability

strategy and culture of the UBC. The UBC has already implemented several sustainable initiatives to promote environmental protection, e.g. waste separation, healthy and regional food, banishment of cars, electric busses, and energy efficient buildings. The University and the City, both, have understood that our biological system can only remain diverse and productive, if the society (i.e. every single person and their organizations created), start to act sustainable in economic and ecological ways. Vancouver aims to become the greenest city in the world by 2020 and makes big advertisements for this goal. Nevertheless, there is still some work needed to reach these goals, when thinking about the big American cars or the vast amounts of plastic cups from Starbucks at every corner.

Overall, I benefited from my junior research stay at the UBC in Vancouver in several ways – (1) for my research project by having discussions with scholars from the Sauder Business School, (2) talks with researchers from the CIRS or IRES, (3) and for my personal development in terms of being part of a sustainable university with a fascinating culture. Moreover, (4) it would be a great opportunity to work there as a post-doc researcher in the future.