# Promising Practices in Holistic Advising Transformation: Incorporating Voices of Intermediaries

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# Introduction

## ABOUT THE ADVISING SUCCESS NETWORK

The report was commissioned by the Advising Success Network (ASN) to explore best practices in holistic advising transformation in institutions of higher education (IHEs). Formed in 2018, the Advising Success Network is a dynamic network of five organizations partnering to engage institutions in holistic advising redesign to advance success for Black, Latinx, Indigenous, Asian, and Pacific Islander students, and students from low-income backgrounds. The network develops services and resources to guide institutions in implementing evidence-based advising practices to advance a more equitable student experience to achieve our vision of a higher education landscape that has eliminated race and income as predictors of student success. The ASN is coordinated by NASPA - Student Affairs Administrators in Higher Education and includes Achieving the Dream, the American Association of State Colleges and Universities, EDUCAUSE, NACADA: The Global Community for Academic Advising, and the National Resource Center for the First-Year Experience and Students in Transition.

## ABOUT EDUCAUSE

EDUCAUSE is a higher education technology association and the largest community of information technology (IT) leaders and professionals committed to advancing higher education. Technology, IT roles, IT responsibilities, and higher education are dynamically changing. Formed in 1998, EDUCAUSE supports those who lead, manage, and use information technology to anticipate and adapt to these changes, advancing strategic IT decision-making at every level within higher education. EDUCAUSE is a global nonprofit organization whose members include U.S. and international higher education institutions, corporations, not-for-profit organizations, and K–12 institutions. With a community of more than 100,000 people at member organizations around the world, EDUCAUSE encourages diversity in perspective, opinion, and representation.

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While rates of degree completion in institutions of higher education (IHEs) have increased slowly over the past several decades, they have recently stagnated and even declined at community colleges. Nationally, only 60.1% of students entering in 2014 completed a degree within six years, and only 40% of community college students completed within six years. Although Black students narrowed the gap with White students at four-year institutions, Hispanic and Black students lost ground at community colleges.[1]

To improve graduation rates overall and eliminate disparities by race, ethnicity, socioeconomic, and other demographic factors, institutional accountability measures have shifted away from enrollment only to focus on completion and leading indicators[2] with increasing emphasis on first-year early momentum indicators, including major selection, credit accumulation, gateway course completion, and term-to-term retention. To improve these indicators, IHEs have dramatically increased their investments in student success initiatives, and student advising has become the centerpiece of those efforts.[3] Advising technologies have been integral to enabling more holistic advising; yet as vendors and platforms have proliferated, integration for effective use of those tools have become problematic.

Although some exemplary institutions have successfully transformed their student advising systems, resulting in significant gains on key institutional indicators, many other institutions have struggled to achieve these improvements. Similarly, whereas some institutions have notably closed gaps for racially minoritized, low-income, and first-generation students, attaining greater equity at scale also has been elusive. The difficulty in scaling holistic advising transformation to improve equity in student outcomes has motivated increased interorganizational collaboration, resource investment, and research to better understand the transformational process and identify best practices.

## PURPOSE OF THE STUDY

This report was commissioned by the Advising Success Network (ASN) to identify best practices in the use of advising technologies in institutions of higher education (IHEs). We broadened the scope of our research **to explore promising practices in holistic advising transformation** under several assumptions. First, the use of advising technologies is an essential component of holistic student advising, and therefore promising practices cannot be fully understood without examining advising transformation more broadly. Second, we focused on "promising" as opposed to "best" practices given the relative youth of the field and for reasons explained in the next section.

The current study amplifies a valuable but missing voice in student success and advising transformation research, that of intermediary organizations. For the current context, we define an intermediary organization broadly as an external entity that engages with IHEs to facilitate institutional change to improve student outcomes and institutional success (refer to the Literature Review section for more discussion).

The role of intermediary organizations has generally been overlooked in higher education research.[4] While a number of past student success initiatives have engaged intermediaries to support change (e.g., iPASS, Frontier Set, Completion by Design), the published research does not include the perspectives of intermediary staff. Given the breadth of their experiences over time and institutional contexts, intermediaries have amassed a unique and nuanced knowledge base of factors that may influence the effectiveness of IHE student advising and success efforts. Thus, external intermediary perspectives are unique yet complementary to institutional self-reports. When synthesized with data from other sources, a more comprehensive picture of promising practices in holistic advising transformation will emerge.

More specifically, **the aim of this study was to explore intermediary reports of advising transformation practices that are most successful in institutions of higher education.** Our research questions included the following:

- What institutional factors are associated with readiness for successful advising redesign?

- What transformational practices do intermediaries see as supportive of successful advising transformation? What practices are seen as barriers?

- How does technology contribute to successful student advising? What challenges does technology present?

- Does institutions' use of advising technologies change over time?

Our overarching aim is to contribute to the generalized knowledge about advising transformation and to provide concrete resources to those undertaking and supporting institutional change and transformation to achieve equity and better student outcomes. This study is a component of a broader EDUCAUSE effort to identify promising practices in advising transformation using multiple methods, perspectives, and data sources.

## THE NEED FOR BEST (OR PROMISING) PRACTICES

What do we mean by **best practice**? Merriam-Webster defines *best practice* as "a procedure that has been shown by research and experience to produce optimal results and that is established or proposed as a standard suitable for widespread adoption." In other words, *best* practice is synonymous with *evidence-based* practice.

Best practices are conditions (e.g., structure, context, and/or inputs) and processes (e.g., activities, interventions) that are associated with targeted, desired outcomes. An adequate understanding of best practices requires that structure, process, and outcomes be explored simultaneously. Structure, sometimes referred to as inputs, encompasses institutional characteristics and context such as student demographics, culture, values, policy, leadership, strategic plans, and resources, including financial, human, and technological. Process refers to all the activities undertaken to promote student success using advising technologies but may also include broader efforts such as strategic planning/initiatives, leadership cultivation, and culture transformation. Finally, outcomes range from proximal outcomes such as student, faculty, and advisor use of technologies, their satisfaction and experiences with resources, knowledge gain, attitudes, and behavior to longer-term outcomes such as student goal accomplishment, retention, graduation, and subsequent employment. Increasing equity in outcomes also represents a key longer-term outcome.

We seek best practices to increase our chances of achieving our stated goals—in this case, student advising transformation. As straightforward as that might sound, identifying best practices is tricky. Student advising transformation is complex and heavily influenced by context. Finding one common path to successful transformation is likely not possible. Given the relative youth of efforts of and research about advising transformation, articulating lessons learned in order to suggest **promising practices** is a more reasonable goal. Further, we are most likely to identify promising practices when we engage all stakeholders, use multiple research methods, and synthesize findings across studies and contexts.[5]

# Literature Overview

In this section, we first provide an overview of key concepts related to holistic student advising in IHEs. Next, we provide a summary of research exploring the relationship between student advising and student success outcomes as well as note several limitations of the literature. Finally, we define and explore the potential contributions of intermediary organizations in IHE student success transformational efforts.

## IN THIS SECTION

*Building Holistic Student Supports: Key Concepts*
*Effectiveness of Holistic Student Advising*
*The Role of Intermediary Organizations in Student*
*    Success Transformation*
*Key Assumptions Arising from the Literature*

# Building Holistic Student Supports: Key Concepts

Broadly, Kinzie, and Kuh (2016) defined **student success** as "increased numbers of diverse student groups participating in high-quality educational experiences, earning high-quality credentials (degrees, certifications, certificates)."[6] AASCU noted that student success is a multidimensional concept "including at minimum: student persistence to stay in college, learning retention, personal maturity, mental health, graduation, and career outcomes."[7] From an institutional perspective, the ASN defines student success as enrolling, retaining, and graduating students capped with securing post-college outcomes of employment or graduate school (at minimal cost and debt to the students and with maximum potential for earning). For the student, student success is the outcome of a personal, rigorous, and enriching learning experience that culminates in the achievement of students' academic goals in a timely manner and fully prepares them to realize their career aspirations.

Providing **holistic student supports** is a key mechanism by which institutions seek to improve student success. Driving Toward a Degree (D2D) defined student supports as "products and services used to promote students' educational, personal, and professional development by targeting both academic and non-academic barriers to achievement."[8] Institutional holistic student supports integrate critical student support services into a seamless, timely, and personal experience for every student. Support services span advising, basic needs, mental health, career planning and services, tutoring, academic planning and support, and student financial health. Institutions are increasingly seeking to integrate disconnected student supports more fully to holistically meet students' complex needs. Institutions with greater integration demonstrate better retention rates.[9]

Further, advising has moved from the periphery to the center of student success efforts.[10] Its essential role in student development and learning has been recognized, and thus, advising has become a center pillar of institutions' student success efforts.[11] The ASN views advising as a core component of institutional efforts to meet students where they are, address their individual needs, leverage their strengths, and focus on student development and learning. ASN defines "advising" as holistic, encompassing more than the student interaction. It also includes the structure and operations of academic advising; the roles and responsibilities of primary-role and faculty advisors; and advising pedagogies, approaches, and models. Through holistic advising, advisors serve as change agents in their institutions, advocating for more equitable practices and removing barriers to student success. Further, the ASN seeks to strengthen institutional awareness of and capacity to effectively transform institutional structures, systems, policies, and processes to overcome systemic inequities and build healthy inclusive cultures.
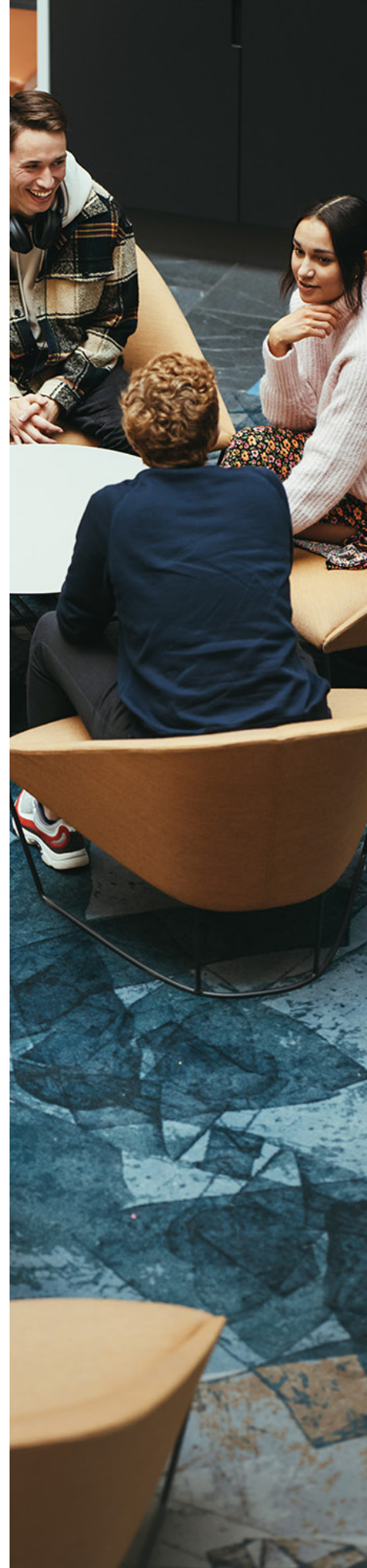
The ASN promotes holistic advising that is designed to be ***sustained, strategic, integrated, proactive, and personalized (SSIPP)***. Based on an accumulating body of research, the SSIPP principles provide a framework to guide the design and redesign of holistic advising to maximize student success.[12,13,14,15,16] The framework aligns with social support theory providing additional theoretical and research support. The construct of social support provides a multidimensional understanding of student growth associated with advising.[17] While linked to the effectiveness of student advising,[18] social support theory has been more often associated with student success interventions more generally, for example, examining first-year student adjustment, commitment, and retention for racially minoritized, underrepresented, and nontraditional students.[19]

According to the ASN, ***holistic advising redesign*** is the process of identifying, implementing, and refining high-quality, effective institutional practices that support students as they work toward achieving their personal, academic, and career goals. Further, the network recognizes that changes in advising will impact other areas of an institution, requiring cross-functional collaboration with a focus on aligning people, processes, and technology.

Integral to the aim of designing, implementing, and improving holistic advising systems is the **use of technologies** to support advising vision, mission, and values, as well as student outcomes. For the past decade or more, the field of advising has acknowledged the potential contributions of technology.[20] Technologies related to academic advising generally fall into four core categories: (1) planning and audit; (2) caseload management; (3) diagnostic, alerts, signals and notifications; and (4) performance measurement and management. Almost three-quarters of institutions employ advising technologies to some degree.[21] However, lack of integration across technology solutions is frequently mentioned as a major challenge in achieving more holistic advising and student support.

Finally, very recently, leaders have been planning and engaging in digital transformation in IHEs. **Digital transformation (Dx)** is the process of optimizing and transforming the institution through shifts in culture, workforce, and technology.[22] The global COVID-19 pandemic has placed pressure on institutions to transform, regardless of prior planning or readiness. In a survey of institutions, in 2019, 45% reported that they were engaged in Dx or developing a Dx strategy. In contrast, in 2021, 71% indicated they were engaged in Dx or developing a strategy. Nearly 80% confirmed that this acceleration was caused by the COVID-19 pandemic.[23] Dx is much more than its precursors, digitizing (making information digital) and digitalization (using technology to improve institutional operations). It is more than making data available for decision-making. While Dx facilitates decision-making, technology must be strategically implemented to support institutional vision, mission, and values. And while digitizing and digitalization are necessary, workforce and culture shifts must also occur for Dx to be realized.[24]

# Effectiveness of Holistic Student Advising

Studies have demonstrated positive impacts of technology-mediated advising on student outcomes, although implementation of technology is slow and most often incomplete.[25] Evidence also suggests that use of technologies increases efficiency and maximizes resources.[26] There is growing evidence that more comprehensive and sustained student supports are more effective,[27] lending empirical evidence to support advising aligned with SSIPP principles. MDRC has accumulated a body of evidence over multiple states that shows that comprehensive student supports such as Accelerated Study in Associate Programs (ASAP) produce lasting gains for participating students. These programs are designed to tackle challenges faced by low-income students and address the multiple barriers often experienced by these students beyond financial hardships, including work and childcare.28 Finally, a recent meta-analysis documented significant positive effects of student advising on student retention and graduation.[29]

In addition, research is beginning to coalesce around factors that may influence effective advising transformation. For instance, transformation is contingent upon changes in institutional structures, procedures, culture, and attitudes.[30] It also hinges on institutional-level capacities as well as individual-level practices.[31] Themes also emerged regarding potential promising activities. For example, Brown & Kurzweil described four "strategic essentials":[32]

• Committing to a student-centered mission and strategic plan;

• Collaborating around student success;

• Aligning structures, resource allocation, and personnel to the strategic plan; and

• Using data to continuously improve.

Our initial scan of the literature led to a few key revelations. First, a more robust literature is needed to support the field of holistic student advising, especially addressing the needs and outcomes of racially minoritized students and students from low-income backgrounds. Even though advising transformation has accelerated over the past decade, most of it has not been formally evaluated and so there is little peer-reviewed research. The current literature also overlooks the role of intermediary organizations in supporting student success transformation.[33] Existing research draws on limited designs and methods. Most of the research has been qualitative, relying primarily on institutional self-reports, and very few rigorous studies have been conducted. Use of multiple informants and data sources is needed to minimize bias and triangulate findings. Further, little, if any, research synthesis has been conducted; yet synthesis of findings across multiple research designs and settings will provide more robust evidence of effectiveness, thus informing improvement in practice.

Second, the current literature does not have strong theoretical foundations. When mentioned, ecological systems theory is most often referenced.[34] However, theory-based interventions are more effective than initiatives developed in the absence of theory,[35] and the strongest interventions draw from multiple, complementary theories.[36] Integrating theory into program design helps program planners focus their resources and efforts on important targets for intervention. We have identified multiple theories that align with holistic advising transformation, including ecological systems theory, social support, organizational development, interorganizational relations, network, and connectivism theories. These are summarized in Appendix B and reviewed in a recent ASN-supported publication.[37]

Another major shortcoming is that research has not adequately explored the extent to which outcomes may be equitable across all student groups and institutional contexts. This is particularly problematic because racially minoritized students and students from low-income backgrounds face acute enrollment and retention challenges. And although the literature and social support theory, for example, provide foundational arguments as to why and how holistic advising can support all students, particularly racially minoritized and low-income students, the assumption that technology-mediated advising promotes equity has not been empirically examined. Certainly, the extent to which institutions have financial and human resources that can be invested in technologies and advising transformation more broadly raises questions related to equity. Due to the COVID-19 pandemic, equitable access to resources across institutions has been increasingly in the spotlight. Yet, the vast majority of the literature does not explore the possibility that support interventions may have complex, differential, or even contradictory effects across contexts and student populations.

# The Role of Intermediary Organizations in Student Success Transformation

Twenty years ago, Honig[38] recognized **intermediaries** as a unique type of organization that can take on a wide variety of identities, roles, and activities. According to Miller and colleagues, "The growth of intermediaries is part of a broad trend within our economy and society toward fluid, networked, and interactive systems for organizing multi-partner communications and collaboration."[39] Very recently, Malin argued that the role that intermediary organizations play as "knowledge brokers" is critical in school improvement efforts as it facilitates the translation of research to practice. There is "a growing demand for credible knowledge brokers who are adept at curating, translating, and disseminating important research findings — and, potentially, other sources of evidence — so that practitioners can make use of them."[40]

In part because of the wide variety of missions, contexts, and constituents, there has been considerable variation in how intermediaries have been defined. For the present project, we defined an intermediary as "an organization or body that acts as an agent or broker in any aspect of the innovation process between two or more parties."[41] This definition is sufficiently descriptive, yet broad enough, to accommodate the plethora of identities, roles, and activities intermediaries may undertake in higher education.

Intermediaries have a longer history of engagement in K–12 and afterschool settings and more broadly in youth-serving, cross-sector initiatives addressing education, family, social, and economic concerns.[42] In the mid- to late-1990s, given accumulating evidence of gaps in academic achievement for students by race and economic status,[43] school partnerships with intermediary organizations grew rapidly to address inequities. These collaborations, for example, focused on expanding school-community partnerships, whole school reform, and school-to-work. National legislation and funding also have stimulated the growth of intermediary organizations (e.g., Improving America's Schools Act of 1994, 21st Century Community Learning Centers program, School-to-Work Opportunities Act of 1994, the Every Student Succeeds Act).[44] The federal government also directly funds some intermediary organizations, including, for example, the comprehensive technical assistance centers funded by the U.S. Department of Education to help low-performing schools and districts close achievement gaps.[45]

Over the past decade, intermediary organizations have increasingly engaged with IHEs to provide resources, networking, and guidance to help improve student outcomes, particularly for students of color and low-income students. National foundations are increasingly providing funding to intermediaries and supporting the development of coalitions and networks to support IHE transformation.[46]

Intermediaries are often engaged in addressing **_wicked problems_**, or those problems that are complex, intractable, and impossible to solve.[47] Achieving inclusive and equitable student success in IHEs is one such wicked problem.[48] In fact, Malin asserted that engaging intermediary organizations is a promising approach to promote racial and economic social justice efforts.[49]

Wicked problems do not have one solution, and in the case of higher education, what works in one context may not work in another. Each institution has its own unique, wicked problems. To address wicked problems, intermediaries aim to narrow the gap between research and practice, provide technical assistance, mediate between policy and implementation, and promote innovation.[50] They also engage and convene key stakeholders, support interorganizational networks, facilitate collective action, and broker and leverage resources.[51] Intermediaries also serve as a conduit for packaging, presenting, sharing, and interpreting knowledge about those problems with stakeholders,[52] thereby also promoting quality and improving policy.[53]

# Key Assumptions Arising from the Literature

Based on relevant theory and the research literature, we made several key assumptions that are reflected in our efforts to identify promising practices. These include:

- Advising transformation is situated within an institution, yet external contexts (e.g., local, state, and national sociopolitical contexts) influence transformation.

- Leadership, culture, values, and resources (human, financial, IT) at the institutional level greatly influence advising transformation.

- Institutional readiness and capacity-building facilitate successful advising transformation.

- An institution's strategic partnership with an external intermediary organization that provides technical assistance, network expertise and experience, and other resources may serve as an important lever of institutional change.

- Effective transformation leads to high-quality, effective, holistic student advising, which ultimately leads to improved student outcomes.

- The transformation process as ongoing, iterative, and synergistic.

Based on these assumptions and the literature, we drafted initial theory of change and logic models to guide our approach to a multi-pronged research agenda aimed at identifying promising practices in holistic advising transformation. As an early component in this agenda, we looked to intermediary staff for their perspectives. We expect the findings from this study to inform revision of the theory of change and logic models as well as future research.

# SECTION 2:
# Research Methods

This study employed qualitative methods to explore intermediary staff perceptions of institutions' contexts and processes that related to successful (or unsuccessful) student advising transformation. While our primary research aim related to best practices in technology-mediated advising transformation, we broadened our lens to understand the potential influences of context and change management practices more generally. Given the lack of literature focused on ways in which intermediaries support holistic advising transformation by engaging with IHEs, we approached our research questions using an exploratory, experiential approach within a contextualist framework. This framework assumes that reported knowledge and experiences are context- and socially mediated.[54] We also followed a modified grounded-theory approach that was primarily inductive[55] rather than have the initial logic model and the interviewer's perspectives drive intermediaries' feedback.

IN THIS SECTION

*Procedures*
*Participants*
*Analyses*

# Procedures

We designed a protocol to guide interviews with intermediary staff, individually and in small organizational teams. To inform the development of that protocol, we conducted two, one-hour conversations with intermediary staff to explore their perspectives about institutional factors and practices that they believed were related to advising transformation success. We facilitated these initial sessions (Phase I) virtually in March 2021 using a semi-structured script (see Appendix A). We asked intermediaries to describe the practices and conditions they had observed that were associated with the most and less successful advising transformation efforts at institutions with which they had worked. We also asked them how they defined advising transformation success and what they perceive is needed for readiness and capacity building.

We recorded and transcribed sessions and then completed a thematic analysis of the Phase I transcripts. We identified three overarching domains related to successful advising transformation: people, transformation processes, and context. These are conceptually useful in several ways. First, context and people as embedded in systems and contexts align with ecological systems theory. At a macro-level, the broader institutional context can influence who is involved in advising redesign efforts as well as the transformation process. At a micro-level, who is leading and engaged in the redesign effort directly influences the transformation processes. Second, these domains inform key components of theory of change and program logic models. Finally, ecological systems theory underscores the complex, dynamic, reciprocal, and transactional nature of these domains.[56]

The sessions also highlighted the importance of the following themes in relation to successful transformation:

• Leadership at multiple levels is vital, including individual executive, middle managers, and cross-functional teams;

• The vision for advising must be clearly articulated and shared across the institution;

• Centering students and equity are key but often difficult and lacking;

• Data must drive explicit definition of problems to lead to actionable solutions;

• Transformation must include refining structures, workflows, and policies across academic and nonacademic units;

• Technology is not a silver bullet and should be envisioned as supporting transformation not as the solution; and

• Evaluation is a critical process to continually assess progress in the journey and inform improvement.

We summarized each session individually and then shared brief reports with the participating intermediaries for feedback as member checks.
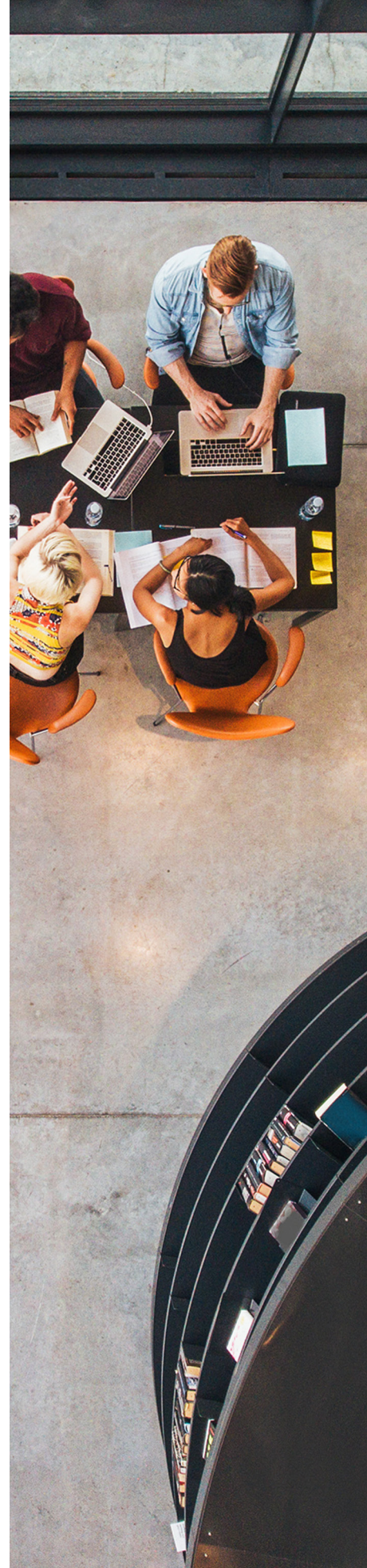
We used the feedback from Phase I to develop a protocol for interviews with individual staff and small teams. The interview script was unstructured following an initial question: "What is the contribution of technology to successful student advising?" Following this initial prompt, the interviewer allowed each individual or small group to direct the conversation with the overarching goal of exploring intermediaries' views of successful student advising transformation. The interviewer also asked questions aimed at elaborating and/or clarifying previous staff comments. Consistent with grounded theory, we aimed to have participants define relevant concepts and themes. In addition, our goal was to elicit greater insights related to intermediaries' perceptions of the role of technology in successful student advising.

# Participants

As mentioned, for this research, we defined an intermediary as "an organization or body that acts as an agent or broker in any aspect of the innovation process between two or more parties."[57] Broadly, intermediaries are external entities that engage with IHEs and/or systems to promote and enhance student success.

In Phase I, the first facilitated discussion included 18 staff from Frontier Set intermediaries who attended a monthly meeting convened by VentureWell. Participants were informed in advance that the session would be facilitated by EDUCAUSE in relation to its student advising best practices research study. The second conversation included four staff from Achieving the Dream (ATD) who had been invited and subsequently attended the group conversation. Both sessions lasted just under one hour. We conducted these in an exploratory fashion to inform the design of follow-up interviews with individual staff and/or small teams from intermediaries.

In Phase II, we invited staff from six intermediary organizations to join one-hour interviews. In total 15 staff from those six intermediaries participated in 10 interviews between April and July 2021. Eight staff from four intermediary organizations participated in one-on-one interviews, and another seven individuals from two organizations participated in small group interviews (groups of three and four). The staff represented intermediary organizations working with different types of IHEs, such as public research universities, historically Black college and universities, and community colleges. Specifically, interview participants were affiliated with the following intermediaries: Historically Black Colleges and Universities (HBCU) Intermediary Team, University Innovation Alliance (UIA), ATD, NACADA, American Association of State Colleges and Universities (AASCU), and The Ada Center.

# Analyses

As mentioned, our analytic approach used a modified, grounded-theory approach. While primarily inductive so that staff reports drove the findings, it also was deductive in the sense that theory (e.g., social ecological, organizational development, leadership) informed analyses.

The researcher used an iterative process across and within interview phases incorporating constant comparative analysis, relying on inductive and deductive approaches, to develop codes and categories.[58] Only Phase II data (i.e., eight individual and two group interviews) were used in the formal coding and analyses due to the overlap of individuals across the two phases. The researcher made multiple coding passes moving from initial, to focused, and finally, to theoretical coding.[59] Initial coding tends to be more concrete and descriptive whereas subsequent coding tends to become more abstract and conceptual in later passes.[60] Coding included a mix of types, including descriptive, in vivo, attribute, pattern, and elaborative codes.[61] Sections of text (i.e., participant comments) in the transcripts were assigned multiple codes, if appropriate, thereby capturing different concepts in the same text segments. The researcher completed coding on hard copy interview transcripts. While Phase I transcripts were not used in coding and analyses, a handful of participant quotes are woven into the following section as evidence supporting thematic analysis.

# SECTION 3:
# Results

Staff views of advising transformation aligned with four overarching topics: institutional context, leadership, transformation activities, and qualities associated with successful transformation. These topics and associated themes and subthemes are presented in Figure 1. Use of advising technology as a resource within the transformation process was a prominent topic and thus is presented and discussed on its own. Those themes and subthemes are outlined in Figure 2, expanding on the box labeled "Technology supports vision and workflows" in the upper right of Figure 1.

In the remainder of this section, we describe the topics and themes that we identified through analyses of transcripts. While not depicted in Figures 1 and 2, intermediary staff sometimes mentioned the impact of the COVID-19 pandemic on advising and thus is included among the sections that follow. We have included illustrative quotes from staff to substantiate and enrich our understanding of intermediaries' observations of advising transformation across campuses. The frequencies that are provided in the following sections refer to the presence of the topic within one or more of the 10 interviews; for example, n = 7 indicates that the named topic or theme was discussed in seven of the 10 interviews.

It is important to note that the topics and themes do not fit neatly into independent buckets. Transformation is extremely complex, and thus there is considerable overlap among concepts. For example, all participants discussed "data" as one of the most important aspects of transformation. Yet, concepts about data were diverse, related to institutional culture, leadership, equity, and IT infrastructure, as well as data management, quality, collection, analysis, and use within the redesign process.

## IN THIS SECTION

*Institutional Context*

*Leadership*

*Planning and Transformation Processes*

*Transformation Qualities*

*Contribution of Technology to Successful Student Advising*

*COVID-19 Shines a Flashlight on the Value of Holistic Advising*

# Institutional Context

At an institutional level, staff in all interviews (*n* = 10) mentioned one or more contextual factors that they viewed as critical to success, including: adequate human and financial resources, solid IT infrastructure and data use mechanisms, and equitable and student-centered cultures. Some staff more explicitly asserted that advising transformation needs to be a systemic effort to be successful. That is, they asserted that holistic student advising cannot be realized without engaging the whole institutional community as part of the transformation journey.

**Figure 1. Thematic map of advising transformation categories, themes, and concepts**
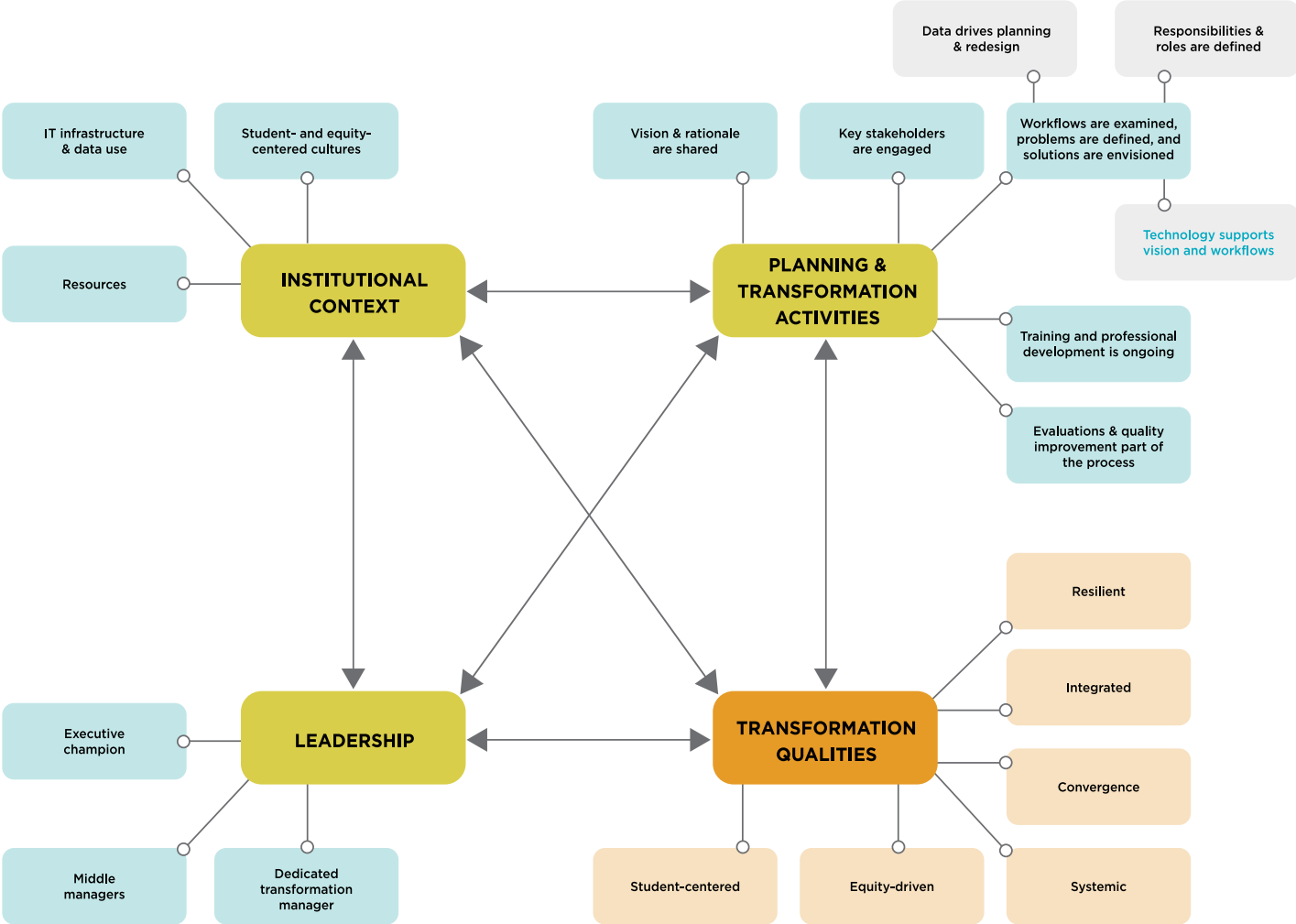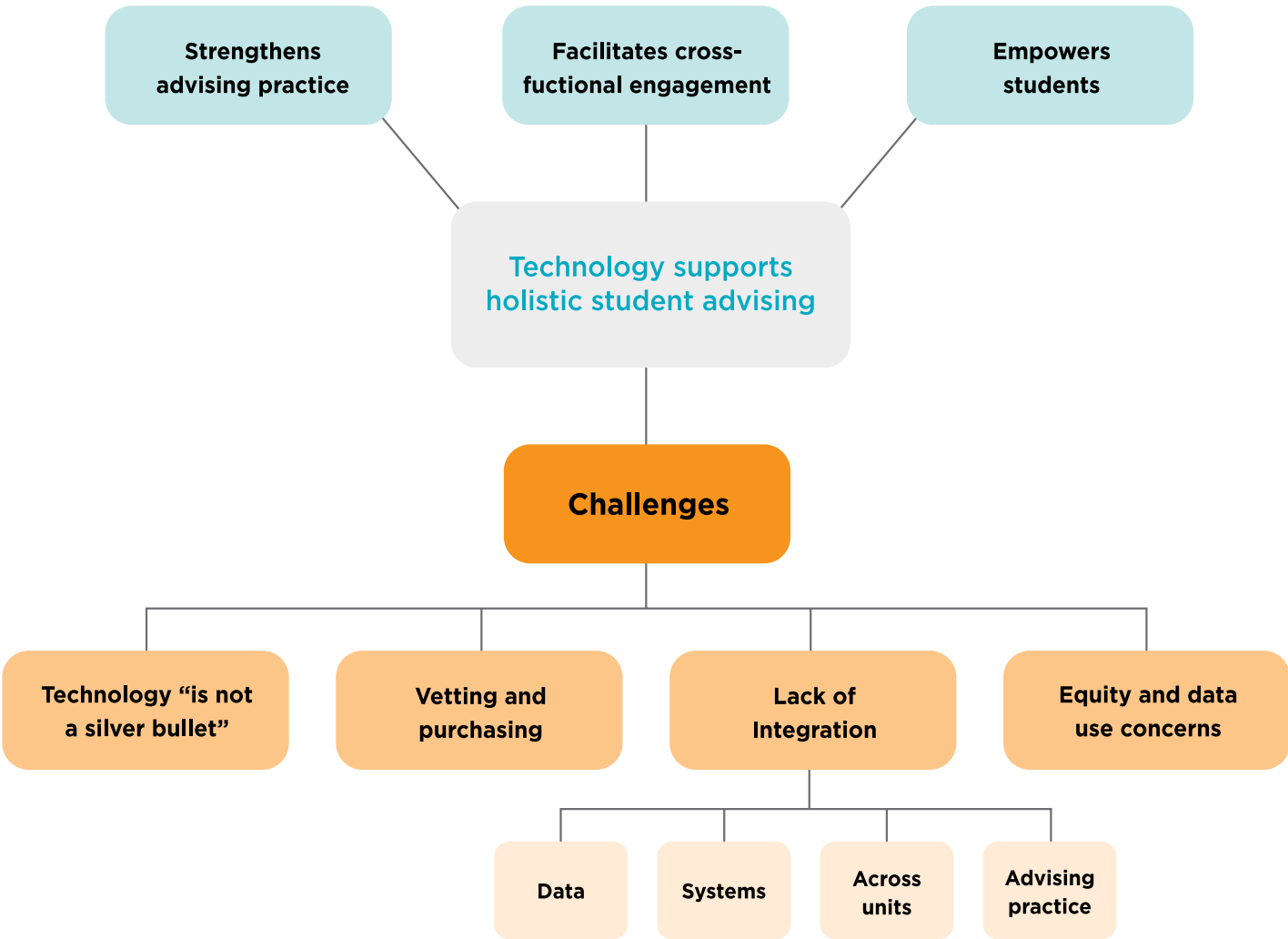
## CULTURE

Intermediary staff noted that institutional cultures influenced the transformation process and likelihood of success. One commented,

> The other thing I think matters a lot is the culture. So, some colleges just have a culture of what we call transformation, they are really good at changing things, and it doesn't matter what it is, right? So they have a culture that can pivot and adapt to what students need.... They're like, what's new, what's going to work for our students, and then they will change things accordingly, and they're not afraid of change.... If a college has a culture of change, then things go a lot smoother.

**Figure 2. Thematic map of advising technology categories, themes, and concepts**

Most intermediaries argued that institutions that have student-centered cultures are much more likely to successfully transform their advising system into one that provides holistic support to students. One participant said, "It is a culture that promotes cross-functional engagement and transparency, collective problem solving, and centering students. And I really think that that is the biggest piece, that it [transformation] is not an institutionally centered approach, it is a student-centered approach."

Staff in most interviews mentioned the importance of student-centered transformation (n = 7) and operationally defined student-centered as "knowing your students."[62] Several also mentioned the need to fully understand the students' journey through and across the institution to identify problems and inform potential solutions. Further, using institutional data was the primary mechanism by which leaders "know" their students. One intermediary reflected:

> Focusing on the students is first understanding your students. So using data to understand who your students are, how they move through your institution, what kind of outcomes different groups of students have…. Caring about what students care about. Because from an institution perspective, success means that you graduated. From a student perspective, success could mean I made it through my first semester.

In half of the interviews, intermediary staff (*n* = 5) highlighted potential facilitators and barriers to equitable advising practice, typically related to data and technology use and misuse. While staff in all interviews reported value in the use of advising technologies, some cited situations in which technology may raise questions of equity. (This juxtaposition is addressed in more depth in the discussion section.) They underscored the need for institutions to disaggregate their data as standard business practice so that they clearly understand variation in students' experiences and outcomes based on key demographic variables such as race, ethnicity, first-generation, and Pell Grant status. On the other hand, some staff raised concerns about advisors' and others' access to certain types of data. One participant stated:

> When you are looking at a dashboard and you are seeing information, if you have that information, you see a student has a Pell Grant so you know that's a proxy for low-income, or you're seeing a student is first-generation, that if you have not done sufficient professional development with the team that are working with those students, people can make lots of assumptions. "We're going to put you in this class because we know you came from this particular high school, and there's not a lot of money there, and you probably don't have the background to succeed in this class."

Another participant echoed a similar concern:

> I think those mistakes can be really the mistakes you might make in interpreting data in a way that's harmful, can really be detrimental to an individual relationship, but also overall because then technology becomes part of the problem. And then it's not part of the solution any longer.

Other staff gave examples of how technology can help address potential inequities among students. For example, in one small-group discussion, participants shared that increases in the use of asynchronous advising during the COVID-19 pandemic had increased show rates for advising. While no data were referenced, technology may enable greater participation in advising for students who are older, have families, and/or are working by reducing barriers to attending advising sessions and offering extended hours. One acknowledged that technology "removes a lot of barriers, but it also creates a few barriers."

Participants also raised concerns about some students' ability to access personal technologies in order to take advantage of advising resources. One of the group participants stated:

> But when you look at, do you have access to Wi-Fi? Are you in a part of the country that doesn't have good broadband or internet connections, and stuff like that? Are you going to have the funding for it, where you can't go to a library, or that sort of thing? It does highlight the inequities that exist there.

Another added:

> Yeah, the equity issue is another huge problem…not only the access, but when they turn their camera on, what's behind them? Do they have a computer that can blur the background? Are they afraid to turn their camera on because it's their house?

Finally, while the interviews did provide evidence that equity is being discussed in some ways, there was some suggestion that equity is not necessarily being addressed holistically within institutions. One coach referenced structural racism in higher education:

> The challenge is really difficult because what we're asking people to do is go on a really intense personal journey to understand that that's a choice—that's personal choice— and so people's readiness to do true work in that space, I think, is really lacking. I think they desire to do it, but I do think that it's a challenge for them to figure it out how to do that personal journey.

## IT INFRASTRUCTURE AND DATA USE

As mentioned, intermediary staff in all interviews ($n$ = 10) emphasized the importance of data to successful advising transformation. Their data-related comments were diverse, ranging from institutional infrastructure and data governance, to redesign discovery and planning, and finally to evaluation and quality improvement. Several staff suggested that a mature, institutional-level infrastructure is a critical and necessary prerequisite to successful advising redesign and holistic student supports more broadly. They associated a mature infrastructure with effective data management and accessibility, data quality, transparency, confidentiality, and "ethical use of data." One individual pointed out that prior experience and success (or not) with technology deployments also factors in not only to the maturity of IT infrastructure overall but also to the institution's willingness to pursue implementation of new features and/or platforms.

The interconnectedness of these concepts was evidenced by several staff who connected transformational leadership styles with data-informed decision-making, accountability, and centering students. In discussing institutional exemplars, one person highlighted an institution that had created "personas" from analysis of student data to more effectively center students in their strategic thinking and planning.

> So their leadership, and that sort of singular vision all the way through the college, they created student personas that say, "These are what our students look like." So...if we're going to implement technology...they said, "If this isn't going to work well for 'Maria,' then it's not going to work well for our students." So that student was always in the room, when they made a decision about anything that they do at the college....

## INTERNAL RESOURCES

In three interviews, staff talked about the impact of resources on advising transformation and emphasized the need to invest in more than simply the technology alone. They asserted that institutions need to invest more in their advisors and in pay and professional development, and provide support staff for technology and data analytics.

A few of the staff equated leaderships' willingness to invest in technology and human resources as an indicator of transformation readiness. One said:

> I've worked with colleges where the president is very in favor of improving the advising process or how students are supported, then the next sentence is, there's no more resources, we're not hiring, we're not buying anything. That doesn't make it impossible, but that probably means they're not ready for a technology lift.

Similarly, regarding technology, one participant reflected, "They don't always fully fund the product," overlooking ongoing support and staffing. Another echoed that theme saying, "I think one of the challenges is also that somebody has to own it. You can't just buy it and have it live somewhere or not be championed by anybody." The mutual observation was, "There's this halfway of doing it, yet we still want positive results."

Several staff also reflected on advisor capacity to fully address student needs. Student success and advising literature frequently cites high caseloads as a barrier to institutions' success in providing holistic student advising. This theme surfaced in interviews in a variety of ways. First, most participants described technology as a primary ingredient in successful advising in that if used appropriately, it can greatly enhance advising efficiency and help advisors to focus on students most in need of personal attention.

However, technology was not viewed as a one size fits all or "silver bullet." One person described an institutional mindset of not having enough resources to hire more advisors as a barrier. Thus, the typical response is, "'We have to work smarter around this.' ... Colleges seem to [focus on] how we help advisors be more efficient in their role." Some articulated this stance as signaling a lack of readiness for transformation. Another person took issue with institutions' pay scale for advisors. "It's a huge systemic problem. It's holding back the field of advising. It is harming people who are advisors, it's making them leave the field of higher education." Others in that

group highlighted the complexity of this issue, pointing out that conversations around caseloads are meaningless in the absence of an understanding of what advisors are expected to do. Effectively designing and implementing advising systems consistent with SSIPP principles likely requires smaller caseloads than advising models that are primarily reactionary and concerned with triage.

## EXTERNAL RESOURCES: INTERMEDIARIES FACILITATE TRANSFORMATION

The interviewer explored the ways in which intermediary staff worked with institutions and the resulting value to institutions' transformation journeys. Intermediaries' work with institutions varied in terms of goals and objectives as well as the extent to which engagements were hands-on and longer-term.

Nonetheless, intermediaries' views of the value they brought to the transformation process was fairly consistent. Two interconnected supports that they most frequently described providing were change management and systemic orientations to break down siloes and improve structures, workflows, and policies across functional units. Process mapping was frequently cited as an effective tool in defining problems and envisioning solutions related to structures, workflows, and policies. Again, participants often emphasized that these processes required centering students to be successful.

Staff frequently conveyed that institutional staff underestimate the "lift" of advising transformation. "It's going to be a heavy, heavy lift. And they always laugh at me when I say that. Then, as soon as they get through that purchasing and procurement, it hits them hard." Staff reported that institutions often do not know where to begin. "Where do you begin when you have something so mammoth confronting you?" Their approach is to "take a step back, let a third party, neutral entity help guide them through that discovery process." They also frequently referred to the importance of "discovery," which involves fully exploring institutional data and considerable stakeholder engagement. "We use data to inform the redesign efforts. That's a key starting point."

Intermediary staff saw their status as an external, neutral party as helpful in positioning them to more effectively challenge the status quo to promote readiness and capacity building within institutions. Another critical role that intermediaries played was as a bridge builder. Multiple participants described the importance of connecting institutions with peer institutions that were further ahead in their transformation journeys. Intermediaries lean on the power of the network to validate messages they might initially deliver, such as transformation is a "heavy lift." For example, one person stated:

> One of the key components in terms of intermediaries…is the power of the network. It's absolutely critical…. From an educational perspective, one, it's a voice from the outside. I mean, as coaches, we provide guidance and support and tools to help facilitate the process that they're going through, but I think when they hear directly from peers that have had some success, can share and help them prevent some of the things that they would have done differently, is huge.

Yet another expressed a similar sentiment:

> But it's really about exchanging ideas and practices, and also celebrating each other and the good work that they're doing…a period of time in which they could truly pull back the curtains, learn from each other, talk about what they're doing, and not be a competition, but it be a true sharing and learning from each other.

In sum, intermediary staff saw themselves as helping to spark institutional change and cited examples that demonstrated case examples.

## LEADERSHIP

Staff in most interviews ($n$ = 8) commented on some aspect of leadership as being crucial to successful advising transformation. Staff most frequently reflected on institutional transformation leadership more generally (six of eight, 75%). Staff in a third of the interviews (three of eight, 38%) spoke to the importance of direct, hands-on management of transformation efforts and specifically to the importance of the involvement of middle management.

Regarding leadership broadly, participants described key leadership qualities as "visionary," "forward-thinking," "inclusive," "transparent," "data-driven," "strong," and "persistent." Several referred to the need to have a visible "champion" to elevate the message that holistic student supports and advising is a "strategic imperative." As mentioned, they saw effective leaders as nurturing a student-centered "culture of change" that was able to "pivot" more nimbly. Intermediary staff emphasized that institutions needed to be "dedicated to improving their advising work from the top down." For example, one person commented:

> Strong leadership. And when I say strong leadership, I don't mean that positional, just positional, we certainly need the positional support and advocacy from executive leadership. But you also need visionary leadership, you need people who are forward thinking and can recognize the need, the contemporary students and the ways in which higher ed is shifting. So that you're keeping your institution on the front edge, right, on a cutting edge, making sure that you're not behind on the needs of students.

Concerning frontline transformation efforts, participants emphasized the involvement of middle management as "bridges" to the input and engagement from a range of key stakeholders. In the actual process of implementing advising redesign, staff suggested executive leaders and other decision-makers can be disconnected from the realities on the ground. Thus, a key role of transformation leaders in the middle is to ensure ongoing engagement and dialogue of faculty and staff.

> You really need that centralized person to be driving the agenda forward and coordinating across all those different pieces…. Sometimes there needs to be that middle manager or, right, that lower-level senior administrator…. But right there in that middle space, because they're the bridge makers, right? And so, they understand, in many ways, both sides of the coin.

Staff strongly recommended that at least one full-time project manager be designated to lead transformation efforts.

> Those are the people that I think really are the glue that helped to drive the project forward on most campuses. They're by and large probably the most important person, when it comes to.... Or people, the success, or failure of an initiative. A lot of institutions that started with maybe, like, one part-time person have found that they actually do need that full-time project manager.

Another common theme conveyed by intermediary staff was that leadership should be shared between "technical and non-technical" units. Citing a successful example, several staff emphasized that it was important that leaders were seen as credible. In one case, leadership was shared by "both sides of the college," academic and student services, thus presumably creating a greater degree of buy-in across the college.

# Planning and Transformation Processes

The bulk of staff feedback about institutional best practices in advising transformation related to activities associated with the redesign process. While the implementation of technology was a prominent component, it is discussed in the next section. Again, however, it is important to highlight the interconnectedness of the institutional context, leadership, redesign process, and use of technology concepts.

## ALL KEY STAKEHOLDERS ARE ENGAGED.

Staff firmly asserted that communication, collaboration, and shared decision-making across the institution, related to all aspects of the student experience, are foundational for successful advising transformation. They asserted that "pulling the right people to the table, making sure that not only IT is involved, but your end users and your stakeholders from the very start" was critical to transformation success.

Staff reported that a major responsibility of the project manager(s) is making sure all key stakeholders are meaningfully engaged throughout the process, facilitating collection and use of data to examine and improve workflows, and to ensure the process and outcomes of the redesign are evaluated and improved. Staff suggested that cross-functional teams are a very effective mechanism to meaningfully engage diverse stakeholders. The benefits they highlighted included greater buy-in across campus, better systemwide integration, improved workflows, and increased adoption of technology.

They also emphasized the importance of ongoing cross-functional dialogue and "trying to get them [institutional staff] to think about those workflows early" and identify "their pain points." Multiple interviewees weighed in: "Different units are trying to answer different questions. Different things matter to each stakeholder group. But those things have to be explicitly put on the table."

Several intermediaries underscored the importance of gathering stakeholder feedback and constructing user stories to different groups' needs and experiences. For example, one stated:

> (G)etting what we call user stories from each of the different departments. So, these are sort of like short snippets of the features that you'd be really looking for, so kind of in the context of your goal. So, I am an advisor, and I need X to do Y in order to accomplish Z goal is like sort of a simple user story.

User experiences were an important collaboration mechanism that facilitates more comprehensive planning and design.

IT and IR were both seen as essential collaborators in the change planning and process, yet not as primary leads given that intermediaries asserted that technology implementation should not be the primary objective of transformation. Rather, technology should always be a supportive tool (refer to technology section for more).

One participant said IR needs to be at the table "doing some vetting of the data, doing the analysis of the data…but they need to have faculty and other administrators sitting around the table raising the right questions." Similarly, another intermediary declared:

> IT is absolutely essential. I mean, you can't do business without it, but they cannot be the driving force. They can't say, "No, we can't do that because it's too hard." The technology, in my perspective, has to be subservient to what is seen as in the best interest of the student and the institution…. IT is an intricate part of this, but they cannot be the driving force, because, for very legitimate reasons, their decisions may be different than what the other side of the house would do.

Intermediaries reported that the voices of faculty often are not sufficiently engaged in transformation efforts. This seemed to apply regardless of the advising model. "I think faculty are a big part of the conversation that often aren't brought into advising transformation conversations." Another intermediary emphasized the "buy-in" needed from faculty and emphasized the importance of explicitly "asking them to be able to be part of the dialogue and the solution." One intermediary suggested that early conversations with faculty may result in having "faculty advocates" who can gain further traction among their colleagues. Beyond garnering faculty buy-in, a few intermediaries pointed to the importance of faculty being at the table to "raise the right questions." IR and IT may have technical expertise to address some faculty pain points; however, they cannot address those unless faculty voice concerns and raise critical questions about workflows.

Regarding the intentional integration of student voice, one participant asserted, "So I would not say it is often done well or enough…. Institutions are generally not super good at doing this." So, while student-centering is a key concept in planning and transformation, it does not translate typically to inviting students to the table. Intermediary staff reported that institutions often do use proxies for student voice such as student personas, student survey data, and administrative data. They also mentioned that many institutions reason that they don't need to engage students since many of the technologies are not student-facing. However, a few staff discussed trends toward integrating technologies designed to empower students more intentionally by flipping advising. Nonetheless, the consensus among staff was that institutions should more proactively engage students in their transformation efforts.

## VISION AND THE BUSINESS CASE ARE SHARED ACROSS THE INSTITUTION.

In half of the interviews ($n$ = 5), staff spoke strongly about the need for a "big picture vision" and "true unified purpose" to fuel a "collective will to make this thing happen." While the vision serves as a road map for change, intermediaries emphasized that it must be well communicated across the institution along with an explanation of the why and how. According to one, "Being visionary, articulate, understanding why we're doing it…why it's important that you're a part of this initiative or journey." Another said, "So they understand that if we do this, and we focus in these areas, then we're going to get this change, which is really what we want for our students."

Several intermediaries suggested that institutions tailor transformation messages to specific stakeholders, using both "head and heart" rationales that will resonate differently across units. One key to messaging is "being able to get out in front of the skepticism." But most important, leaders need to clearly answer the question, "What is the student ultimately going to experience as a result of this?"

## PROCESS REDESIGN: WORKFLOWS ARE EXAMINED, PROBLEMS ARE DEFINED, AND IMPROVEMENTS ARE MADE.

Based on conversations and analysis of the interviews, intermediary staff in all interviews (*n* = 10) suggested that process redesign is an essential component of transformation. Without defining problems and implementing solutions, that is, fixing "broken workflows" and addressing "pain points," advising transformation is not likely to be successful. One person observed:

> It's iterative. It takes time to get through this. And colleges, they struggle with where to begin in this effort…advising redesign, holistic student supports…. It's one of the hardest aspects of these colleges' journeys…. There are so many areas that are challenging, but this is tougher, and I think for one reason, because it involves real structural process and policy redesign. It's restructuring at its core, and that is the most challenging for these colleges to overcome.

Another participant reflected, ". . . if you really want it to transform how the student experiences your institution, then you have to be using it [technology] consistently across the college, and that's hard." Similarly, another said, "So advising technology is really whole campus technology."

Given the "heavy lift" that transformation is, institutions often have difficulty knowing where to begin. Intermediary staff described transformation starting with a deep discovery process to fully define the institutions' problems from which to then envision solutions. One mused:

> I wish we could blow up existing structures and processes and policies and human resources, but the reality is you can't. So, they cannot tackle all of that all at once. You have to start someplace that's thoughtful, informed by data and a deep discovery process.

Similarly, another equated redesign with "reimagin[ing]" and cited an example of an institution that "threw out what they were doing and created a [new] model." Another stated that a "really early understanding of what you want for your students, and what's missing, and to help you get there is key."

Access to and use of quality institutional data as well as defining user stories are essential to supporting the deep discovery process, as is engagement of all key stakeholders. Intermediaries also described process mapping as an invaluable tool informing not only problem but also solution descriptions. "Sometimes we start with doing some mapping exercises of what is the flow. Like a business process mapping, like a student has a challenge, like what happens to them?" This helps to establish "what's the current state and what's the desired state? What are the gaps that you have, and then how is this solution going to help bridge that gap?" Intermediaries further asserted that using process mapping as a tool is predicated on defining the ideal student journey as process mapping is done from

the perspective of the student. It requires and enables cross-functional communication and collaboration, which in turn facilitates better alignment of policies and processes across the institution. Use of data and process mapping are essential for leaders to fully answer the question, "What problem are you trying to solve?" A person suggested:

> I think colleges that don't know where…the weak points are in their processes are not quite ready yet because they really have to have a clear indication of what they want the technology to do for them, and if they don't understand their processes well enough and understand how the student experiences it, then they're not going to be able to improve it with technology, because they really just don't have a firm grasp of what is and what is not a pain point for students.

Another added:

> You're going to have to alter your work, you're going to have to clean work processes behind the technology. You can't just buy technology and put your broken workflows, try to make those work and align those with the technology, because this is going to make it more difficult.

Finally, one person observed the importance of an institution's not only defining its problems but also fully acknowledging and owning them. Describing an exemplar institution, one participant said, "They said it out loud in front of everybody." Such a step may signal readiness for change.

## PROFESSIONAL DEVELOPMENT AND TRAINING ARE ONGOING.

Staff participating in a majority of interview ($n = 6$) cited "ongoing training and professional development" as essential for successful transformation. One intermediary observed:

> You cannot throw a dashboard in front of people and say, "Look, we're all now experts in data analytics." … It's not like, "We just did a workshop and our people are all good." You've got to have this consistent professional development…. You can't just buy the shiny product. You've got to support the product all the way through by supporting the people who are working with students.

Similarly, speaking to what keeps institutions from most effectively using technology, one person observed:

> I think part of it is the culture. This is the way we've done things. If we're going to get technology, we just slap it on top of everything else that we're doing and we expect advisors to use it without any formal training or deep training…without really trying to understand it's a different way of working versus just another tool that we're adding to your toolkit.

Intermediaries also asserted that advisors could benefit from professional development focused on ethical and equitable use of data. As mentioned previously, use of technology provides users with access to a range of student information that could be used inappropriately if advisors are not adequately trained and supported. In part related, intermediaries observed that advisors generally can benefit from training related to data literacy. On the other hand, one participant suggested that advisors need more analytic support.

> They want to find ways to help people. What they don't have is the technology and data literacy or education. I would argue that in many environments, they shouldn't be expected to. That should be the next level up. There should be somebody else in that chain that is doing that analysis, that is looking at the data that is living in Excel, and then sharing out the aggregate knowledge learned that can impact individual students.

Although one participant alluded to the distinction between professional development and training, other participants referred to them collectively as essential for transformation.

## EVALUATION AND QUALITY IMPROVEMENT ARE IMPORTANT COMPONENTS OF TRANSFORMATION.

Staff in three interviews ($n = 3$) underscored the importance of using data not only to define the problem but also to monitor implementation and assess the impact of advising redesign. One stated, "It's how they launch it and how they continue to monitor it. So, you can't just launch it and be like, 'Here it is' and leave it alone." One person observed that the "maturity of the institution around their data and analytics work" predicted better use of evaluation and quality improvement in transformation journeys. He continued, "They know that there's a next step. They're not happy with just saying, 'We've got 13,000 flags.' We have to do something with those 13,000 flags." Similarly, another emphasized the need to think about evaluation upfront. "And that also will help them monitor the effectiveness of the new technology.... You need to know what metrics you're monitoring to see if this new system is having an impact."

# Transformation Qualities

Finally, analyses yielded six abstract qualities associated with successful transformation that transcend planning and transformation activities alone and appear strongly tied to the institutional context. These are depicted in orange highlighting in Figure 1 and are examined in more detail in the discussion section.

Most participants directly associated student-centered initiatives with transformation success. While participants raised issues of disparities and highlighted the importance of equity, they did not specifically state that effective transformational processes should be equity driven or equity centered.

Participants also suggested that transformation efforts are more effective when they are systemic, involving the entire institution. Relatedly, they underscored the importance of engaging all key institutional stakeholders to develop a shared vision and solution suggesting interdisciplinary collaboration seeking convergent learning.

Finally, participants referenced multi-dimensional components of integration, most often across technologies, but also aligning policies, structures, and practices across functional units. They emphasized that perseverance is required, ultimately understanding transformation as iterative and building over time, essentially in perpetuity.

# Contribution of Technology to Successful Student Advising

As mentioned, the initial question that the interviewer asked of Phase II interview participants was, "What is the contribution of technology to successful student advising?" As mentioned, the interview protocol was unstructured, allowing the participants to bring up concepts that they felt were important to transformation. In response to participants' comments, the interviewer asked questions for elaboration and/or clarification.

While they saw technology as a valuable tool promoting student success, if used "incorrectly," participants observed that it can become part of the problem preventing optimal transformation success. One stated that there is a "real balance to where technology can be part of the problem and part of the solution." In addition, several staff alluded to a culture shift that is needed in institutions to maximally capitalize on technology use. "It's a different way of working versus just another tool that we're adding to your toolkit." The benefits of advising technologies that participants described generally aligned to one of three themes: Technology enhances advising practice, promotes cross-functional engagement, and empowers students.

## TECHNOLOGY ENHANCES ADVISING PRACTICE.

Staff in all interviews agreed that technology can greatly enhance advising practice. For example, they stated that "It does take some of the heavy lift off the advisors"; "it allows for more streamlined and proactive use of data"; and "technology is really critical in its ability to [be the] backbone for data." Technology also allows advisors to triage student needs to ultimately meet the needs of more students, in particular so they can "optimize" time with those students who need it the most. Technology can "increase efficiency," "reduce redundancy," document student needs, and enable "flexibility." One participant observed that "the technology aspect of it, or element, allows for agility, because as we found out during the COVID-19 pandemic, that helped to quickly pivot and to move everything online, including advising."

While the interviewer did not ask about specific types of technology, multiple intermediary staff did refer to a few, including chatbots, CRM, and LMS that they suggested offered promise for improving advising practice. A few discussed chatbots at length. Relying on artificial intelligence, intermediaries gave examples of how these are being used in the field as an "organizational traffic director… saving the student time, and also saving institution time." One participant offered this explanation:

> The use of AI technology, things like chatbots to engage in two-way conversation with students so they can ask questions about anything at any time and, for the most part, may not need the support of a human being. It's a bot that gets smarter that isn't just searching a website for answers that they can find themselves. It's really learning based on what students are asking and ensuring that staff are updating that information so staff understand what challenges and questions students are having, can answer them as efficiently as possible because they're not answering the same question 800 times themselves, and they can spend more time on the deeper questions and then have protocols in place to escalate what might be an issue of concern or student of concern, makes sure that student gets targeted human support.

Another person highlighted a case example in which the data collected by chatbots was instrumental in that institution's effective response to student needs during the COVID-19 pandemic. She reflected that using chatbot data "and then engaging students in conversation…. I think is happening at some of these more cutting-edge institutions and has been incredibly helpful during COVID in particular."

In referring to specific technologies, intermediary staff most often mentioned alert and predictive analytic technologies. They were reported to be potentially beneficial in proactively identifying students who need timely assistance to avoid falling off track. While their potential value was recognized, more of the conversation focused on the challenges they posed in terms of "closing the loop" or effectively responding to alerts or flags. The use of predictive analytics raises concerns among advisors (refer to the Challenges section for more detail).

## TECHNOLOGY PROMOTES CROSS-FUNCTIONAL ENGAGEMENT.

Several intermediary staff observed that cross-functional engagement is one mechanism that leads to enhanced advising practice and that can be enabled by technology. For example, one participant reflected:

> The ability to share information about the student with whoever works with the student no matter where they are across the college...keeps the student from having to tell their story over and over and over again.

In a similar vein, another suggested:

> It can be something that really brings people to the table, to have to talk about, especially if they understand and have the student at the center of that. Like, "What is the student ultimately going to experience as a result of this?"

In addition, technology can facilitate cross-functional engagement that can lead to broader, higher-level outcomes over and above the benefits to student advising. It can help integrate workflows, unify policies, break down siloes, and improve access to data. One asserted:

> Just every step of this process. I can say to them, "You're going to have to think about this." Until the technology facilitates the need for them to think about it, they don't do it. So, I'm a huge, huge proponent of the technology facilitating the needed conversations that otherwise wouldn't be had, and it truly is about redesign, restructuring roles and responsibilities for the benefit of the student in a streamlined way, in a very, very streamlined way, because these colleges are too complex. And the technology can do that.

Although not directly stated, a handful of intermediary staff implied that technology has the potential to nurture inclusive, integrated, innovative, and student-centered institutional cultures that magnify the effectiveness of holistic student supports.

## TECHNOLOGY EMPOWERS STUDENTS.

In three interviews, staff emphasized the benefit, and growing need, of "getting more information in the hands of students" to increase their "capacity to manage their own progress." One participant stated:

> There's been a lot of work around building these schools to make it more efficient for advisors to do their work [inaudible] across campus, be proactive with students, and that's super important and helpful, but I think increasing use of tools that allow students to support themselves to a degree.

They felt that greater emphasis on empowering students and increasing student-facing technologies is a new direction some institutions are taking.

## TECHNOLOGY CHALLENGES

Barriers to effective technology selection, implementation, and adoption/use were reflected in the interviews in multiple ways. The following themes emerged from the interviews.

### Technology "is not a silver bullet."

One potential challenge is how institutions view technology. Intermediary staff observed that too often, institutions get the cart before the horse by focusing on technology as opposed to fully defining the problem and then selecting the most appropriate technology to address that problem. Often institutions are attracted to "shiny" things and/or looking for a "silver bullet." For instance, one participant reflected:

> The schools who weren't gaining traction or completely failed was because the technology was out in front of the story. Technology was driving everything, where it should be the background. It should be nothing more than a tool in the story, and the faculty and the staff should be driving the work. The tool just comes in and supplements that work.

Another participant similarly stated:

> It's less about the technology. The technology is just an assist, in the same way that my glasses assist me, right, or that a cane assists someone. I think that most institutions or most leaders in higher ed look at tech as if it's supposed to be the magic bullet. And it's not. It actually doesn't drive the work. We have to drive the work.

In sum, "the truth of the matter is, the technology is not the silver bullet. It really does take a combination of careful planning, process improvement, and data hygiene to make those things work."

### Vetting and purchasing is often inadequate.

A few participants noted that often institutions don't sufficiently vet technology products prior to purchasing, including ensuring that there is a robust conversation between institutional users and vendors. Further, the vetting process may not be centralized, resulting in duplication across departments or functional units. "Somebody buys it without thinking about how will it work with existing technologies." One intermediary observed:

> You have a lot...of communication breakdowns across that, because the institution expects the technology to display perfectly on top, and work day one, but the truth is, if they haven't done their homework, in terms of getting their data and their processes in place, a lot of those disconnects that exist in their process already are just going to be replicated in the technology.

### Some technologies raise equity and data use concerns.

In particular, intermediary staff commented on predictive analytics, describing generalized concern among advisors and within institutions. While acknowledging their potential to enable proactive intervention on behalf of students, they pointed out that predictive analytics are only useful if acted upon appropriately. Intermediaries raised concern about whether advisors typically had sufficient training and time to use them effectively. One participant observed "that predictive piece gets pushed to the side because it takes too much time to interpret it and look at it and understand it." Another stated:

> And there's a lot of questions about it, like, "Why would we.... Why am I using this in my job? I'm not going to use it. This seems to discriminate and provide...I don't know what's behind there. I don't know why...." The black box was always a very big deal.

### Lack of integration is a prime barrier.

Integration emerged as a multidimensional concept and a prime barrier to effective and holistic student advising. In explicit recognition of that, one participant reflected:

> They say "integration" as a kind of a catch-all for a lot of different problems.... Because integration can mean a lot, I mean, specifically. So, like, do they mean bidirectional? Do they mean unidirectional? Do they mean problems with integration because the data is wrong, the data is missing, the data is not fast enough?

Lack of integration can occur at many different levels, including within systems/tools, data access, advising practice, and departments/functional units. That is, lack of integration shows up in many different ways in practice. In short, these integration issues reduce the effectiveness of holistic student advising. The following are examples of how they may manifest differently:

- **Systems:** "The mistake that a lot of colleges make, which is you end up with duplicate functionality. And then you have sort of people at your institution who use one type, and not the other, you have data stored in all different places. So, we realized sometimes less is more."

- **Service and academic units:** "They're all using their own versions of different technologies and none of them talk to one another. We see that within advising too at a larger institution, if a student changes majors. Does that information, does that data, does that history go with them?"

- **Data access:** "Some vendors are really working on APIs and middleware to solve for some of the technical disconnects. But the APIs and middleware are not going to solve for some of the more human issues that are related to what is your process for organizing data, collecting data, and making sure that you're actually entering data the correct way to begin with."

- **Advising practice:** "One of the issues is in some institutions, not all, but in some institutions there's an abundance of technology use and none of it interface as well. Then you have an advisor who is toggling between anywhere from five to 10 different screens, trying to help a student. Then the technology becomes burdensome, it becomes cumbersome and it becomes difficult to actually navigate through."

The bottom line is that these integration issues cause frustration among advisors and other stakeholders and can diminish motivation for taking on and succeeding in advising transformation efforts. Another potential consequence is lack of coherence in advising practices from the perspective of students. Lack of integration most certainly places a ceiling on how effective and/or holistic student advising can be.

## Partnerships with vendors are underpowered.

In part a consequence of vetting and purchasing shortfalls at the institutional level, partnerships with vendors are most often not maximized to facilitate most effective purchasing, implementation, and student advising outcomes. Several intermediary staff mentioned vendors as critical external stakeholder that are often overlooked. According to staff feedback, there seems to be an underlying assumption that vendors and institutions have somewhat conflicting goals and objectives that interfere with effective collaboration. There also appear to be assumptions that vendors overpromise on functionality and that projects cost more and take longer than projected. However, institutions often don't do the necessary homework before and during technology procurement and implementation.

One participant referred to "communication breakdowns" interfering in more effective partnerships between vendors and institutions. One reality is that "vendors are, generally, not equipped to provide adequate support around implementation, design, and change management support, which is really hard. I feel like that's much harder than the actual tool." And institutions don't often realize they need that type of support for implementation, especially if they don't do their homework. Ultimately, the success of an implementation interacts with the higher education context within which it is implemented and that is overlooked by all parties.

> I think that is the biggest gap, is you've got a vendor that, they're so excited, they have this tool that's going to solve a problem that they know it is a problem. They generally… so there's a problem and there's a tool, maybe, that is designed to fix it. But then there's this whole space in between there where there's higher ed context, there's politics, and dynamics, and all sorts of organizational dynamics and psychology that are not the expertise of these people…and it's just like with any kind of policymaking process, you're likely to give up before you've figured it out because it's so hard in the middle.

# COVID-19 Shines a Flashlight on the Value of Holistic Advising

The appearance of the COVID-19 pandemic in 2020 clearly underscored the reality that institutional practice is at the mercy of external influences. Whereas other external influences, such as pay for performance, economic declines, and politics, clearly impact institutional practice, they have not demanded institutions to pivot so quickly and embrace change as drastically as needed in response to the COVID-19 pandemic. The impact of such external influences is clearly predicted by ecological systems theory (refer to Appendix A, figure 3, p. 53).

Intermediary staff in most of the interviews ($n$ = 6) pointed to the impact of COVID-19 on holistic student advising practice and transformation efforts. The pandemic forced institutions to pivot extremely quickly, increasing and normalizing the use of technologies holistically for student learning and all-around supports. Institutions that were already working on transformation efforts accelerated their plans while less resourced institutions were sent scrambling. Intermediary staff cited examples of increased internal collaboration as well as cross-institutional networking because of the COVID-19 pandemic. Some institutions freely shared resources among their peers.

Intermediary staff reported that institutions' use of virtual advising increased exponentially and so did student engagement in advising. Staff in one interview attributed an increased student show rate for advising sessions to use of nontraditional hours and decreased transportation barriers and time demands. While staff recognized the potential benefits for students challenged by work and family demands, they also raised concerns about disparities in access to resources for some institutions as well as students, thereby potentially raising equity issues.

Nonetheless, staff perceived that the pandemic resulted in an elevated institutional awareness of and reliance on advising. Advising staff were placed squarely in the spotlight given their direct contact with students. One person observed that "advising was the primary mechanism by which colleges understood what their students were going through. The recognition that that practice and that service was key to students…." Institutions became aware that advising's direct link to students provided a mechanism to access student voices and their lived experiences. While staff acknowledged the strain on human and other advising resources caused by the COVID-19 pandemic, they were optimistic that the newfound appreciation of advising would result in increased resources. Regardless, they felt that the cultural shift toward virtual advising was here to stay.

# Discussion of Research Findings

The findings from the interviews with intermediary staff generally were consistent with the research literature and our initial theory of change and logic models.[63] However, thorough analyses provided considerably more nuanced and detailed understanding of the factors that influence holistic advising transformation, particularly of the transcendent qualities that may be associated with transformation. Finally, the findings also support the integration of theory to focus change efforts on key mechanisms of change. Primary theories include ecological systems, social support, organizational development, interorganizational and network, diffusion of innovation, connectivism, and complexity theories.

What seems clear from intermediaries' feedback is that simply implementing technology is not tantamount to transformation. Although necessary, revising advising processes is also not sufficient to be transformational. Advising transformation, as well as holistic student supports broadly, need to be solidly grounded within the broader institutional infrastructure and culture. In the sections that follow, we focus on several notable findings from this research as they potentially shed light on pathways to successful transformation including the implications of complexity, qualities of transformation, leadership's role in instilling direction and intentionality, and the need to reframe student success as a wicked problem to reduce cultural and structural barriers to racial and socioeconomic equity.

IN THIS SECTION

*Complexity*
*Transformation Qualities*
*Relationship to Digital Transformation (Dx)*
*Instilling Direction and Intentionality*

# Complexity

Complexity was very frequently cited among interview participants as a barrier to transformation. Thus, it is critical to understand the ramifications of that complexity for achieving transformation within an institution, as well as for identifying promising practices across institutions. Several theoretical frameworks, including ecological systems and complexity theories, offer the potential to better address inclusive and equitable student outcomes in IHEs.

Related to complexity, participants also referred to the need for a systemic approach to student success. Ecological systems theory provides a framework to better understand and effectively respond to the complexity created by the dynamic, reciprocal, and transactional interactions between contexts (i.e., ecology) and systems (e.g., intrapersonal, interpersonal, family, community). The entire institutional infrastructure[64] has significant, and very often underestimated, impacts on advising redesign efforts.

As an extension of systems theory, complexity theory sheds light on how complex organizations deal with uncertainty and highlights the importance of individual as well as collective action. It also acknowledges the tendency for institutions and the individuals within them to constantly adapt. Greater complexity implies not only increased paths to success but also more contradictions, that is, when the same path leads to different and sometimes seemingly opposite outcomes. In complex environments, more flexible, collaborative, decentralized, empowered, and innovative management approaches tend to be more successful.[65] Further, collaborative non-linear, iterative solutions are often required. Collaboration is critically important as complex contexts require solutions that mirror that complexity.[66]

The concept of complexity was reflected in intermediary staff references to apparent contradictions in the potential value of technology to transformation success. This dualism was evident in positive and negative consequences they described. Alluding to the balance between solution and problem, one participant suggested:

> So I think there's a real balance to where technology can be part of the problem, and part of the solution. Technology is really never part of the problem. It's the way that people integrate it or use it, or manage it or build it out.

According to Chinese philosophy, everything has both yin and yang, which are understood as complimentary forces that together comprise the whole. While the symbol shows yin and yang in balance, one can manifest more strongly than the other. Similarly, use of technologies can be more (or less) central to transformation given the values exhibited in the transformation process.
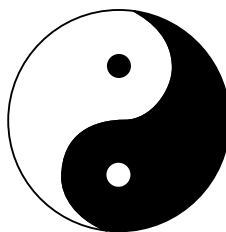
Challenges (i.e., yin) are more likely to arise when institutions view technology as the "solution" rather than as a part of the whole supporting infrastructure redesign. In light of complexity theory, attempts to employ technology as the "magic bullet" is indicative of a mismatch between the chosen solution with context complexity. However, technology procurement and implementation has not been as intentional as needed in large part because institutions' cultures have not mirrored other trends in increasing transdisciplinary collaboration.[67] The yang in technology should be used more strategically to achieve better student outcomes. To be most effective, technology needs to be strategically chosen and integrated in concert with and to magnify advising vision, mission, and principles. However, too often there is a disconnect between technology procurement and advising systems. "For technology in advising solutions to be effective they must be part of a strategic campus-wide plan to consider the holistic needs for student success."[68]

Interview participants in this study often cited institutions' tendency to grasp at out-of-the-box solutions such as advising technologies to address student success. This is likely symptomatic of how institutional leaders conceptualize their equitable student success problem. This oversimplification suggests institutions tend to define concerns with student success as *tame*; that is, while complicated, they are contained and solvable. Other symptoms of this conceptualization include failures to include key stakeholders across the institution, to provide significant financial and human resources, and to prioritize professional development.

In contrast, in framing the equitable student success problem, institutions need to conceptually approach the problem as a **wicked problem**. As mentioned previously, these are problems that are complex, intractable, and impossible to solve.[69] According to Bass:

> If one understands the problem of student success as a *tame* problem, it is likely we will focus only on strategies intended to have direct impact on student learning, persistence, and completion. If student success is seen as a wicked problem, then the "equity agenda" is less likely to be compartmentalized as the problem of one division of campus or seen as something to consider separate from faculty culture or distinct from how inequities are hard-wired into many of the institution's core practices and opportunities, let alone larger connections to socioeconomic inequality, polarization, and systemic racism.[70]

Ecological systems theory is aligned and supports approaching equitable student success as a wicked problem. This framing also makes professional development essential to successful transformation, not only at the individual level but also, more importantly, at an institutional level. "If higher education institutions and networks are complex systems, then professional learning is how these systems learn."[71]

# Transformation Qualities

Several higher-level themes emerged that describe key qualities of holistic advising transformation that are dynamic, intricately linked, and may mediate student outcomes. Redesign efforts that are student- and equity-centered, systemic, integrated, convergent, and resilient are more likely to be transformative.

As mentioned, most intermediary staff explicitly discussed **the importance of student-centered cultures within the broader institutional context.** Some also emphasized more specifically that transformation efforts must center students within the planning, discovery, and redesign processes. Half of the intermediaries mentioned topics related to equity, specifically disaggregation of data and concerns about misuse of race/ethnicity, income, and other demographic information. However, none of the participants talked about the need to center equity as essential to transformation. Recently, researchers exploring perspectives of successful advising technology implementations found that while staff were focused on student success measures of persistence and retention, issues of racial and socio-economic equity did not drive planning.[72] Consequently, transformation make sustainable changes to policies and practices that can reduce structural barriers to racial and socioeconomic inequity.

Intermediary staff and others may hold an underlying assumption that "knowing your students" through data and measuring disparities in outcomes not only contributes to being "student-centered" but also promotes equity. Yet awareness of disparities and valuing diversity do not necessarily render equitable outcomes. Disparities are simply the metric by which we assess progress toward equity.[73] To achieve equity, institutions much focus on individuals as well as systems and understand that the gaps are only symptoms.[74] **Equity needs to be firmly centered within the institution's core mission and values**.[75] The ASN asserts that equity is not something institutions or practitioners *achieve*; rather, it is an ongoing process and commitment to ensure every individual has what they need to achieve their academic, career, and personal goals. The network promotes focusing on how the institution's design systems, policies, and processes either build healthy inclusive cultures or perpetuate systemic inequities. Future research should explore the extent to which equity can be intentionally centered as a driver for institutional transformation, and what tools, resources, and KPIs can be introduced to ensure that institutions achieve their intended outcomes.

**To achieve holistic transformation, redesign must be systemic**. As mentioned by intermediary staff, policies, structures, and practices should be revised and aligned across functional units. Research suggests that attempts at transformation without modification of infrastructure most often fail.[76] In large part, integration issues arise when a systemic, holistic approach to change is not taken. Without a systemic approach, each unit pursues its own solutions, and the result is disconnected, scattershot, duplicative programs.[77] Institutions have to overcome "tunnel vision" as a result of all the siloes that exist and be willing to address head-on the many "ripple effects" and "cascading problems" that will inevitably arise. "And this triggers this, that triggers that, et cetera." Thus, systemic and integrated qualities are inseparable. If transformation is to be achieved and student supports are to be holistic, the redesign process itself needs to be holistic.

**Integrated advising is essential and necessary to achieve holistic advising and student supports.** Yet institutions face internal and external challenges to integration. Internally, integration is a multidimensional need, including but not limited to technology. While intermediary interview participants most often used the word "integration" to refer to technology, institutions also must align and integrate across institutional structures, policies, and practices; data governance and infrastructure; and leadership and decision-making. Integration at multiple levels also likely influences attitudes of acceptance and perceptions of utility of redesign efforts and thus rates of adoption. In the 2021 D2D survey, only 20% of institutions reported implementing any integrated platform at scale.[78]

Externally, institutions do not get much help from vendors. Over the past decade and more, technology solutions have developed rather haphazardly to support specific needs rather than to support students holistically. While some systems are more mature than others, student support technologies are still in their infancy. No vendor provides a holistic, integrated platform. Thus, the onus is on institutions to effectively weave together integrated supports.[79]

One critical mechanism to achieving integrated and systemic transformation is collaboration. This need is frequently cited in the literature, and intermediary staff participating in the interviews frequently mentioned the importance of cross-functional engagement. Collaboration and effective change management are essential to achieving all types of integration. In its 2021 surveys, D2D found that the most collaborative institutions demonstrated the greatest gains in retention rates.[80] Collaboration was also associated with greater access to comprehensive student data as well as greater realization of SSIPP advising practices.

Yet, the qualitative nature of collaboration may be important for successful transformation. **Interdisciplinary collaboration that ensures the plurality of perspectives and experiences is critical in defining the problem and crafting a convergent, integrated solution.** The key feature of convergence is integration that is greater than the sum of the parts. Convergence implies synergy across perspectives to allow "integration of insights and approaches."[81]

However, there is evidence that in many transformation efforts all key stakeholders are not engaged, and therefore it is difficult, if not impossible, to develop effective solutions. For example, a recent study exploring implementation of advising technologies noted that while IT professionals were often engaged, they did not play key roles in decision-making and were "agnostic to the policies and practices of advising."[82] It may be problematic if stakeholders are engaged in collaboration solely based on their position and role at the expense of how their expertise might contribute to an integrated, systemwide solution.[83] It is vital to anticipate where views may be most divergent or at risk of not fully aligning with the values and principles of advising and transformation. Although IT leaders and their staff are critical collaborators, their full engagement in the transformation process likely has been undervalued and poorly conceptualized. Not only does technology play an essential role in providing tools to facilitate student advising, IT principles (e.g., connectivity, data governance, privacy, and interoperability) have implications for readiness, capacity building, and the transformation process. IT leaders and their staff are critical players who need to be engaged throughout the process. Even so, careful planning and facilitation needs to address multidisciplinary differences in training, language, roles, and approaches in order to ensure that tool functionality and use are aligned

with the vision for student advising transformation. Institutional-level structures, procedures, culture, and tools must align with individuals' attitudes, perceptions, and behaviors. For instance, advisors may underuse technology they see as inconsistent with their values, roles, and advising principles. Guided by evidence- and theory-informed tools and facilitation, institutions can proactively build consensus and buy-in from all stakeholders, thereby ensuring that there is commitment to mutually understood transformation goals and values.

Finally, **given the "heavy lift" of successful redesign, resilience emerged from the interviews with staff as an essential quality of transformation.** More than simply being persistent, resilience suggests enduring even in the face of difficulty and even failed technology implementations and/or restructuring attempts. Transformation takes time, is iterative, complex, dynamic, and ever evolving. One intermediary observed, "This is not like turning on a switch where you're going to go from zero to 60 in two seconds." And another reflected, "Doing something is better than doing nothing. But, no matter what you do, look to see what difference it made, and change accordingly. Don't be afraid to fail."

# Relationship to Digital Transformation (Dx)

Although this study was not designed with a Dx frame of reference, the findings are consistent with the recent literature on Dx. And while the intermediaries did not mention Dx, their language and the concepts that emerged from the interviews align with the literature on Dx.

The increasing complexity of the institutional environment and proliferation of technology and data are exactly what make Dx so urgent. "Our ability to collect and process data has evolved much more rapidly than our ability to ethically and responsibly deploy them."[84] While Dx involves technology shifts, it is much more than implementation of technology. Technology is not inherently good or bad but its use can be for good or it can lead to negative consequences if institutional stakeholders misuse it. Data literacy, access, and governance are critical issues. But the important focus of Dx is to advance institutional mission and goals. This requires cultural and workforce shifts. Dx is intentional, strategic, and iterative,[85] and it facilitates institutional responsiveness and resilience to student and external needs.[86] Furthermore, Dx is inherently student-centered as evidenced by institutional reports that it improves student advising and the overall student experience.[87] Advising transformation may be more successful within an institutional context where Dx is understood, has been prioritized, and is well under way.

Future research should explore changes in the rates and impacts of institutional change in relation to the COVID-19 pandemic, including transformations in relation to student success. Research shows that the lack of cross-institutional planning and coordination is the biggest barrier to Dx.[88] This also was cited in this study as a significant challenge to advising transformation. Future research should also explore promising practices to advance interdisciplinary and convergent collaboration required for Dx and student success transformation.

# Instilling Direction and Intentionality

The themes from this research, with support from theory and the research literature, suggest that integrative leadership, a shared vision, evaluation, and external supports—potentially through an intermediary organization—can provide the needed intentionality and direction to keep transformation processes on track and in the right direction.

> "Humans apparently slip into circles when we can't see an external focal point like a mountain top, a sun, a moon. Without a corrective, our insides take over and there's something inside us that won't stay straight."[90]

Integrative leadership is essential in instilling values, direction, and supporting effective collaboration across disparate units to solve complex problems.[89] Strong leadership from the top, middle, and across the institution must be engaged and using the same playbook. It is critical that leaders ensure that all key constituents are included and meaningfully engaged throughout the transformation journey. A key function of leadership is to steer the transformation journey with intentionality, with a clear sense of a true north. Institutional and advising missions, values, and principles should be aligned and serve as the guiding light and referent for change. Without a clear and mutually embraced vision and road map, institutions are unlikely to impact the structural barriers to fully achieve equitable student success.

Evaluation and quality improvement also serve key functions in monitoring implementation and recalibrating processes if necessary to ensure that transformation is consistent with mission, vision, and values. Evaluation can help leaders assess resources, attitudes, buy-in, stakeholder engagement, stakeholder satisfaction, implementation, effectiveness of solutions, and student outcomes. Evaluation and quality improvement mechanisms should be integrated throughout the transformation journey. Access to a variety of quantitative and qualitative data should be planned and ensured to provide feedback on effective strategies and enable high-quality improvement. Evaluation is critical to identifying and scaling promising practices in advising transformation.

Finally, further research is needed to better understand the value of intermediaries and how to most effectively and equitably scale their value in higher education. Organization development, diffusion of innovation, and network theories provide support for the potential benefit of engaging intermediaries in advising transformation. While partnerships with intermediaries have proliferated over the past several years, very little description of that process and exploration of its value has been described in the literature. Given their external status, their collective insights of transformation efforts over multiple contexts may help focus institutional efforts on transformation practices that are most effective. Intermediary organizations can help IHEs focus on the "North Star" when politics, bureaucracy, and other dysfunctional influences present challenges. One of their most important functions is to facilitate the transfer of research to practice. As argued in this report, the field needs a greater investment in research of IHE transformation practices, particularly using innovative, rigorous, and varied research methods. This research also needs to explore how intermediary organizations can more intentionally narrow the research-to-practice gap. Based on the findings of this report, one way to increase the value of intermediary organization in higher education transformation is to build their collective capacity to rely on theory in practice and to support institutions' framing of the student success problem as an equity-centered wicked problem.

# Limitations & Conclusions

## LIMITATIONS

Although the interview participants represented intermediaries working across diverse types of institutions, their perspectives do not necessarily reflect or suggest promising redesign practices at all institutions and especially those that are under-resourced and cannot, or chose not to, work with an external intermediary organization. While intermediaries in this study expressed perceptions that their work with institutions is beneficial in advising redesign, no existing research suggests a causal link between their engagement and institutional gains in student outcomes.

## CONCLUSIONS

Intermediary voices have been missing from the research literature and have the potential to offer valuable insights related to successful advising redesign resulting in transformation. Interview participants offered rich perspectives contributing to our understanding of promising practices in holistic advising transformation. The findings generally align with previous research and underscore the usefulness of more intentionally integrating theory into design of capacity-building efforts. Further, the findings suggested that redesign qualities of student- and equity-centered, systemic, integrated, and resilience are more likely to lead to transformation. Finally, it is incumbent upon institutional leadership to be intentional in instilling direction with student-focused equity at the center.

# Appendices

# Appendix A: Overview of Theories Relevant to Holistic Student Advising Transformation

As a result of our initial literature scan, we summarized several complementary theories relevant to holistic advising transformation and proposed theory of change and logic models synthesizing the extant advising transformation literature.[91] In short, ecological systems theory (Figure 3) provides an overarching framework to examine the design, planning, and implementation of technology-mediated student advising.[92] It highlights the importance of personal and environmental influences, as well as the dynamic, reciprocal, and transactional influences between contexts (i.e., ecology) and systems (e.g., intrapersonal, interpersonal, family, community).

**Figure 3. Ecological model of student advising**
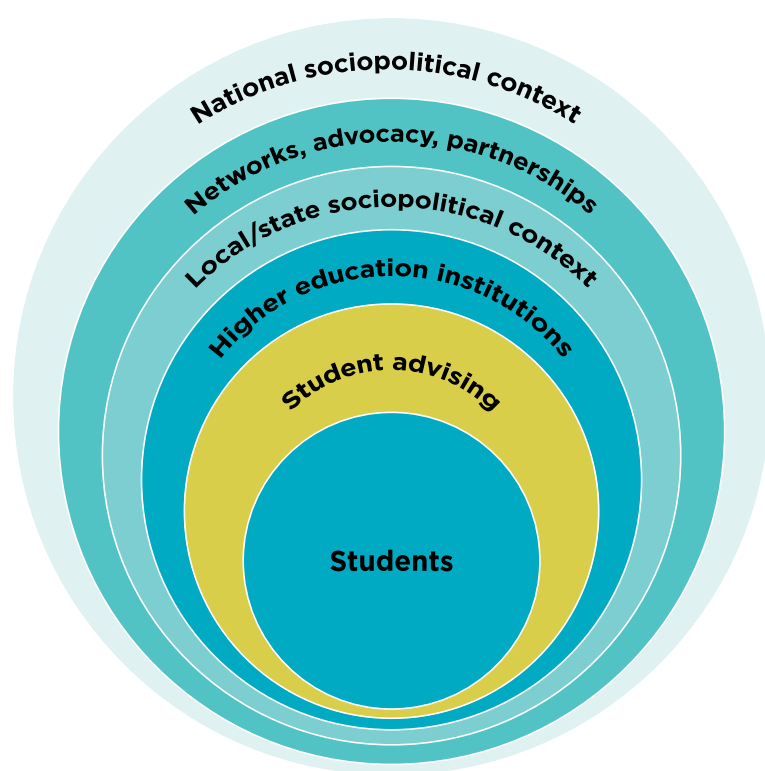
Other theories that inform this work (e.g., social support, organizational development, interorganizational relations, network, and connectivism theories) also address the complex interplay of factors that influence student advising transformation. The key concepts that apply to advising transformation are outlined in Table 1.

**Table 1. Applicable Theoretical Constructs**

| Key Theoretical Concepts | |
|---|---|
| Ecological Systems Theory | • Complex interplay of influences across levels<br>• Importance of context |
| Social Support | • Enacted social support matters for persistence<br>• Advisors can provide all types: emotional, instrumental, informational, and appraisal |
| Organizational Development | • Culture, capacity building<br>• Organizational learning<br>• Stages of change |
| Interorganizational and Network Theories | • Networks enable innovation<br>• Mutually shared goals, values, interests, norms<br>• Culture of collaborative inquiry<br>• Exemplars facilitate understanding<br>• Measurement is essential |
| Connectivism | • Rapid pace of learning<br>• Diversity and inclusion are key |

# Appendix B: Intermediary Staff Facilitated Session Script

## FACILITATED SESSION WITH INTERMEDIARIES

I. Introductions [3 min]

II. Overview of EDUCAUSE research [2 min]

As a The Advising Success Network (ASN) partner, and funded by the Gates Foundation, EDUCAUSE has embarked on a series of interconnected research projects that together are designed to enhance our understanding of promising practices for effective technology-mediated student advising.

As a part of this research, we want to engage intermediaries as stakeholders to better understand how your partnerships with institutions or sites can enhance readiness and capacity-building for advising transformation as well as support institutions' transformative processes.

Our goals are to contribute to generalized knowledge about advising transformation. We are particularly interested in engaging multiple perspectives and stakeholders and diversifying the research methods used to better understand promising practices.

We also hope to develop and share tools and other resources with you and institutional stakeholders that you can use for planning and implementation of advising systems.

As mentioned, today's conversation will help us to better understand your partnerships with institutions and how those facilitate transformation.

III. Facilitated conversation with intermediaries

We will begin by asking broad questions. You may interpret these differently and that is okay. You may take the conversation in whatever direction seems most salient. We may ask clarifying questions and for examples. We've asked Shannon and Kelle to also engage by asking follow-up questions given your history and work together.

We want to emphasize that in today's conversation, we are looking for themes and lessons learned across institutions. We are also asking that you provide concrete examples of these themes. What you share will be confidential unless you explicitly give us permission to share. We will develop a written report from today's session and share that with you to ensure that what we capture and interpret is accurate.

a. [Better practices—individual institution 9 min]

Reflect back to all the sites with which you have worked related to their technology-mediated student advising....\

Select one site that you consider to be among the most successful. What were the major things or factors that contributed to that site's success?

b. [Challenges—individual institution 9 min]

Reflect back to all the sites with which you have worked related to their technology-mediated student advising....

Select one site that you consider to be one of the least successful. What were the major things or factors that kept that site from being successful?

c. [Definition of success 9 min]

The last two questions were focused on defining success or lack of success at one site, now thinking more generally. How do you know if an institution has ultimately been successful in their technology-mediated student advising transformation?

    i. Does that differ across types of institutions?

    ii. How is success ultimately defined?

    iii. Are there distinct stages?

d. [Readiness and capacity-building] 18 min

    i. How important is readiness and capacity-building in your work with institutions?
        • How has that varied across institutions?

    ii. What have you found to be the most critical or essential focus for your work with an institution?
        • What tends to work best in building readiness and capacity?

IV. Wrap up and close [6 min]

a. What is your biggest takeaway from the discussion today?

b. What do you want to know more about?

c. Next steps

We'd also like to invite you to collaborate with us through individual interviews to explore your work in more depth. We will begin conducting those interviews in a few weeks.

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