Exploring the Future of Transdisciplinary Research at The Ohio State University

Co-Design Studio SP23

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Abstract

As a Tier One research institute, Ohio State has a vested interest in developing disruptive breakthroughs in its various areas of research. With a growing body of research suggesting that the best way to foster these breakthroughs in many fields is through transdisciplinary research, we looked at the current state of transdisciplinary research at Ohio State and what steps could be taken to make it a more cutting-edge research and teaching institution. We did this by conducting interviews with thought leaders both inside and outside of Ohio State to get their input on how individuals, organizational culture, and the built environment contribute to, or impede, transdisciplinary research. After conducting these interviews, we invited 24 people from various parts of the university to participate in a co-design workshop to explore the current state of transdisciplinary research and the path towards a more robust and dynamic culture of cross-functional research and collaboration at Ohio State.

Our preliminary results showed a high degree of interest and willingness to participate in creating this world-changing future state by our workshop participants. But cultural change will be needed to move from the current to the future situation. The current situation was described as having two distinct cultures, leadership and grassroots. The near future situation was described as having a shared leadership/grassroots culture. There are already some exciting grassroots efforts underway across the OSU ecosystem working towards this goal. However, a centralized resource for organizing these efforts and promoting awareness is needed in addition to a rethinking of what different careers in academia could look like in the future. Once the shared culture has become established, OSU will be ready to invite the outside community into a transdisciplinary culture in the far future.

Objectives

Exploring the Future of Transdisciplinary Research at The Ohio State University was a graduate-level course offered by the Design Department for graduate students throughout the university. In this course the graduate students:

- Participated as team members on a wicked challenge with the potential for positive impact upon OSU's future.

- Collaborated with other students in a hands-on, learning by doing environment.

- Understood the current state of transdisciplinarity and Team Science at OSU through interviews and conversations with faculty, students and staff.

- Explored the competitive situation regarding Team Science at other universities and in other organizations.

- Planned and executed a co-design workshop with OSU faculty, administrators, students and staff, inviting the participants to explore ideas for elevating transdisciplinarity at OSU in the future.

Preliminary Research

Students in the class were divided into three groups that focused on different perspectives of transdisciplinarity. The perspectives included: Built Environment, Organizational, and Individual. Each group conducted secondary research regarding the area they were responsible for. They also conducted primary research by interviewing OSU faculty, staff, administrators, Ph.D. students, and industry employees.

The Organizational Perspective Team interviewing Dr. Sathya Gopalakrishnan at the Steam Factory

Organizational Perspective

Interviewees: 8

- Literature review on the themes of fostering a culture of collaboration at OSU, leadership, impact, and facilitation of transdisciplinary research

- Outcome: *What if?* and *Opportunity Cards* that summarized the findings and were used in the Co-Design Workshop.

Environment Perspective

Interviewees: 5

- Literature review on readings with the themes of transdisciplinary research in the built environment, the impact of open workspace on collaboration, layout, and typology of collaborative workspaces

- Observations were made in research facilities.

- Walkthroughs of spatial interaction and exploration of space usage
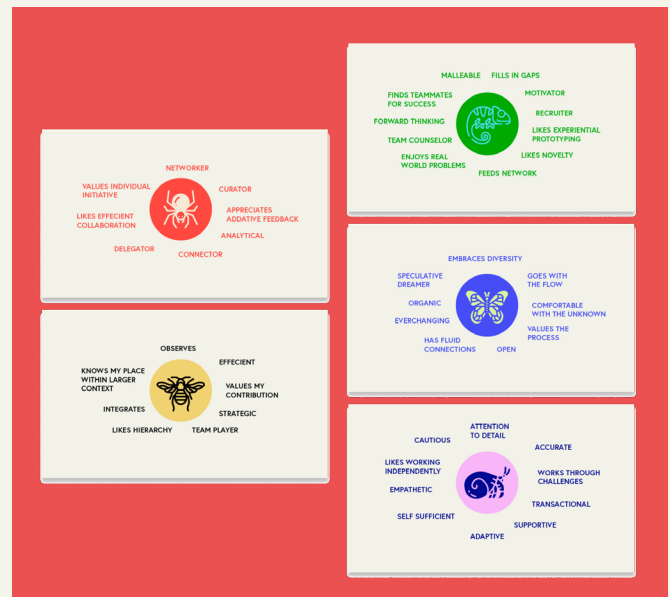
Individual Perspective

Interviewees: 8

- Literature review on the themes of collaborative and participatory design, gender, and transdisciplinary research

- Outcome: Personas were created. Each persona was represented by an animal, and described the characteristics of people in relation to how they prefer to work: Interdisciplinary, Crossdisciplinary, Multidisciplinary, Interdisciplinary, and Transdisciplinary. The personas were used in the workshop as an icebreaker activity.

Personas used for icebreak activity

Co-design Workshop

With the findings from the Preliminary Exploration Phase, the students developed and planned the Co-Design Workshop. The interviews served as a way to reach out to relevant stakeholders and invite them to the workshop.

The workshop's goal was to invite the participants to envision the future of transdisciplinary research and teaching at OSU. 24 participants joined the workshop. It was structured the following way:

1. Participants selected their persona name tags that contained animals representing different collaboration styles as they arrived at the workshop. This selection prompted them to reflect on their ways of working and collaborating.

2. There was a short activity for the participants to reflect on how they collaborated (or did not) before, during, and after COVID.

3. The students shared the initial findings from the Preliminary Exploration Phase and introduced the co-design activity.

4. Participants were split into four groups. The persona name tags they received at the beginning of the workshop helped them to form diverse groups.

5. Each group was then provided with a toolkit that contained paper shapes, photos, word cutouts, emotion stickers, 3D objects, and colored tape. Each group was also provided with a deck of cards where each card contained an insight from the first phase research activities. The toolkit components served as a common language among the diverse group of participants. The groups were given 40 minutes to use the toolkit materials to envision the future of transdisciplinary research at OSU.

6. A volunteer from each group then shared the group's vision and ideas with the rest of the participants. Finally, each participant was invited to place a heart sticker as a vote for their favorite idea across all the groups' visions.
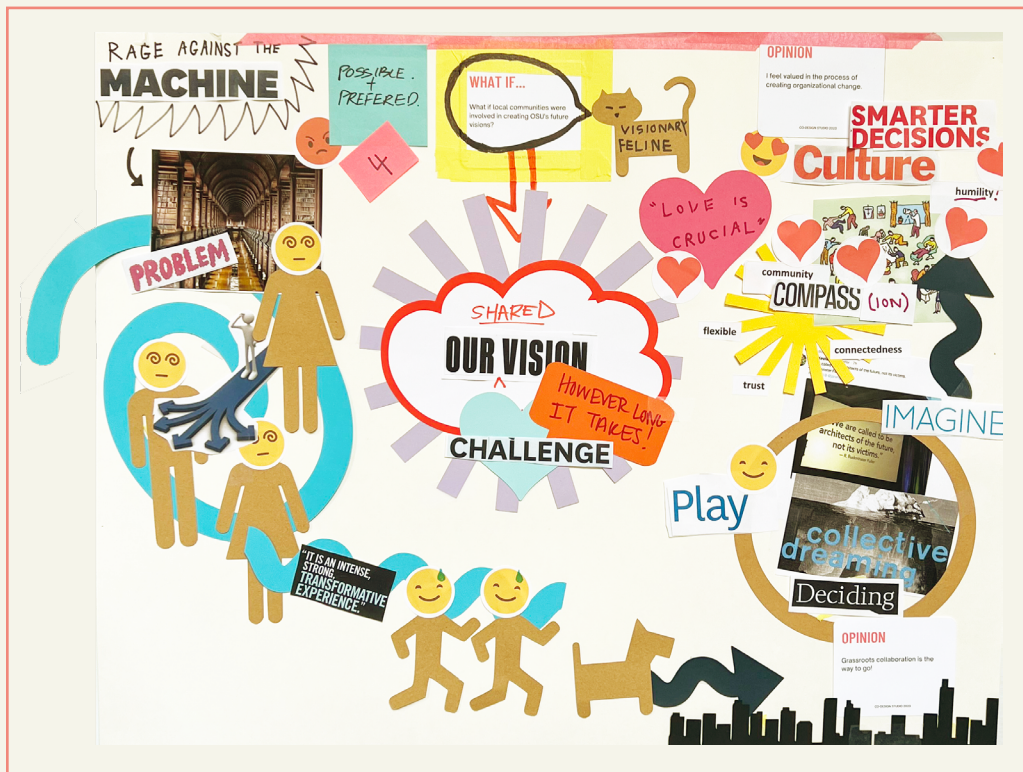
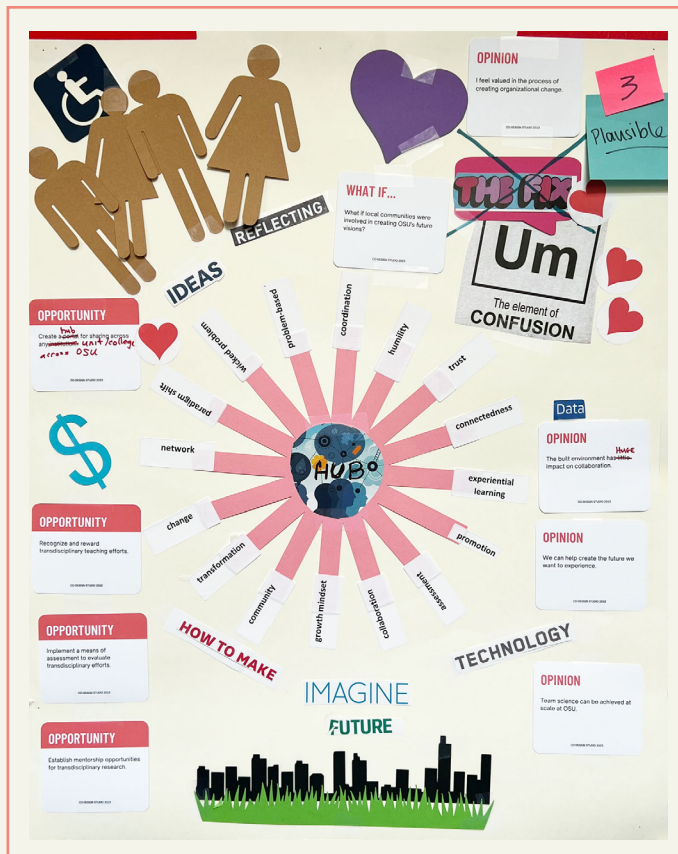*Envisioning the future of transdisciplinary research*

Reflecting on collaboration work before, during, and after COVID

Co-design toolkit

Vision boards created by the four groups during the co-design workshop

Key Insights from Interviews and Secondary Research

Environment impact on interdisciplinary research

- Physical and digital shared spaces were highlighted as a means to facilitate collaboration and break down silos between disciplines.

Organizational barriers to transdisciplinary research

- Specific challenges that were identified included too much bureaucracy, lack of trust, and narrow pathways that hinder progress.

- Organizational structure and the reward system were identified as key barriers to change, since they do not sufficiently support or recognize transdisciplinary efforts today.

- Participants suggested the need to explore new reward systems, such as tenure processes that value and reward transdisciplinary collaboration.

University's culture and networking

- Participants wanted to create a more inclusive and diverse environment that encourages connections across disciplines and between individuals.

- Cultural humility, open-mindedness, lack of ego, and a willingness to learn from one another were acknowledged as essential to fostering a more innovative and supportive academic environment.

- Engaging the university community and establishing community-driven decision-making processes were seen as essential components in shaping a more inclusive future vision.

- Addressing organizational barriers, rethinking reward systems, and developing common spaces were crucial steps in creating an academic environment that embraces diverse perspectives and encourages innovation.
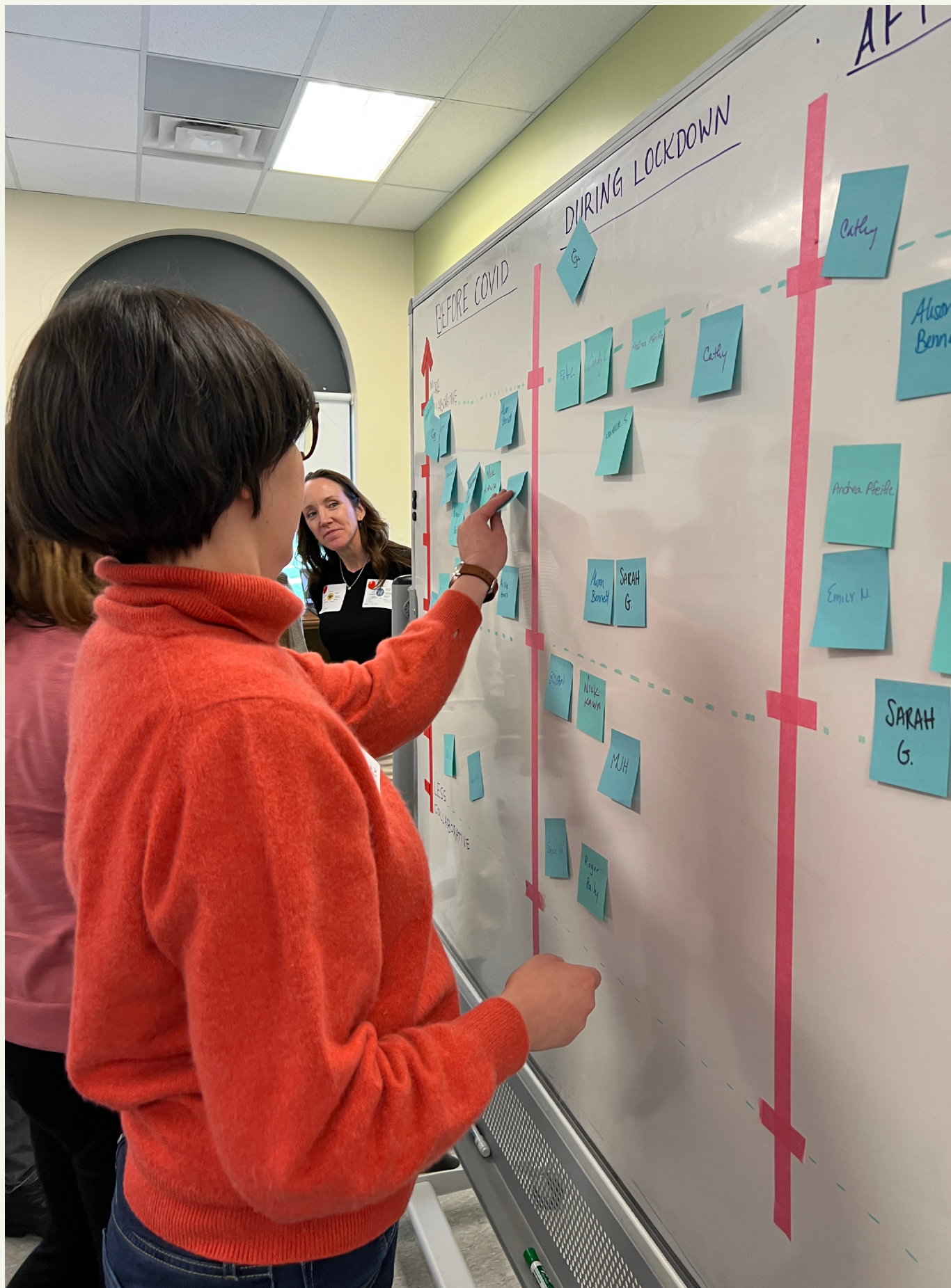
Summary Vision Boards from the Co-Design Workshop
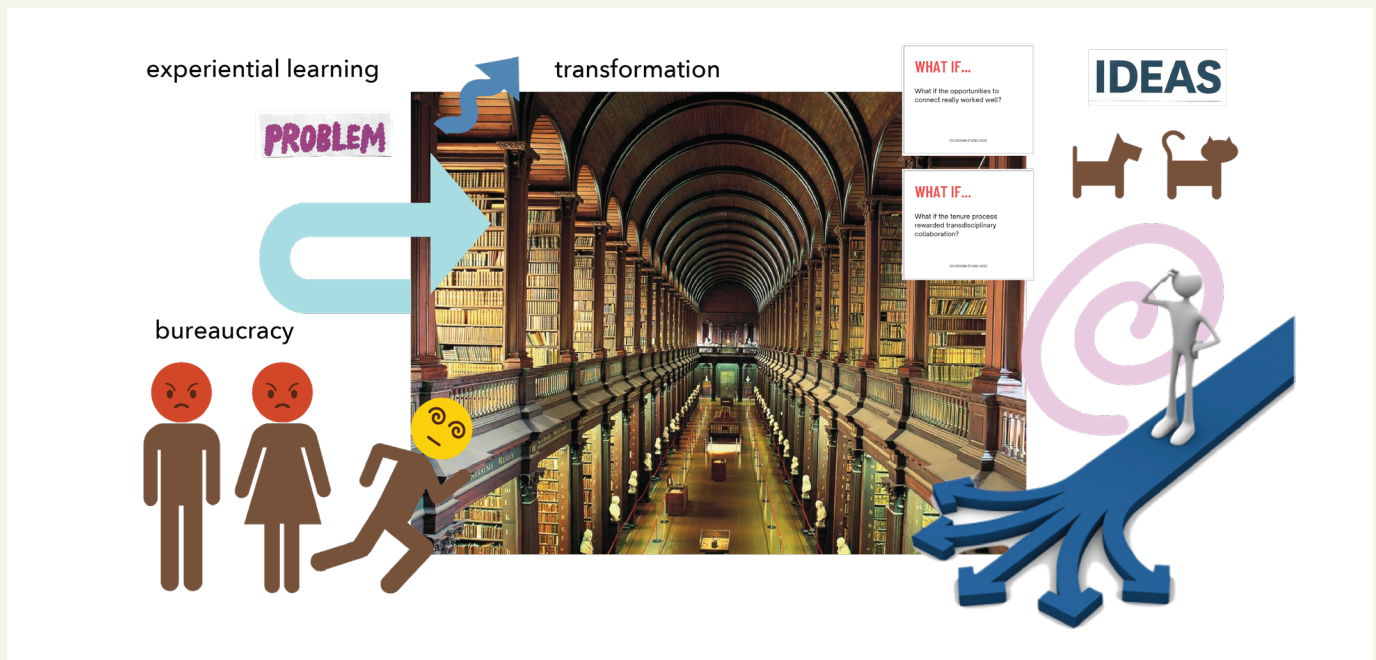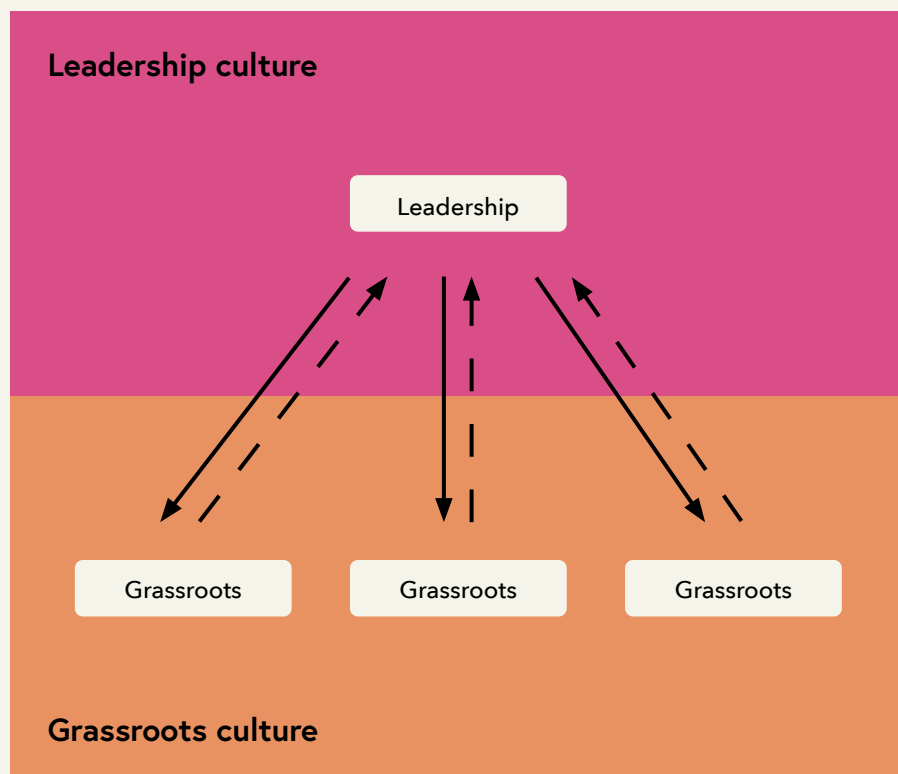

The current situation at OSU


The future situation at OSU

Transdisciplinarity at OSU:
Now and in the Future

After analyzing the workshop data, the students utilized all the research findings to create a visualization of the current and future scenarios at OSU in relation to transdisciplinarity.


The current situation

As can be seen in the diagram above, it appears that two distinct cultures exist and that communication between these two cultures is insufficient. Communication flows are not equal between the leadership and the grassroots cultures. Additionally, multiple grassroots organizations exist, and there may not be good communication between them. Finally, the use of a square overall shape implies rigidity in the process. These findings suggest that there may be barriers to effective communication and collaboration between different cultural groups and that a more flexible approach may be necessary to achieve greater understanding and cooperation. It's important to consider these findings when working to bridge cultural divides and build more inclusive communities.
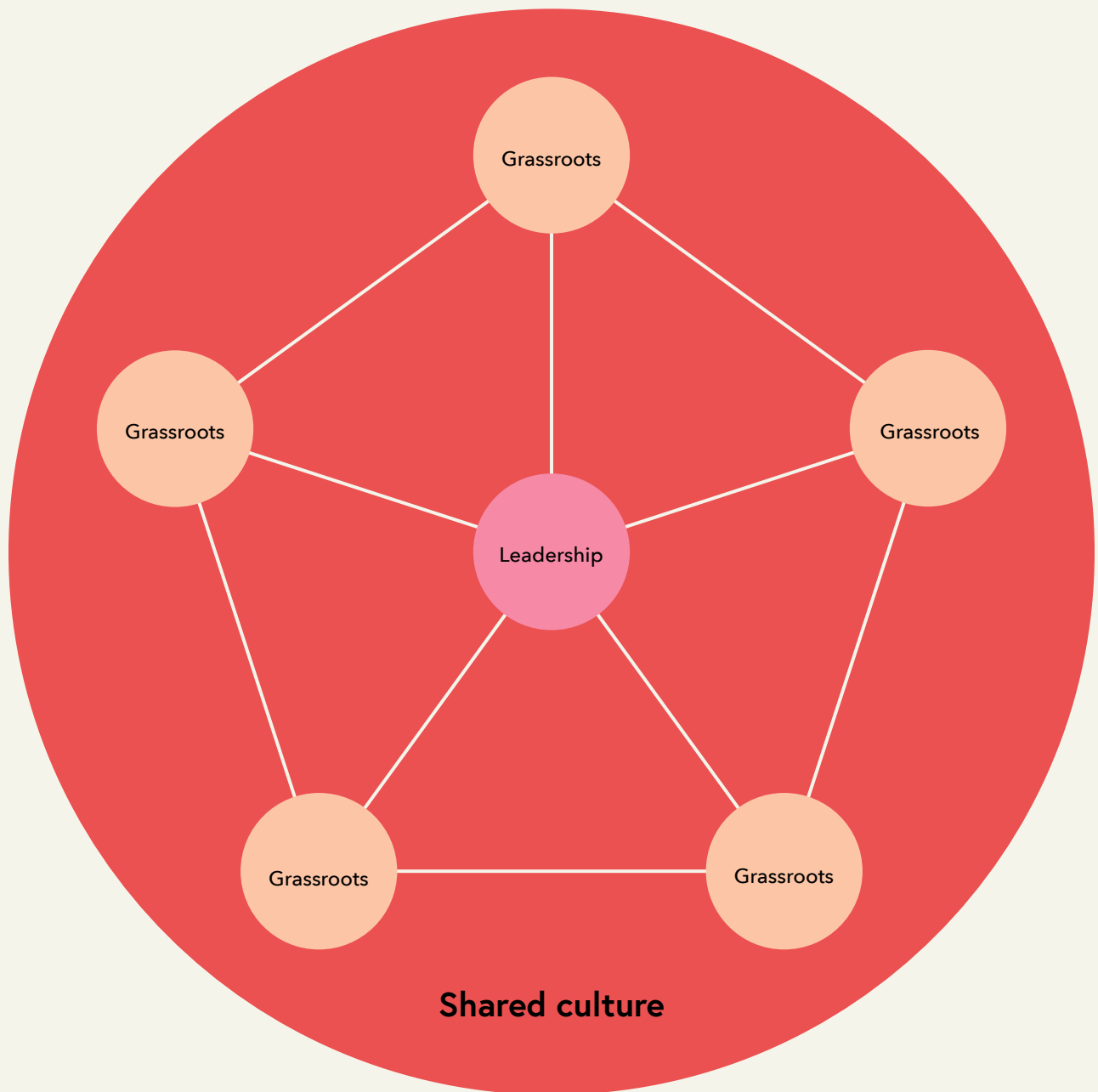
The near-term future

For the future, two scenarios were envisioned. The diagram on above shows the near-term future where a shared transdisciplinary culture is in place. Communication is seamless across different silos and departments to foster effective collaboration. Leadership plays a central role in shaping this culture by connecting grassroots organizations and promoting and supporting cooperation. The circular overall shape symbolizes the continuous and cyclical nature of transdisciplinary processes that involve iterative refinement. The near-term future for OSU is a shared culture that promotes connectedness collaboration, innovation, and a sense of community across diverse disciplines.

Community

Grassroots

Community

Grassroots Grassroots

Community

Leadership

Grassroots Grassroots

Community Community
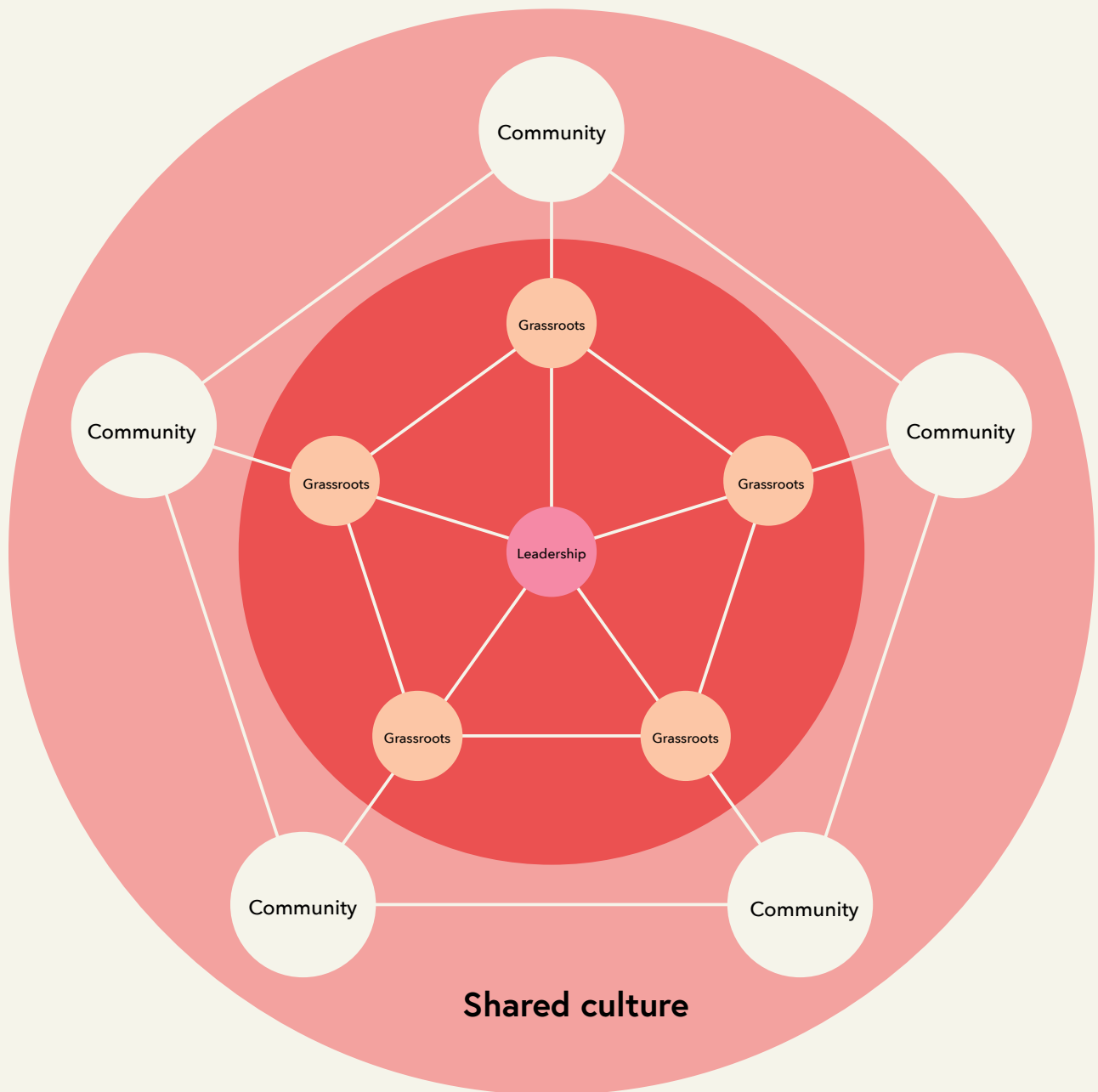
Shared culture

The longer-term future

The diagram above shows a longer-term future. Here the integrated OSU community has been established and its shared culture has been able to flourish. Leadership plays a central role in the OSU community culture, but it also now seeks to expand its connections with members of the outside communities.

Looking forward

Opportunities for management and leadership

- Multiple tracks for tenure are needed.

- Collaborative projects need to be better recognized within tenure evaluations.

- Training is needed to prepare all those involved in collaborative work to improve conflict management, active listening and inclusive communication. The new GIS in Wicked Science is one such offer.

- A "compass" is needed to measure the preparedness of candidates to choose a collaborative track by measuring the individual's ability to demonstrate commitment to activate projects, be aware and listen, facilitate professionally and support peers.

- Individuals need to communicate how their work is grounded in love, humility and compassion.

- We also need to implement training for leadership to learn, implement and promote leadership/growth mindset as well as transdisciplinary collaboration.

Opportunities for OSU community support

- Development of a hub (physical and/or digital) that supports and facilitates connectedness and collaboration.

- Training in and development of soft skills across all levels of the organization.

- Funding and support for further research on collaboration needs, which will both help to inform training and re-design of the tenure process, but also help inform how to better invest and focus on collaborative initiatives within campus.

- Establishment of transdisciplinary research initiatives by conducting co-design sessions with OSU students, professors, administrators, staff, and outside collaborators.
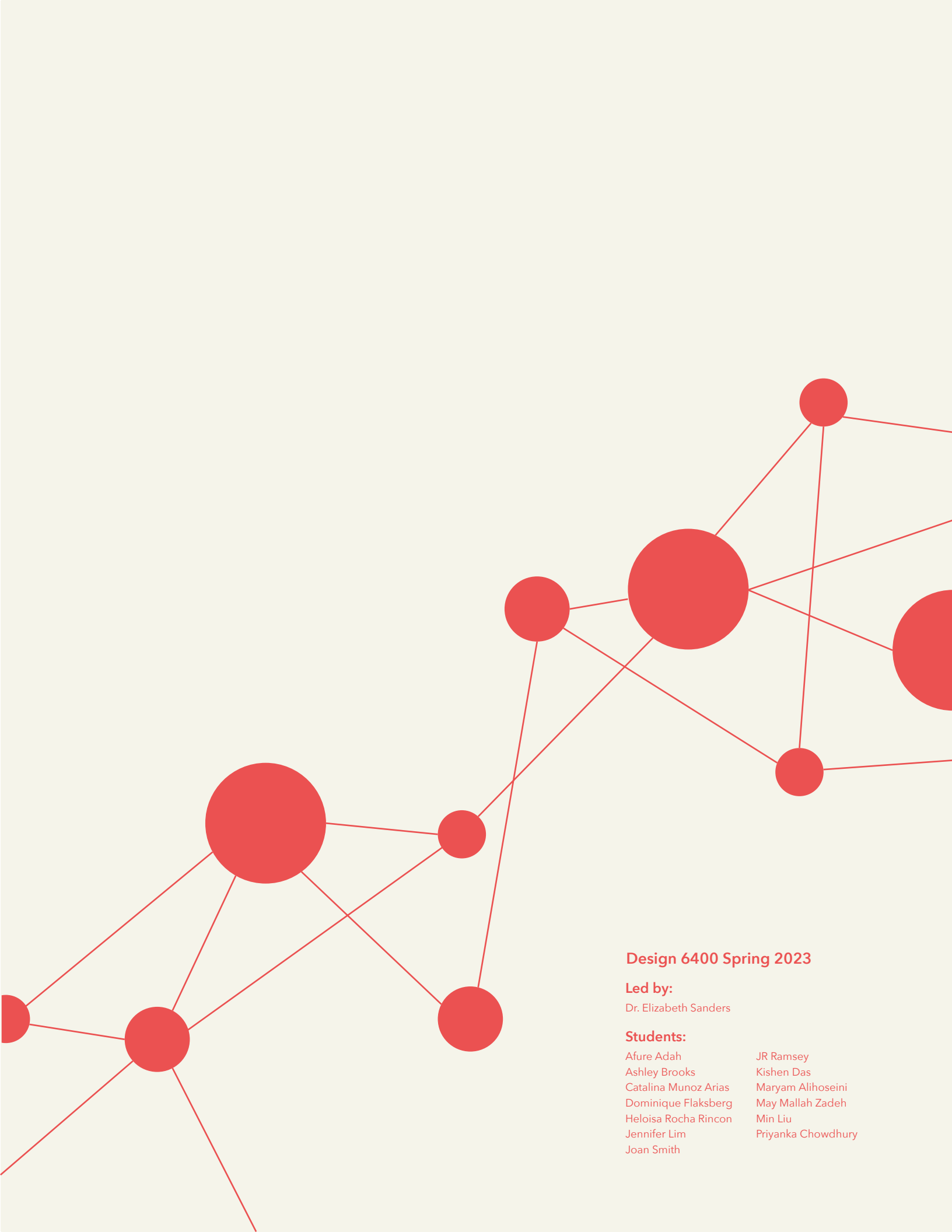
Design 6400 Spring 2023

Led by:

Dr. Elizabeth Sanders

Students:

Afure Adah
Ashley Brooks
Catalina Munoz Arias
Dominique Flaksberg
Heloisa Rocha Rincon
Jennifer Lim
Joan Smith

JR Ramsey
Kishen Das
Maryam Alihoseini
May Mallah Zadeh
Min Liu
Priyanka Chowdhury