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# FINAL REPORT: PHASE TWO USER RESEARCH



DATA AND REPORTING ASSESSMENT

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## Executive Summary

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### 1. Overview of Study

To achieve the project vision of the Data and Reporting (DAR) Assessment, the DAR Core Team selected a research team to interview UNT World data providers in order to better understand key data and reporting needs. The research team conducted in-depth, semi-structured interviews with 8 data providers. The interviewees were carefully selected to provide a representative sample across UNT institutions and functional areas. Findings in this report will inform the DAR Core Team's development of recommendations to optimize services and increase efficiency in the data and reporting landscape across UNT World.

### 2. The Organizational Context

The data and reporting landscape across UNT World is embedded within a broader organizational context which impacts the landscape in a variety of ways. Data providers often experienced tension due to the push and pull between efforts to centralize some data and reporting services while decentralizing others. They also encountered challenges caused by communication gaps and a lack of collaboration. Interviewees agreed on the need to focus on students as the primary stakeholders impacted by inefficiencies in data and reporting services.

### 3. Mapping the Data & Reporting Landscape

We provided a brief overview of enterprise data sources and reporting applications across UNT World. Interviewees identified a lack of business and institutional knowledge as one of the primary causes of gaps in the data and reporting landscape. We noted that these gaps create frequent pain points for data providers and provided examples of how these must be bridged in order to adequately serve data consumers.

### 4. A Holistic Perspective on Personnel & Technology Resources

With optimization and efficiency as central goals of the DAR Assessment efforts, we recommended a holistic perspective regarding resource use across UNT World. Interviewees voiced concerns regarding insufficient resources, in particular the impact of inadequate personnel resources on their workloads. At the same time, an overabundance of technology resources appeared to generate inefficiencies and inflated long-term costs. The volume and variety of software solutions and systems result in duplicated efforts, inconsistencies in data reporting, and more.

### 5. The Role of Data Governance

Our analysis of the interview data identified data governance as a powerful tool to support the delivery of efficient data and reporting services while optimizing data-related costs. Although the data governance definitions provided by our interviewees demonstrated consensus in many areas, there is a need to further standardize data governance definitions, models, and processes across the landscape. We also identified additional benefits of adopting a culture of data governance across UNT World. Benefits include fostering trust in the data, reducing workloads, facilitating better communication practices, and more.

## **6. Defining Success for the DAR Assessment**

Eight themes comprised a comprehensive definition of success from the perspective of data providers. These themes were: accountability and responsibility clearly defined across the data and reporting landscape; appropriate and comprehensive data access; adherence to data governance models and practices; better data governance transparency; more collaboration and communication across sites; optimized balance between centralization and decentralization; long-term consequences included in technology planning; and that the resulting initiatives receive institutional support at all levels.

# 1. Overview of Study

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## The Data and Reporting (DAR) Assessment

The research presented here contributes to the Data and Reporting (DAR) Assessment, which was initiated in 2020. The DAR Assessment serves to inform the development of recommendations for optimizing and increasing efficiency in the data and reporting landscape at UNT World. Phase I objectives of the DAR Assessment involved defining the scope of the assessment and modeling the financial impact of data activity across UNT World.

For phase II, the DAR Core Team selected our research team to interview data providers across all UNT institutions in order to better understand key data and reporting needs. The DAR Core Team plans to utilize the findings presented here in phases III and IV to inform recommendations, engage in collaborative decision-making, and develop a plan to implement recommendations.

The DAR Assessment is one of seventeen initiatives that comprise *Project Proteus*, led by Chris McCoy, Chief Information Officer (System and UNT). The overall goal of *Project Proteus* is to “transform IT at UNT World to deliver efficient and effective services at optimized cost.”<sup>1</sup>

The following individuals were appointed to the Core Team overseeing the DAR Assessment:

### ITSS

Robert Jones (ERP Application Development Director)

Stephanie McCane (IT Business Director)

Aleka Myre (ERP Business Analyst III)

Mohammad Mobashirin (Agile Analyst)

### UNT

Jason Simon (Associate Vice President - DAIR)

Ashtin Preston (Sr. Financial Analyst - AIS)

### UNT HSC

Rajesh Nayak (Sr. Director - Data Analytics)

### UNT Dallas

Brody Du (Institutional Research Analyst - SAR)

Patrick Holler (Director of IT Operations)

Daniel Garcia (IT Support Specialist I)

Victor Aimuyo (Associate Controller)

## Research Goals

The user research conducted for this project was requested by the DAR Core Team in September and October 2020. The research was designed to assist the development and provision of recommendations for achieving the project vision, as detailed in the DAR Assessment Kickoff presentation<sup>2</sup>:

<sup>1</sup> University of North Texas, Board of Regents, "2020 UNT World Strategy" [Slides], UNT, August 5, 2020, [https://www.untsystem.edu/sites/default/files/bor/board\\_book/meeting\\_book\\_-\\_august\\_13-14\\_2020\\_regular\\_board\\_of\\_regents\\_meeting\\_8.5.20\\_4.47pm.pdf](https://www.untsystem.edu/sites/default/files/bor/board_book/meeting_book_-_august_13-14_2020_regular_board_of_regents_meeting_8.5.20_4.47pm.pdf)

<sup>2</sup> Jones, Robert, "Project Proteus Optimize Data Services - Data and Reporting Assessment Kick-off" [Slides], UNT, October 12, 2020.

*To provide trusted data that is easy to use and understand and integrated across UNT World while minimizing the cost for the acquisition, storage, processing, and delivery of data*

Specifically, the research served to inform recommendations for realizing the desired future state of the data and reporting landscape across UNT World:

*A minimized set of non-duplicated data and reporting tools/systems optimally aligned with required & optimized business functions*

and

*Data is accessible to those who need it and enables 'data-driven' decision making.*

The DAR Core Team recognized that understanding the user experience of data providers is a vital element of assessing the data and reporting landscape at UNT World. With this in mind, the Core Team selected interviewees from a variety of functions across all four UNT institutions in order to provide a balanced representation of users. This report details the findings from these interviews.

### **Timeline**

The DAR Core Team contacted the researchers during September 2020 and research plans were finalized at a meeting on October 13 between the researchers and Robert Jones and Aleka Myre of the DAR Core Team. The researchers received the final list of interviewees on November 17 and submitted the study's IRB application on November 19. IRB approval was received on December 1. Interviews were conducted between December 11, 2020 and January 6, 2021. Interview transcription was completed on February 1. Data analysis occurred during February and March 2021.

### **Research Team**

The research team was led by Dr. Christina Wasson, with Jessica Keller completing the majority of the research.

#### ***Christina Wasson***

*Professor, Department of Anthropology, University of North Texas*

<https://www.christinawasson.com>

Christina Wasson has been active in the field of design anthropology since 1996. After obtaining her Ph.D. from Yale, she was hired as Project Manager at E-Lab, a design firm that pioneered the integration of user research and design. She has developed an internationally recognized specialty in design anthropology for the UNT anthropology master's program. Wasson was a founding organizer of the international Ethnographic Praxis in Industry Conference, and has been keynote speaker at numerous conferences that bridge user research and design. She has collaborated with technology organizations such as Motorola, Microsoft, Texas Instruments, Nissan's lab on autonomous vehicles, and Blizzard Entertainment.

**Jessica Keller**

*M.S. Candidate, Department of Anthropology, University of North Texas*

<https://www.jessicakellerresearch.com>

Jessica Keller's research focuses on user experience, design, and technology. She has conducted research for Blizzard Entertainment about video gaming communication practices and has collaborated with Dr. Wasson and colleagues to conduct research on the implementation and use of technology to support community-based language and culture archives. She has also conducted design research for archives and for consumer products. Her research goals emphasize giving voice to users in gaming and technology and improving the user experience, with a particular focus on diversity, inclusion, and accessibility. Jessica currently serves as the Technology Manager for the Society for Applied Anthropology Podcast Project at UNT.

**Methodology***Anthropological Approach*

The user research conducted for this project utilized an anthropological approach. As such, the researchers adopted a holistic perspective to understand the interrelations between the cultural aspects of UNT World and the data and reporting landscape. One of the most valuable things that an anthropological approach brings to this type of research is the ability to not only understand the relationships between components of a system, an organization, and a culture, but also to translate this understanding and make it actionable.

While the number of interviews was small, each interview was in-depth, and the study participants were carefully selected to provide a representative sample across UNT institutions and functional areas. We obtained a total of 10 hours 37 minutes of interview recordings, with an average of 1.33 hours per interviewee. We are confident that our rigorous analysis of the interviews identified themes that are generalizable across a larger population, but also recognize that more interviews could have added further nuance.

*Data Collection*

We interviewed eight study participants, with two participating in a joint interview. An interview guide was used for each interview, but the semi-structured, conversational nature of the interviews allowed for additional follow-up questions to be asked based on information relayed by the participant. The interview guide – collaboratively developed by the research team and the DAR Core Team – may be viewed in the Appendix of this report.

Jessica Keller conducted the interviews remotely via Zoom. Each interview lasted between one and a half to two hours, depending on participant availability. Zoom's cloud recording feature was used to video record all interviews. The audio of these recordings was auto-transcribed by Zoom, powered by Otter.ai. Jessica Keller, Robert Jones, and Aleka Myre corrected the auto-transcriptions as appropriate. The annotated transcripts added up to 549 pages.

*Data Analysis*

All 549 pages of annotated transcripts were analyzed using Dedoose, a cloud-based mixed

methods research software application. The research team developed a list of 50 codes to index topics and themes which appeared during qualitative analysis of the texts. Text excerpts were selected and tagged with these codes in order to index and organize interview data. Themes discovered during analysis enabled the research team to identify patterns in the data and construct explanatory models based on these patterns and linkages. A total of 1048 code applications were made to 329 excerpts. Analysis was conducted by Jessica Keller under the guidance of Christina Wasson.

### *Methods of Reporting Findings*

In the following chapters, research findings are presented alongside direct quotes made by participants during interviews. Because we promised anonymity to our interviewees, the people we quote are not identified.

Since our goal was to identify patterns in interviewees' experiences, there were many quotes we could have used for each finding. Therefore the quotes we provide should not be regarded as the *only* example of someone expressing a particular insight, but rather the *best articulation* of an idea that multiple other interviewees also expressed.

### **Participants**

Of the eight persons who participated in the interviews, three were with UNT System, three with UNT Denton, one with UNT Dallas, and one with UNT HSC. The participants' functional roles included students (1), strategy and institutional research (2), human resources (1), finance (3), and data analytics (1). For some participants, their roles encompass more than one of the aforementioned functions.

### **Acknowledgements**

We would like to express our appreciation to the DAR Core Team for their close collaboration with us throughout the entire process. Thank you for welcoming and including us in the weekly Teams meetings, as this proved very beneficial to the overall process. We would also like to express appreciation and thanks to Robert Jones and Aleka Myre for their continuous support and for how generous they were with their time on this project. Finally, we would like to express our gratitude to the study participants who offered us their time and insights. Their dedication, passion, and commitment is evident in everything they do at UNT World and it is our honor to provide a platform for their voices.



## 2. The Organizational Context

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To better understand the data and reporting landscape at UNT World, we take a close look at the organizational context in which this landscape is situated. Structural processes, organizational and interpersonal dynamics, cultural beliefs, and concerns about communication impact the landscape and sometimes create challenges and pain points for data providers.

In this chapter, we utilize an anthropological perspective to detail key factors in the organization that impact and shape the data and reporting landscape at UNT World.

### **The Persistence and Evolution of the Core-Periphery Dynamic**

In 2015, Christina Wasson and Heather Roth conducted research for UNT's Data Warehousing/Analytics/Dashboards Initiative. Findings from this research revealed a "core-periphery" dynamic at play in the organizational culture at UNT. Within this organizational dynamic, the site which possesses the most power in an organization functions as the "core" and typically leads decision-making processes. From the vantage point of persons at what is considered to be the core site, other sites within the organization appear to operate along the periphery as satellites around the core.

The 2015 research findings concluded that Denton typically held the core position among all UNT institutions; in some instances, UNT System was considered to hold the core position. The 2015 research team noted that Denton's and UNT System's perceived occupation of the core position was due to a combination of factors: UNT's historical origins in Denton; many of System's services being located in Denton; and the financial weight Denton carries compared to Dallas and HSC.

To understand how much of a role – if any – the core-periphery dynamic plays in the present day culture of UNT World, we asked interviewees about this dynamic. Four of the interviewees have worked at UNT since before the 2015 research was conducted, while the other four joined UNT sometime after the research concluded in September 2015. This even split was valuable in that it provided a balanced perspective on organizational dynamics as they relate to the core-periphery model.

We asked interviewees if they have witnessed the core-periphery dynamic at play either in the past or in the present day. According to three of the four interviewees who have worked at UNT since before the 2015 research was conducted, the core-periphery dynamic still exists. One interviewee spoke about a time when this dynamic was apparent during conversations with colleagues at other UNT sites:

The other campuses always feel like they're being stepchildren, and that Denton has been the primary focus, and that Denton pays the majority of the money, and Denton has the majority of the projects, and Denton has this. So that still exists today. ... When I interviewed for this position, ... [I spoke] with several of our customers at each of the campuses. At Dallas and HSC, the questions to me

were, “How are you going to be sure that we are included in projects and that we know what the other campuses are doing, that we’re kept in the loop?” So if that's what you're talking about, it still very much exists today. We're trying to make a difference, but ...

Another person we interviewed acknowledged that the dynamic persists, but that perception of which institution holds the core position shifts over time:

Is there a feeling that Denton gets it all? Yes, but I think there's been a shift in some areas lately that maybe HSC’s getting it all. Right or wrong, it's just the perception of different people. Do we make special effort to make sure that we've got somebody available to do projects for this campus? No. It's just the priority list of the projects and, “You guys need to fight it out and figure out who's got the most high-priority piece and then you tell us what we need to work on.” ... And we do them as needed; it doesn't matter what the campus is.

A third interviewee expressed that, not only does the core-periphery model still hold true within UNT’s organizational context, the dynamic has become even more prominent in certain situations. They explained how this dynamic eventually impacts students, especially at sites commonly considered to operate along the periphery:

I would say that, in some cases, it's been exacerbated even within the core and periphery. ... I think the challenge is respecting the periphery, but also understanding the role that the core plays. I think the challenge, as I see it, comes back to UNT, as an organizational culture within higher education, has a fundamentally different mission than the Health Science Center, as a health research institution. And both of those have fundamentally different missions than UNT Dallas. So do I expect then each of those institutions to make different decisions in the best interest of their students? Yes, but when a core decision is made at the expense of the periphery student, that's when a problem emerges. So it's finding that balance between the core and the periphery.

On the other hand, three of the four interviewees we spoke with who were not employed at UNT World at the time of the 2015 research seemed to be unaware of the core-periphery dynamic. They interpreted questions concerning this topic as questions about centralization versus decentralization; as such, they spoke to those topics instead, which will be discussed in the following section.

However, the fourth interviewee recognized how employees from other sites may have, in the past, perceived Denton as the core, but expressed that it was likely not due to intentional efforts made by Denton to hold that position:

The perception could be that UNT Denton looked that way. ... I think when you're a UNT employee at the Denton campus, I'm not really concerned about HSC; I'm not concerned about System. I've worked with a lot of people and colleagues from there. ... but in terms of what we're doing and our

responsibilities, it's a silo. ... So, yes, I think generically speaking, yes, it was felt that way. I don't think it was some master plan or intention. [Denton was the one] that happened to have the new toy and they were pressing forward, because they were trying to solve a problem.

### **(De)Centralization**

Five of the eight interviewees who participated in the study discussed centralization and decentralization processes across UNT institutions. Often prompted by questions relating to the core-periphery dynamic and to institutional silos, they shared their thoughts on the pros and cons of both approaches.

Interviewees felt that there is an organizational struggle to strike the appropriate balance between centralization of services and decentralization. While they acknowledged that silos often provide greater flexibility and specialization, many recognized that it is less costly for the organization to adopt a more centralized approach. Some of the people we interviewed voiced concern that specialized talents may become lost if greater central planning occurs and they remain uncertain whether the appropriate balance can be struck in order to effectively centralize services at an organizational level while maintaining agility.

When asked whether they have observed Denton or System being perceived as the core, one interviewee expressed that, while some people may perceive that to be the case, the perception is likely due to the organization's back and forth movement between centralization and decentralization:

And so there is a decentralization that has occurred, which is why you have this UNT World concept, right? You're trying to bring that decentralization back in, or at least that's the goal in mind.

Expanding on this further, the interviewee also expressed:

I think I favor [decentralization] over centralization, because at centralization, you lose your agility almost entirely and you hit red tape. I think when you're in our world – from an analytical perspective – I think it slows the process down and those who are trying to accomplish things get caught up.

Acknowledging that there are trade-offs between centralization and decentralization, the interviewee described how this process occurs at multiple levels across UNT World and within the institutions:

There's decentralization that exists between not only just the different campuses, but then within the campuses themselves. Looking just at Denton, you have a direct difference between every single college, but you have similar tribes. You have the same exact responsibilities that exist, but they exist under this umbrella, and this umbrella, and this, et cetera.

This sentiment was echoed by other interviewees as well, even those who favored centralization over decentralization. An interviewee at UNT Dallas explained that UNT Dallas – despite its smaller size – has the same obligations to its students that UNT Denton does, and as such, would benefit from centralization efforts:

As a small campus, we appreciate that [centralization] can help us. That's the pretty practical way to do that because, as a small campus, you need to do exactly the same job [as larger campuses]. So that means for us and for Denton, a lot of the time we're facing the same amount of job obligations. ... We can't afford to just hire a brand new team to do the same job [that System can do]. ... Why do we want to spend extra money to just do that one thing? So, if System can provide the standardized things that multiple campuses can use, of course we want to use that because that's probably the most efficient way to do that.

An interviewee who works at System agreed and noted that, while campuses are given opportunities to determine their desired balance between centralization and decentralization, it is often easier and less costly to opt for a more centralized approach: “Why set up a totally different way of doing things if the other way's working?”

However, sometimes efforts to centralize services can be met with resistance. Another System interviewee reflected on this while discussing the formation of System and IT Shared Services:

HSC had their little small group of programmers down there that did anything they wanted. They would go and sit beside the customers and pretty much do any projects that they wanted. Then when we became System, that was incorporated into our time. So HSC had a few rough years because they felt like their technical staff was taken away from them. They are in a much better place now, but it's based upon regular monthly customer meetings with the key customers, keeping them involved in the projects that are done across all the institutions, and bringing them in to the projects that they see as valuable.

They also described how they utilized the approach outlined above when they encountered resistance to centralization at Dallas, wherein Dallas felt a part of the periphery:

[Dallas has] always felt like, because they're smaller, that they did not get the services. But again, they had smaller staff and it took a turning point of getting them involved and saying, “We're doing this. Let us include you,” because they would go, “We don't have that many students.” It was kind of like we had to convince them, “Let us go ahead and include you,” and it is getting better. Again, we're having regular customer meetings, keeping them in the understanding of the other projects going on. So it's taken a real effort on our part to pull them along and include them.

A common theme in discussions around centralization, specialization, and institutional silos was the difficulty of striking the right balance. Interviewees acknowledged the necessity for both

centralization of resources and silos; however, many statements revealed that determining the precise balance between these two elements is a tricky endeavor. One interviewee noted:

There's always some need to create centralization. You don't want too much decentralization because then you've lost control of costs, you have duplication, you have a lot of different things that are going on. So you don't necessarily want that, but there is some sense of the silos that I would want to remain because there is specialization that's occurring. If you try to completely kill a silo, then your specialization starts to flatten.

Emphasizing the loss of specialized talents which can occur through central planning, they explained:

There are people who have a very specialized talent in SAS, or people who have a very specialized talent in Cognos, or specifically in analytics, or the predictive side, or the modeling side. I don't have faith in central planning to ever specifically leverage that talent properly to get the most out of it. So when you create the silos ... you start to really put more onus on individuals to use their specialized talents to accomplish goals. That's why I think you've seen status quo be challenged in certain areas.

One of the interviewees who works for System acknowledged these silos, but expressed concern about how to effectively centralize:

Right now we have [data services] very siloed; HSC does what they need to do with it. Our Finance organization, our HR organization, our Student organization at UNT, they do their things. ... How do we create a big umbrella to say, "This is the data governance. New things come in. Here's where you can go to refer to what's there. You choose to bring it in or not, but this is what that data is for."

One of the recurring themes in the examples provided in this section is the importance of communication in determining how to strike the right balance between centralization and specialization. The following section focuses on the pain points which result from gaps in communication across UNT World.

### **Communication Gaps**

Interviewees indicated that communication gaps across the organization are a major pain point. Feeling disconnected from parts of the organization, frustrated due to lack of communication, and excluded from decision-making processes were common sentiments expressed during the interviews. Interviewees also voiced concern that communication gaps prevent opportunities for collaboration, as well as result in duplicated efforts across the data and reporting landscape.

One of the recurring themes found when analyzing the data was disconnection. All eight interviewees described instances in which campuses and departments within the organization feel disconnected from one another.

Communication, or a lack thereof, was one of the primary contexts in which interviewees expressed feelings of disconnection. One interviewee described a time when disconnect due to lack of communication created a minor issue that required a couple days to fully resolve:

Things change in the source system or are redefined and when it's not communicated to you, then it goes downstream and then all of a sudden, you're going, "What does this mean?" ... [In a previous project, another department] repurposed some type of a column, and they renamed it, and then suddenly it just broke all the infrastructure. And we're going, "What?" and then we're the ones who are initiating and saying, "Hey, what happened here?"

Feeling as though they were out of the loop and not being kept up to date on projects was a common source of frustration. Using an example of how the cyclical nature of projects can impact this perception, one interviewee explained:

That's just the nature of things; it's the cycle of projects. [During the implementation of an organization-wide project], we brought those on for the other campuses first and then we brought on HSC later because they weren't ready. Then we focused on them, ... and people were saying, "Well, why are they getting all the resources?" It's like, "They're not. You had those like six months ago. They're just six months behind you in that implementation," or a year, or whatever it is. So there's a perception that, "Oh, well, you're doing all this work for them." ... All I mean is, often that's the kind of thing that happens; it's cyclical where one group is ready and the other is not.

One problem which often results from a lack of communication is that it prevents opportunities for collaboration and often results in duplication of efforts and misutilization of resources. An interviewee noted that engaging in collaborative planning between providers and consumers could help alleviate one of their major pain points:

And that to me is our biggest struggle: "I don't have the resources to be able to work on that right now." ... and that being an acceptable answer. So, you know, "Here's where everybody is. This is what everybody's doing." [The customer says,] "But I don't understand why they can't do this too." You just told me you can't do it. Why is it not okay for us to not be able to do it? So that sort of thing. I think we just need to get to where we're planning together.

Better communication practices and more collaboration between providers and consumers could help prevent misunderstandings related to projection implementation time and limit the perception that certain sites receive preferential treatment. One of our interviewees provided the following example:

I had a project – I think it was this year – that UNT was like, "Well, if HSC isn't ready, we're just going to go forward on this." I went, "Well, that's fine but you realize that we'll have to redo it for them in six months." So, yeah, same type of thing of, there's one set of resources. If you all play together in the sandbox nicely at the same time, we can kind of make it a little bit better.

Feeling excluded from decision-making processes was another source of perceived disconnection, particularly decisions which affect their department or team. One interviewee acknowledged that organizational culture plays a large role in who is involved in decision-making processes and underscored the necessity for communication and collaboration:

There's organizational practices at play. There's enterprise practices at play. There's a culture around decision-making that, naturally and organically, has developed. And every organization has it, right? I'm not being critical of it. I just think, especially with the level of complexity that we have, we need more opportunities – not less – to get people on the same page with each other.

Feelings of exclusion and frustration were also expressed when decisions were made after speaking with only people in the upper levels of the organization instead of also including the people in the lower levels who have the most direct experience with the subject at hand. One of the people we interviewed stated:

It's like, "Who are you talking to?" That is a big piece of it. When you're making these decisions – I hate to say this but – a lot of times, you got to get below the executive level. You got to get to where the rubber meets the road and the people who really know it.

Better communication was also suggested as a way to improve data governance practices across UNT World. One of our interviewees explained:

There could be maybe better lines of sharing information. I think a lot of people would like that, because I think there's a lot of overlap at times. And so I think that would be helpful, but that's hard to do because everybody's busy and it's hard to necessarily do things.

The topic of data governance will be further explored in chapter 5.

### **Focus on Students**

The study participants possessed experience in various industries and roles prior to joining UNT. As a result, we observed a diversity of perspectives when it came to discussions about the organizational culture of UNT World. Despite the diversity of perspectives, interviewees agreed that impact to students should be central to organizational efforts and decision-making processes.

Interviewees made comparisons between organizational practices at UNT World and industries outside of higher education. These comparisons revealed a need to maintain focus on the stakeholders most impacted by organizational decisions: students. One of the people with whom we spoke used the health care industry as a means of analyzing UNT's approach to technology and hiring decisions:

Let's take it out of the higher ed context and think about it from a corporate, government, health care context. Who's the primary audience of concern? In a hospital, they're bringing on people who come from lots of different technology

backgrounds. Do they let them use whatever technology is easiest for them or do they focus instead on the patient outcome and helping to cure the sick? Who takes precedence there? In my mind, the precedence is the impact to the student not to the staff member.

Remaining open to new ideas was also identified as central to efforts to better serve students. Using the private sector as a means of comparison, another interviewee discussed the importance of challenging the status quo to affect culture change:

The higher education industry, from my experience, is more resistant to culture change than that of the private sector. ... It's extremely important to be challenging the status quo – not for just the sake of challenging it, but “Somebody has some idea, then let's learn from it.” ... I want to consider, “Well, hey, this might actually work. Let's try this this way and not keep a tunnel vision.”

## **Recommendations**

### *The Persistence and Evolution of the Core-Periphery Dynamic*

Addressing gaps in communication is key for resolving issues which arise due to perceptions of a core-periphery dynamic across UNT World. Clear communication regarding organizational priorities, project cycles, and more may help employees better understand the ebb and flow of focused resources across all institutions.

### *(De)Centralization*

Determining the appropriate balance between centralization and decentralization will be a continuous process for the organization as needs and resources fluctuate over time. Proposed solutions should attempt to take advantage of the pros of both centralization and specialization, while also working to diminish the cons of each approach. One way to approach a balance might involve determining which services can be centralized at the UNT World level in order to serve all institutions, as well as which services can be centralized at the institutional level to better serve each institution's specific needs.

### *Communication Gaps*

As mentioned in the recommendations for *The Persistence and Evolution of the Core-Periphery Dynamic*, clear communication regarding organizational priorities and efforts are imperative. In addition to this, communicating information concerning project cycles and statuses may also prove helpful in reducing inefficiencies and preventing complications down the road. One solution for this might be the implementation of a project status dashboard so that employees may access this information at any time. It is also important to include employees in the early phases of decision-making processes whenever possible.

### *Focus on Students*

As the stakeholders who are most impacted by organizational processes across UNT World, students should be prioritized in all decision-making processes. This may require new



approaches to technological acquisitions, hiring, project planning, and more (these will be discussed in chapter 4), so it is important to maintain an open mind and a willingness to challenge the status quo.

### 3. Mapping the Data & Reporting Landscape

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Understanding the complexity of the data and reporting landscape across UNT World is essential for developing recommendations to optimize and increase efficiency across the landscape. In this chapter, we map the landscape by providing an overview of enterprise data sources and reporting applications, by identifying gaps in the landscape which result from a lack of business and institutional knowledge, and by providing examples of how these gaps are currently being bridged.

#### **A Brief Overview of the Data and Reporting Landscape**

Within the scope of the DAR Assessment, the data landscape referenced in this report consists of enterprise data considered “universally beneficial to UNT World components.”<sup>3</sup> Data sources include the three pillars of the Enterprise Information System (EIS): Finance, HR & Payroll, and Campus Solutions. Additional data sources which may also be included in the landscape are learning management systems (e.g., Canvas, Coursera, Bridge), budget and planning systems (e.g., Axiom), research administration (e.g., Huron, Cayuse), customer relationship management systems (e.g., Salesforce, Target-X), facilities systems, faculty profile systems, and more.

The reporting landscape referenced in this report is displayed in figure 3.1 on the following page. The center of the figure depicts the reporting landscape of the three EIS pillars: Finance, HR & Payroll, and Campus Solutions. The top-center of the figure displays the PeopleSoft reporting applications and the bottom-center shows the components of UNT World analytical and operational reporting. Third-party applications utilized in the reporting landscape of UNT World are displayed on the left and right sides of the figure.

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<sup>3</sup> Jones, Robert, Presentation re: DAR Assessment Scope [Slides], UNT, January 27, 2021.

Figure 3.1. UNT World Reporting Landscape<sup>4</sup>

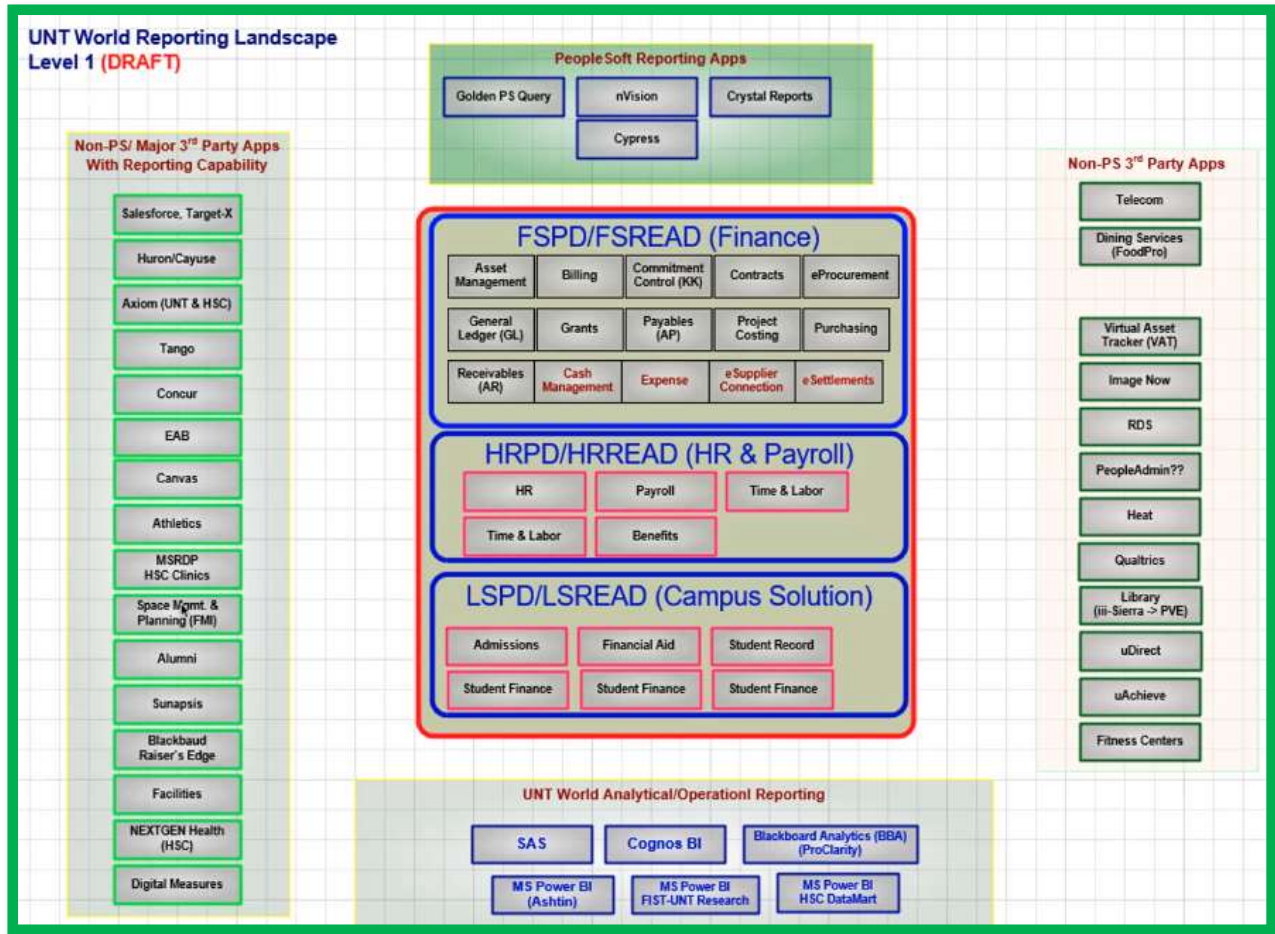



Figure 3.2 takes a closer look at the organization of UNT World analytical and operational reporting. The figure lists each institution’s reporting teams, as well as the number of full-time equivalencies (FTEs) for each team and the tools utilized.

<sup>4</sup> Alexander, Angelique, Stephanie McCane, Mohammad Mobashirin, and Aleka Myre, “DAR Reporting Scope v5” [Slides], UNT, January 13, 2021.

Figure 3.2. UNT World Analytical Reporting Organization<sup>5</sup>


### Analytical Reporting Organization

| Seq | Institution | Reporting Teams                             | Reporting FTEs | Tools          |
|-----|-------------|---|----------------|----------------|
| 1.  | HSC         | Data Analytics                              | 3              | Power BI       |
| 2.  | HSC         | Financial System                            | 2              | Axiom          |
| 3.  | UNT         | Analytical Information Solutions            | 4              | Power BI       |
| 4.  | UNT         | Data, Analytics, and Institutional Research | 4              | SAS            |
| 5.  | Dallas      | Strategic Analysis & Reporting              | 1              | SAS            |
| 6.  | System      | UNTS Financial Planning and Analysis        | 4              | Cognos & Axiom |
| 7.  | System      | Human Resources (HRIS)                      | 3              | Cognos         |
| 8.  | System      | ITSS – Research                             | 1.5            | Power BI       |

It should be noted that figures 3.1 and 3.2 are not comprehensive representations of all levels of the entire data and reporting landscape across UNT World. Since the scope of the DAR Assessment encompasses only components of the landscape that are “universally beneficial to UNT World,”<sup>6</sup> these components are our focus in this chapter.

### Business and Institutional Knowledge

Our interviews revealed that, due to a variety of factors, there are many gaps across the data and reporting landscape. These gaps result in pain points for data providers across UNT World.

Some gaps arise due to uneven implementation of processes, which is often attributed to a lack of resources and the nature of project cycles. These gaps will be discussed in chapter 4. However, some gaps in the landscape occur due to a lack of the business and institutional knowledge necessary to optimally perform certain tasks. Individual and departmental efforts to bridge these gaps result in varying degrees of success. In this section of the chapter, interviewees relate their experiences utilizing their business and institutional knowledge to navigate these gaps in the landscape.

Data, analytics, and reporting services across UNT World rely heavily on business and institutional knowledge. Our interviewees possess substantial knowledge in many areas which enables them to adeptly navigate the data and reporting landscape. However, when business and institutional knowledge is lacking in one area of the organization, this creates ripple effects

<sup>5</sup> Alexander, Angelique, Stephanie McCane, Mohammad Mobashirin, and Aleka Myre, “Analytical Reporting Organization” [Slides], UNT, January 13, 2021.

<sup>6</sup> Jones, Scope [Slides], UNT, January 27, 2021.

which negatively impact other areas throughout the organization.

One of the negative impacts is that inefficiencies and duplicated efforts often occur when data consumers lack the institutional and/or business knowledge necessary to request the most appropriate data and reports for their needs. In fact, all eight persons we interviewed expressed concern about this issue. One interviewee explained how this impacts their workload:

We're constantly being asked for data that requires a lot of processing and manipulation to get to the exact thing that they want. And it seems like we don't always have, under the current system for HR or Finance, we don't always have the ability to get that sometimes. It's not that they're doing it poorly or anything like that. It's just understanding what's needed, I think, before it's needed.

Interviewees also expressed concern that business and institutional knowledge is not something that, for the most part, can be trained or learned quickly. This often leads to inefficiencies when certain tasks requiring knowledge that a team or department is currently lacking must be undertaken by individuals within the organization who do possess this knowledge. Not only does a team's or department's lack of knowledge in one area increase the workload of these individuals, but it also takes time away from other responsibilities which require their specific skillset or level of expertise. One of the people with whom we spoke explained that, due to the knowledge that their department possesses as a whole, a large portion of their time is spent helping other departments bridge these knowledge gaps:

While it's not our place to train the customers, we do have the business knowledge, so when there are issues of, "How does the system work?" and what we're relating to do, we are a knowledge source for them.

Another interviewee described business and institutional knowledge as "the little intangible things that are hard to crystallize in a mission statement." Referencing a recent project in which they were involved, they underscored the vital nature of this knowledge:

That's not a reporting function. That's a having to have an understanding from across the institution around what [different departments are doing]. That doesn't exist in any tangible table, data set file, but rather it's the synthesis of where I'm situated within the organization to be able to reach out to the partners from across campus to surface that information.

Additionally, substantial amounts of business and institutional knowledge are lost when employees leave the organization. Describing IT at UNT World as "an aging organization," one interviewee noted the toll that losing business and institutional knowledge takes on a team and the organization as a whole:

[This] is an organization that people tend to come in and they stay. They like it here. ... It's a good thing, right? You have a lot of knowledge and that kind of thing, but when you replace those [people] and when they're close together,

your team and the average experience level on the team goes way down really quickly. ... It puts a stress on the team.

Gaps in business and institutional knowledge create challenges for realizing optimization and efficiency of services. Since gaining some aspects of business and institutional knowledge require time, our interviewees identified training as critical to help bridge the knowledge gaps which exist that do not rely on knowledge gained over time within a specific organization. When asked if they had any recommendations for how to streamline data and reporting services, one of our interviewees offered the following:

Better training on the customer side. You know, the understanding of the data, it takes years of experience to really get there, to understand. It's one thing to understand how the system works, but then to have the understanding of the underlying data that makes the system work and that experience, it takes training.

### **Bridging Gaps in the Landscape**

Some of the participants with whom we spoke described serving as a “bridge” between functional areas, departments, campuses, and external data users. By viewing themselves or their roles as “bridges,” it is clear that persons across a variety of functional areas and institutions within UNT World are aware of gaps within the data and reporting landscape which must be navigated.

Comments related to bridging these gaps often occurred during conversations with interviewees concerning the knowledge and experience they have across multiple business areas. In one instance, an interviewee described his role as that of a translator between functional areas: “I’m the kind of bridge between core IT and the functional people. So I speak both languages because of my past background.”

Another interviewee, while describing the duties and responsibilities of their role, stated:

We make sure the teams are doing the work as they should be doing while at the same time being basically the primary customer-facing person to our customers, our business partners on the campuses – to make sure that their needs are addressed. So it's kind of that, I would say, in-between person, but it's at a very strategic level.

In addition to serving as bridges and translators between internal data consumers, UNT World employees also help bridge gaps between external consumers. One of our interviewees stated that their department’s mission is to serve as a “bridge” between their institution and “the state and the federal [government], and a bridge between internal and external data users. We’re trying to provide better solutions for them to see the data and to get more insight out of the data.”

It was also common to hear interviewees use “bridge” as a metaphor when discussing approaches to problem-solving. While speaking about the role of culture change and

leadership in balancing workloads and responsibilities between departments, one interviewee described a potential approach wherein their team would serve as a “bridge” between departments:

Using our skill sets and our team, we can create that bridge to transfer that onus, because we've created a solution along with it. It's one thing to just say, “Here, this is your problem to deal with.” It's another to say, “Hey, you really should be owning this, and here's how you can do it, and here's the solution provided.”

Another interviewee we spoke with expressed apprehension about the approach and direction of the DAR Assessment by relating it to their experiences with the research conducted in 2015 for UNT’s Data Warehousing/Analytics/Dashboards Initiative. They used bridge metaphors to express their concerns and underscore the need for practical solutions:

I really like the fact that we are engaging different people from different perspectives, but at some point, I also feel like when you take an academic approach to a practical issue, you do not get a practical resolution. You get a resolution, but that's not the practical one. So, you know, there may be a simple way to create a bridge and maybe I just need to throw a pallet over the little creek. You know? I don't need a suspension bridge, you know? So, you can research it and talk about it and all that, but sometimes there's practical ways to address it. That's where I felt like, you know, yeah, they did good by getting into that, but they didn't listen to the people who have the practical experience.

A key component of optimizing services and realizing greater efficiencies will be determining how to more effectively bridge these gaps in the landscape in the short-term while working toward permanent solutions to narrow or close these gaps entirely.

## **Recommendations**

### *Business and Institutional Knowledge Gaps in the Landscape*

Gaps resulting from a lack of business and institutional knowledge are a tremendous source of inefficiency in the data and reporting landscape. It is critical to close these gaps in order to reduce resource waste and to give data providers with heavy workloads the ability to remain focused on tasks which require their specific expertise.

Proactive efforts such as training data consumers how to request the data and reports most appropriate for their needs would be a step in the right direction. Business and institutional knowledge - to the extent that it can be taught in a short period of time - should also be incorporated into these training efforts. Supporting cross-training within departments and teams as well as encouraging detailed documentation of workflow processes would reduce the negative impacts which occur when employees with years of business and institutional knowledge are no longer with the organization.

### *Bridging Gaps in the Landscape*

Many of the gaps in the data and reporting landscape which must be bridged are caused by insufficient training for data consumers and a lack of business and institutional knowledge in

certain areas. Recommendations for how to address these gaps are discussed in the above paragraph.

Additional gaps in the landscape result from inconsistent data governance practices. Recommendations for addressing these concerns are provided in chapter 5.

A final source of gaps in the landscape is an overabundance of tools and software solutions which require specific proficiencies that not all data providers possess. Recommendations to address this issue are provided in chapter 4.



## 4. A Holistic Perspective on Personnel & Technology Resources

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Resources within a system play a central role in how the system functions. Using a holistic perspective, we would argue that appropriate resource allocation is critical to achieving the vision of the DAR Assessment project: “To provide trusted data that is easy to use and understand and integrated across UNT World while minimizing the cost for the acquisition, storage, processing, and delivery of data.”<sup>7</sup>

In this chapter, we detail interviewees’ concerns regarding insufficient resources and how a lack of personnel resources in particular impacts their workloads and exacerbates inefficiencies in the data and reporting landscape. We also discuss inefficiencies which result from an overabundance of technology resources and how these increase data costs in the long-term.

### Resource Insufficiencies

Our interviews revealed that insufficient resources are a perpetual issue that all interviewees, their teams, and their departments face. According to the persons we interviewed for this project, the issue of insufficient resources has become a reluctantly accepted reality. One interviewee demonstrated this outlook while discussing centralization of resources:

If we can learn and copy from Denton, why not? So I think I benefit a lot from Jason's team and the project he is leading. We copy like 80 to 90% of what they're doing, and the only problem that we're facing is, you know, we don't have that many resources money-wise, and capital-wise, and like person-wise, so we can't do exactly what they're doing.

Another interviewee described how not having enough resources in a variety of areas causes pain points for his team and for his customers:

So there are a lot of things I want to do, but I'm like a five person team. ... Half of my time, I'm kind of hands down, head down, and I'm working on writing the reports we need to keep the lights on. I do not have time to go tomorrow and teach a lot of data classes, and make people aware of certain things we are doing. We want to do it, but if I start going out and attending those meetings and seminars, I will start hearing from my customers that we are not delivering the data, you know? So that is a struggle.

Despite how common this issue is for our interviewees, they recognize what can be achieved when there are adequate resources available. Most of the people with whom we spoke referenced various initiatives undertaken by the Data, Analytics, and Institutional Research team (DAIR) which have been successful. Acknowledging leadership and vision as critical to this success, they also pointed out how vital resources were for these initiatives to be possible in

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<sup>7</sup> Jones, Robert, “Project Proteus Optimize Data Services - Data and Reporting Assessment Kick-off” [Slides], UNT, October 12, 2020.

the first place. One of our interviewees explained that having adequate resources is necessary in order to realize their vision for the future of their team and their institution:

They have dedicated people, and resources, and energy to go out and talk to people about the data and educate them, understand them, do the marketing of the data, the website. That is a wonderful thing and I'm happy that they have that kind of resource and are able to create a team of that size to be able to do that. ... Whatever you sow, you are going to reap, right? So we all want to reap fantastic things, you know, but are not willing to invest. ... We want to build something six months down the road, eight months down the road, two years down the road, [but] we need to see some investment commitment, whether it's technology or the people.

The following sections focus on what our interviewees stated are the most common ways in which inadequate resource allocation impacts their roles, their functional areas, and UNT World as a whole.

### **Personnel Resources**

During the interview process, our participants frequently brought up their workloads while discussing a variety of topics. Interviewees identified not having enough staff in their or other departments as one of the key contributors to their heavy workloads. One of the byproducts of being understaffed was that, following the departure of persons within their teams or departments, many of our interviewees had assumed additional leadership duties which only added to their already heavy workloads. As a result of insufficient personnel resources, the majority of our interviewees felt restricted in their capacity to provide optimal services to their data consumers.

Every person we spoke with expressed during their interview that they felt their team or department was perpetually short-staffed. In discussions related to feeling that their own teams and departments are under-staffed, participants indicated a variety of ways that staffing issues impact their roles.

One of the recurring themes in the interviews we conducted was having to constantly reshuffle resources to make ends meet. All interviewees described frequent occurrences of lacking resources and needing to shift resources from one project to another, often negatively impacting the timelines of other projects. Very often, not having enough staff was the core issue. One interviewee explained:

There's been positions this year with budgets that I have not been able to refill, and so yeah, I do feel short-staffed. And even, you know, reshuffling resources to do what, you know, is needed in other areas, that's happened this year too. Which I support those, but yeah, I do feel short-staffed.

Although six of our eight interviewees spoke about feeling restricted in their capacities due to staffing constraints, the other two interviewees felt that it had not yet reached the point where

they had become limited in what their team can accomplish. Despite statements that their team is under-staffed, one of the two put a positive spin on this by commenting that they had not experienced any staffing cuts due to COVID-related budget changes:

I was one of the very lucky people that was actually able to hire during COVID. And like, some areas are laying off; I was actually able to hire. So I was able to hire two FTEs in the reporting realm. ... And then I've got another vacancy, so I can hire somebody else.

The other interviewee noted that, while they do not yet feel that their team's capabilities are restricted due to being under-staffed, their workload has substantially increased. An increased workload due to the assumption of leadership duties after a colleague has moved on was a common issue across UNT World. They explained:

I don't think it's to the point to where we are limited in our abilities, are limited in doing anything. I just think we've been used to having, you know, a couple more people. ... [After a colleague's departure], that leaves a lot of the responsibilities of the management side of things, which takes away from independent contribution.

Another participant described a similar experience in their current assumption of leadership duties. After their supervisor left the department, they had to "automatically take over that position unofficially" in addition to the duties they had already been performing in their full-time role. Like most other interviewees, they emphasized that their department's workload was very heavy. Feeling understaffed was the status quo; they noted that each person in their department was already performing the job functions of two different roles before their supervisor's departure.

In addition to statements indicating that they felt their own team or department was under-staffed, some participants also stated that they felt the impact of other teams and departments being short-staffed. One interviewee provided the following example:

With the data warehouse that's been built for and has been curated over the last several years, ... they've had those years of really, you know, kind of fine-tuning and making sure they've got things. And again, they've been given the staff to be able to put the effort into it, and I think that's a big part of it. So I think what Finance and HR have not been able to do because of that is to create all of the things that they'd like to have.

Describing the constant struggle of managing a heavy workload with limited resources as "a balancing act," one interviewee stated:

The reality is, given the amount of expectation versus the time we have, we're having to make some very hard choices now around where we can invest and where we can't. And so for me, I think I need to be part of the solution, not part

of the problem. And so I've tried to lead us through that by leaning on some of the analytic products to help us free up the time to focus on these more sticky wickets. But the reality is there is a definite relationship between the staffing levels and expertise of those individuals and the ability to solve problems and challenges. ... It's a notion of where you choose to invest and where you need to make forced choices.

### **Software and Technology Resources**

During our interviews, a prominent topic of discussion was the aspects of data and reporting services that relate to software and technology. In contrast to the lack of personnel resources which we discussed in the previous section, interviewees expressed frustration with a seeming overabundance of software and technology resources across UNT World.

As mentioned in chapter 3, some gaps in the data and reporting landscape caused by uneven implementation of processes and inefficiency of services are directly related to the variety of tools and software utilized across UNT World. Many of these tools duplicate processes performed – or that could be performed – by other already-acquired tools. One of our interviewees described the complexities in the current state of the landscape:

There are multiple system technologies in use in today's UNT World. Some departments are using Cognos, some are using Tableau. Some are using SQL Server, some BI Publisher. Some are using SAS. So although we spent almost two years learning and building this house using Cognos, we were asked, "Could you change lanes and start all over and go the SAS route?" ... We will jump on this SAS boat and we will start working on SAS, but it does put us a little behind on the progress. ... But I'm taking it really open minded. I'm really happy that we are going with a SAS model, with SAS technology. In the long run, it will be better for all parties in UNT World to be using similar kinds of technology, so we all can understand, and speak, and share the resources if necessary.

Often, the choice to use a specific tool or software suite comes down to institutional and departmental preference. One of our interviewees questioned the efficacy of this as it relates to the adoption of SAS:

Do they make their decisions on what they're comfortable with or are they going off of what is truly best? For me, it'd actually be better for us to move away from Cognos because I got other stuff to do. So it'd be good if I'm not the resident expert in their department. I'd be all about it. But what we actually end up doing, I think we're probably going to go with SAS and I'll try to make it work, but I think it's going to be very challenging. And I think some parts are gonna, we're going to have to reimagine how we do things.

Even though all interviewees expressed some frustration due to the sheer volume and variety of tools and software used in the data and reporting landscape, two of our interviewees voiced

concern about the potential for a destructive impact by relying too much on a single software solution. One interviewee provided a specific example regarding the transition to SAS:

One of the big things I saw in SAS is users can't schedule their own reports. There's no ad-hoc reporting and I can't schedule my own report. Matter of fact, ITSS was telling us that my group may not be able to schedule reports; we may have to ask IT to schedule it for us. And I'm like, huge step back.

Another concern expressed was whether efficiency would be lost by requiring those who are not proficient with SAS to use it rather than the tools with which they are proficient. An interviewee spoke to this concern by saying, "I think if the goal is to create a homogenous environment, I think you're going to lose efficiency. I think you're going to just lose out on labor and talent in general."

The same interviewee continued to elaborate on this concern by proposing an alternative approach focusing on standardization at the architectural level:

From a tools perspective, maybe you create the standardization where it exists inside of EIS and how that data works. And you allow individuals to build out things specifically to their liking with the tools that they want, that are deemed cost-effective and whatever else plays into this because it's not *just* labor loss. ... There's many different variables that are confounding to this problem, but in general, I would say you need to probably support at the architectural level and make an understanding that that's where centralization occurs and that somebody owns how this stuff works.

That being said, all of the persons with whom we spoke recognized the need for some degree of consolidation of software resources. Some interviewees expressed the desire to consolidate at an organizational level while still permitting institutions to utilize their preferred software solutions. However, the majority of our interviewees supported the goal of consolidating to the point of utilizing only one or two primary software solutions. One of our interviewees who hoped for greater consolidation said:

Going back to the holistic thing of everybody using the same system, I agree. I think they do need to use the same system. I presented to IT that I actually think that Cognos is a reporting tool and SAS is an analytics tool, and I think there are two tools. ... Our ideal situation is both.

The perspectives expressed by our interviewees match one of the primary goals of the DAR Assessment: to achieve "a minimized set of non-duplicated data and reporting tools/systems optimally aligned with required & optimized business functions."<sup>8</sup> Determining how software and technology resources should be consolidated is one of the first steps in moving toward greater efficiency in the data and reporting landscape. The complex nature of the role software and technology resources play in the landscape continues to be explored in the following section.

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<sup>8</sup> Ibid.

## Total Cost of Ownership

Applying a holistic perspective to our analysis of the data and reporting landscape at UNT World revealed many interesting findings applicable to the DAR Assessment goal of “minimizing the cost for the acquisition, storage, processing, and delivery of data.”<sup>9</sup> Even though the interview guide we utilized did not include questions related to cost, most of the people we spoke with expressed concerns about how resources were being utilized and how inefficiencies in the landscape impacted the total cost to the organization.

As discussed in the “Software and Technology Resources” section of this chapter, UNT World possesses a large variety of tools and software solutions. However, as we noted, the sheer volume and variety of these tools and solutions create inefficiencies in the data and reporting landscape, such as duplicating efforts and overlapping processes that are already achievable with previously-acquired tools. Additionally, the cost of these tools expands exponentially beyond the initial purchase price once total cost is taken into consideration. One of our interviewees provided the following example:

When you look at an example like, “We want to purchase this one vendor solution because it's going to give us some analytics around {X}.” Okay, it looks like a great deal. It's only \$90,000 a year. How about all the time it's going to take for IT Shared Services to stand it up? All the time it's going to take for the staff that is now going to be asked to use that tool to learn it? All the time it's going to take, and when I say time, I mean salary dollars spent per subject matter expert to stand up {X} tool. That \$90,000 could suddenly bloom to millions of lost productivity, because we're investing in here instead of focusing on maybe where it's more productive over here.

Decision-making processes were another source of concern for our interviewees. Of particular concern in this area was decision-making processes which seemed to focus more on short-term outcomes versus long-term costs and impacts. One of our interviewees expressed:

Why authorize a \$100,000 gizmo to do {X} for one area when that hundred thousand dollars can go to buying personnel? A person who can support not only that one area, but the entire area. Instead of looking at the quick fix, let's ask the question: “What's the desired outcome? And where do we want to go?”

Our findings point to the importance of understanding the total cost of ownership when it comes to human and technological resources across the data and reporting landscape. Concerns related to personnel resources and technological resources were often intertwined because decisions made regarding personnel impact technology decisions and vice versa. The results of these decisions then directly impact resource availability across the landscape and have the power to either cause greater inefficiencies or increase efficiency and support optimization. This interwoven dynamic is exemplified in this statement made by one of our interviewees:

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<sup>9</sup> Ibid.

Maybe you need to bring on different people with different skills, and why are we hiring the same people with the same skills you think you need? ... Clearly there's going to be cases where you need someone with a very specific defined skill, maybe for a very specific purpose. ... Like in Student Accounting, they probably need someone with COBOL experience because that system is built off of COBOL. But does your entire staff need to know COBOL? Do all decisions then come back because that's the only tool you're aware of? ... The challenge to me is that mindset basically says that every technology problem that we're going to face is a nail, because all I wanted to do is hire hammers.

Another challenge which our interviewees identified in this realm is a lack of formalized processes for technology choices. One of our interviewees stated: “I don't feel like there's a good, formalized technology acquisition process right now. I don't feel like there's a good understanding of how decisions are made.” Expanding on this later in the interview, they emphasized the importance of processes and tools:

We need more opportunities – not less – to help demystify the process of when we say like, “We don't think that this is a very smart purchase,” then it goes beyond not just telling someone that their idea is not smart, but rather, helping them by providing them tools ... for them to quantify what the real cost to the organization is going to be.

To achieve the DAR Assessment goals of efficiency and optimization of data and reporting services, our interviews indicate that emphasis on long-term outcomes and total cost is needed when making decisions related to personnel and technology.

## **Recommendations**

### *Resource Inefficiencies*

All interviewees acknowledged a perpetual lack of resources that regularly cause challenges and pain points for both data providers and consumers. To optimize data and reporting services, it will be necessary to address these resource inefficiencies by optimizing personnel, software, and technology resources with an eye toward the total cost to the organization. Specific recommendations for these resource categories are provided below.

### *Personnel Resources*

In the “Total Cost of Ownership” section, we noted that human and technological resource concerns are often intertwined due to the fact that decisions made about technology often impact the choice of whom to hire and where to dedicate personnel resources. In turn, hiring decisions may also impact decisions regarding which tools and software to invest in due to the skillsets and experiences of persons hired.

We recommend first addressing concerns related to the overabundance of software and technology resources, so that departmental workloads and the ability to efficiently provide data services may be reassessed once gaps in the landscape caused by these issues are reduced.

More generally, there may be an opportunity to create a better balance between technology resources and personnel resources in spending decisions. This could ease the continuous strain of overwork that is widely experienced by staff.

#### *Software and Technology Resources*

Streamlining the use of software and technology resources is foundational to optimizing data services across UNT World. We recommend consolidating tools and solutions so that data providers are able to more efficiently and effectively serve data consumers. It will also make it more feasible to provide comprehensive training for data providers and consumers which we outlined in the recommendations for chapter 3. We recommend approaching the tools and software consolidation process by first following the recommendation we provided in chapter 2 to determine the best balance between centralizing data services that are universal to all UNT World institutions while still allowing for specialization at the institutional level.

#### *Total Cost of Ownership*

We recommend taking into consideration the total cost of ownership when making personnel and software and technology decisions such as the ones discussed in the previous paragraphs. Consideration of total cost to the organization can be integrated into UNT World's decision-making culture in a variety of ways, for example: by placing emphasis on the impact of total cost during discussions about long-term organizational goals and by formalizing technology acquisition processes so that long-term costs may be better understood.



## 5. The Role of Data Governance

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Data governance has the potential to interact with all areas of the data and reporting landscape. As such, it has important implications for achieving the DAR Assessment goals of optimization and efficiency across the landscape. Our interviews with data providers revealed the potential organizational impact of data governance, the importance of fostering trust in the data, and how cultivating a culture of governance can benefit all institutions across UNT World.

### Defining Data Governance

To better understand the perspectives of data providers across UNT World, we asked everyone we interviewed how they define the concept of data governance. The responses to this question demonstrated that how each data provider defines data governance informs their assessment of the current state of data governance at UNT World and what they hope for its future.

#### *Overview*

Widely shared aspects of interviewees' data governance definitions included practices such as: defining what the data is; defining how the data is and can be used; standardizing data and data source definitions; obtaining data owner sign-off on their data and its use in new contexts; and providing committee oversight of data governance.

Though the definitions provided by data providers did not disagree, there were many points made by individual interviewees that were not included by other interviewees. These included considering data governance at the global level; considering nuances within institutions and business units; establishing a process to obtain organization-wide agreement on global data governance standards; recognizing that good data governance requires time; and promoting a culture where data is trusted and understood.

#### *Detailed Description of Interviewee Definitions*

A major recurring theme in these definitions was the processes involved in data governance. Most of our interviewees provided very brief definitions of data governance which focused on concepts such as ownership, standardization, and understanding the data. Below are examples from five of the people we interviewed:

Okay, data governance, to me, is an understanding of what the data is and how it's used. ... And it would be my expectation that that would be established by our customers because it is their data. They're the owners.

~

It's: What is that data? What does it mean? And how can you use it? Because just because it says that's what it means, doesn't mean you can use it in every instance where that is, because it may be misleading.

~

Data governance is not just how the data is coming into the system. It's how data is leaving the system, who is reporting the data, and are they the right, skillful, accountable people to report the data?

~

So for me, data governance is: we standardize the data. We standardize that data source. And then we gave the public access to see all this metadata. ... A consistent data source definition.

~

Data governance, to me, means the people who own the data bless the data that I'm representing. That they looked at it and they signed off on it. That's data governance. So, you know, if I'm making something for Procurement, and the head of Procurement's in there working with me and he's like, "Yes, that is absolutely correct. I checked it against the ERP system," I sign off on it. That's data governance in its purest form.

The definitions provided by our other three interviewees were much lengthier and deeply detailed, so they divided their definitions into multiple parts. One of these interviewees provided a two-part definition of data governance which focused on decision rights, processes, and resources:

It is an enabling framework of decision rights and accountabilities for information-related processes. Agreed upon models that describe who can take what action, with what information, when, and using what methods. It is true business and IT cooperation that will lead to consistency and confidence in decision-making, which in turn increases innovation and growth. For me, this is the definition, the last line.

They continued:

It is orchestration of people, processes, technology to manage a company's critical data sets by using roles, responsibilities, policies, procedures to ensure the data is accurate, consistent, secure, and aligns with all the company's objectives. So basically, what it says is: how we store the data, how we process the data, how we present the data, ultimately, as to meet the company's objectives.

Another interviewee also divided their definition of data governance into two halves. The first half focused specifically on defining the data:

To me, data governance is the definition of the data and the dependency of how it came to be. So not only the literal definition of some piece of data, but then the relationships in order to get it to how it was derived, and the context of which it exists in, and how it's being leveraged. So you could have a singular

type of data, but it could mean something differently in another context, for instance. So governance not only applies that just like at a global level, but ... like there's all these little nuances that come into play. And so how deep do you go down to define these things? And so to me, that is the documentation, or the governance, of data in terms of defining it.

The second half of their data governance definition dealt with the processes through which data governance occurs:

But then the governance side of things is also the - in order to achieve that level of detail - it's: how do you get the people to sign off and agree upon that and it become the new standard? So there's a process that exists in there where you have, you know, a committee or certain roles within some process that say, "Okay, you are the one who is technical. You're the one who technically owns this, you know, as the leader, and you're this. And once you get all those people to kind of sign off on it, then you say, concrete, "This is what this means," and it should take like an act of God to change the definition of this at that point in time.

The other remaining interviewee began their definition of data governance by outlining what they see as the five components of data governance and the four areas to which it pertains:

For me, data governance falls into five buckets. It falls into technical perspectives, functional perspectives, the consumer perspective – you know, who sees the data – an executive perspective, and a vendor perspective. And there's no singular definition, per se, but in my mind, governance falls across four general areas: business decisions, the data itself – both the source data and also secondary or tertiary data that's generated - applications that touch that data, and the overarching enterprise architecture that it links into the ecosystem.

From there, they continued their definition by outlining the goals of governance, the processes involved, the results of those processes, and the role of culture as it relates to data governance:

Governance, to me, is a combination of ensuring validity, building trust, and monitoring for quality. So data governance, to me, is knowing more than just what something means from a documentation perspective, but also understanding the technical linkages to the larger data framework, and knowing and having a process in place that codifies the difference between data that's important versus data that's vitally important. ... And so governance, to me, then turns into roles, responsibilities, tools, structures, policies, procedures, and then practices. And a recognition that it takes people time to do good governance. ... It's the areas of policies, procedures, oversight groups, and individual roles that, when taken together, promulgate a culture where people trust the data and understand it.

Almost all of the data governance definitions centered around processes and practices, even though some interviewees did not directly refer to those as such. The focus on data governance processes indicates that our interviewees recognize their importance, and that they consider clearly defined and communicated processes to be critical in approaches to data governance within UNT World.

### **The Potential Impact of Data Governance**

The persons we interviewed for this project remarked on the many ways that data governance could directly and indirectly impact UNT World as a whole. One interviewee posed a series of questions they believe data governance plays a key role in answering:

How do we leverage technology and the tools we have already purchased? ... How do we enforce the automation of monitoring tasks to ensure stability of data? And what structures do we need that transcend the core into the periphery, to ensure that those automated processes are accurately reflecting what's really happening? And how do we help the periphery understand that that's not about ownership and taking control away from you, but rather trying to take some rocks out of your backpack so that the hike is not as hard?

### *Ensuring Trusted Data*

Due to past concerns across UNT World about the trustworthiness of data, we asked our interviewees about their own perceptions of data trustworthiness as well as the perceptions of their data consumers. Our analysis found that interviewees consider trust to be a vital part of successful data governance processes. One interviewee pointed to the role of organizational culture and the importance of a data governance ecosystem in establishing trust with consumers:

When you allow other entities to operate outside of [a data governance] ecosystem, and they don't surface – unless you got to like really hunt, beg, and plead to see it – the governance structures, then yeah, it breeds distrust. ... It elevates distrust because you don't really know what the methodology was that arrived at it. ... The culture has allowed that to permeate.

Another interviewee illustrated how some of the current processes related to data access within the landscape can lead to a lack of trust in the data. This also contributes to some consumers believing they have received “bad data:”

Sometimes people who are extracting the data, they do not have the right skill set, or the knowledge, or experience and they extract the data and data is sent to the higher-ups or the reports are created. And when it's eventually figured out that, “Hey, this data is not matching with another report that somebody else prepared,” ... people just say, “data is bad.” Nobody gets to the bottom of, “Hey, who prepared report A and who prepared report B?” and ask them, “Hey, why is your data not matching?” We don't get to the method and how the data was prepared. We just simply stop at “data is bad.” Data is not bad. Data is

however data was put together by somebody. ... So that is my biggest concern and that concern is still out there.

According to our interviewees, trust is also critical between data owners and data providers. One interviewee provided the following example:

I have made it a rule in my area that we do not build anything without the data owners' approval. ... When it really comes down to it, AP data is owned by AP; Procurement data is owned by Procurement; Budget by Budget. ... AP is the data owner for AP data, right? And nobody should put out AP data without AP's approval. ... If you take fresh AP data that has not been blessed and you start purporting that as UNT's AP data without the AP people's sign-off, I think you're violating some trust there. I think you run some huge risk. And so for my area, we never put out any data without somebody's approval.

The following section examines how embedding data governance into the culture of UNT World can foster trust in the data, strengthen relationships between providers and consumers, and realize other potential benefits.

### *Cultivating a Culture of Governance*

From a holistic perspective, it is important to take steps to integrate data governance into the organizational culture of UNT World and its institutions. As one of our interviewees put it:

This has to be about systems and approaches, not necessarily roles. ... We need a culture of governance that is infused into all of the technical and functional SMEs. ... Instead of just looking at system stability and uptime, look at system stability in terms of data quality.

There are many benefits of establishing a culture of governance. One of the potential benefits is that personnel across UNT World may experience less role confusion and take greater individual responsibility. One of the people we interviewed described how role and responsibility confusion creates widespread data issues within their institution:

Our problem that we're facing is with some data owners, they are not 100% sure about their responsibility. Like I mentioned to you, for 90% of the data owners, they know if we need any live data – which means uncertified data – we will go to them. And they usually understand that very well and they will provide us any data, even before me asking. But there are departments that are not aware of that and are not willing to learn how to do it. So they just say, "We don't know," and so that will become the bottleneck of the data flow.

Another benefit of continuing to cultivate a governance culture is the potential for greater trust through better communication. If data governance becomes a key aspect of the culture of UNT World, data consumers would likely feel more comfortable communicating with providers, especially when they are concerned they have received "bad" data. One of the people we interviewed indicated that a lack of communication was one of the key challenges they encounter when it comes to providing data:

It's really important for me to know and my team to know when errors were made, when bad data was provided whether by me, by my team, or somebody outside my team so we can address the root cause. ... We need to know very concrete examples of that so we can address it. And I'm all ears and I'm willing to improve the process, but somebody has to tell me there was a bad data example so we can improve on it. ... That's a challenge that when bad data cases are surfaced somewhere in the organization, making sure the team that's responsible for it should be notified or communicated so that the root cause can be addressed and future such cases can be eliminated.

One of the goals of the Data and Reporting Assessment initiative is to understand how UNT might move toward a state where: “Data is accessible to those who need it and enables ‘data-driven’ decision making.”<sup>10</sup> One of our interviewees pointed out that the lack of “a formalized data governance approach” inhibits their ability to provide access to data so that “‘data-driven’ decision making” may occur:

We want to be able to help support those people and nurture those developers, ... but we're hampered in that because we're not the data owners and they're asking for access to institutional data. But because UNT System does not have a formalized data governance approach, we're stuck in the middle now between a developer who wants to make analytic progress and the data owner who maybe is unwilling to share access to that data because of the culture.

As evidenced through statements made by our interviewees, embedding data governance into the culture of UNT World would support the vision of the DAR Assessment “to provide trusted data”<sup>11</sup> by optimizing data-related processes which would, in turn, conserve resources and minimize costs. From a holistic perspective, the integration of data governance at all levels and across all domains should be incorporated in any proposed solutions for achieving the goals of the DAR Assessment.

## **Recommendations**

### *Defining Data Governance*

We recommend utilizing the information in these definitions to help prioritize data governance implementation efforts. Understanding the topics about which there is the greatest consensus among data providers and consumers – such as the need to standardize definitions of data and data uses; the need to obtain data owner sign-off on the uses of their data; and the need to provide data governance oversight – will be helpful in determining which areas require the greatest efforts. Additionally, recognizing topics which were not commonly featured in data governance definitions – e.g., understanding data governance at both global and local levels; establishing approval processes for data governance standardization; and recognizing that cultivating a culture where data is trusted and understood takes time and resources – will also be beneficial in planning data governance efforts and determining which topics are missing entirely from these definitions. We also recommend ensuring that data governance models

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<sup>10</sup> Ibid.

<sup>11</sup> Ibid.

and processes are clearly defined, communicated, and easily accessible to all data providers and consumers.

### *The Potential Impact of Data Governance*

Our primary recommendation when it comes to data governance is to prioritize the integration of data governance into the culture of UNT World. From speaking with all of the interviewees, it is our opinion that adopting a comprehensive data governance approach to services across the data and reporting landscape of UNT World will build trust in the data, encourage better communication, and cultivate a collaborative environment. Challenges caused by communication gaps and lost opportunities for greater collaboration have been identified as recurring issues across the entire data and reporting landscape. We recommend that data governance be used as a way to not only address these issues but also as a way to “transform IT at UNT World to deliver efficient and effective services at optimized cost.”<sup>12</sup>

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<sup>12</sup> University of North Texas, Board of Regents, "2020 UNT World Strategy" [Slides], UNT, August 5, 2020, [https://www.untsystem.edu/sites/default/files/bor/board\\_book/meeting\\_book\\_-\\_august\\_13-14\\_2020\\_regular\\_board\\_of\\_regents\\_meeting\\_8.5.20\\_4.47pm.pdf](https://www.untsystem.edu/sites/default/files/bor/board_book/meeting_book_-_august_13-14_2020_regular_board_of_regents_meeting_8.5.20_4.47pm.pdf)

## 6. Defining Success for the DAR Assessment

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In the final minutes of each interview, we asked the interviewees how they would know whether the DAR Assessment was successful. Below, we share how they defined what success would look like in this context, as well as their hopes for the future of the data and reporting landscape across UNT World.

Although interviewees defined it in a variety of ways, there was a considerable amount of consensus around what *success* would look like for the DAR Assessment. We discovered eight recurring themes throughout the interviews. Here are the themes, with representative quotes:

### 1. **Accountability and Responsibility Clearly Defined across the Data and Reporting Landscape**

“Data governance is not just how the data is coming into the system, how data is leaving the system. Who is reporting the data and are they the right, skillful, accountable people to report the data?”

“We've never even dropped a flag in the sand as far as holding our vendors accountable for providing data dictionaries for new tools. ... ‘I'm sorry, we can't consider your product because you've not taken good steps to help ensure to us that you've got good governance.’”

“I think the biggest thing is we need to put standards and practices, the data mart, the concept of having the data owners having control of their data. ... If they pull that data, it's *their* responsibility to be able to pull it for you, which may not be exactly how each one of the institutions work, but I do feel like that's the ideal way to work.”

### 2. **Appropriate and Comprehensive Data Access**

“I'll know this is a success when my team and I are given trusted access to information that we currently don't have right now that's not helping us achieve our goals.”

“So my understanding about data ownership and efficiency is: the most efficient way is definitely not to give everybody full access ... I think we definitely need subject matter experts, a.k.a. data owners, for every major component of the data. Then we can actually share access to this data, but you can only see the customized data.”

### 3. **Adherence to Data Governance Models and Practices**

“I think if we have a consensus on how we're going to present common things, I think that would be good. If we have a consensus on how we're going to bring data into the system; how we're going to catalog the data that we bring into the



system; and share what it is and what it means. Again, that data governance model.”

“When we're all using common tools, the vocabulary, language, methodology, clarification, et cetera to take the focus away from who's providing the data and put it instead on: what does it say and how can we use it?”

“Have [the data] validated with the data owner. I think that's the biggest piece. I think if we're all using the same data, there's one version of the truth, there's always a core report that we're basing it off of; to me, that's data governance.”

#### **4. Better Data Governance Transparency**

“[Success would mean that] I can have a question about a technical lead on any given data system domain subject and I can go to a data governance portal that tells me who owns it, who's responsible for the care and feeding of it, and when was the last time it was updated.”

“[Success would be] if an issue comes up in the data stream, it takes me less than a minute to figure out who I need to call to help get it resolved.”

“Put up an ITSS dashboard that shows us all the systems that you're running and whether they're working or not. ... [When something goes wrong], often I receive calls from all of the different users saying there's something wrong with the data, because they don't have a tool to be able to see what we see.”

“Governance will be a governance document unless you have some application of it. The only way you can get application is creating application-based platforms so that people can use it.”

#### **5. More Collaboration and Communication across Sites**

“I, personally of course, want more collaborations with ITSS and with Denton. Previous decision makers in our department decided to be cut off [from ITSS and Denton]. They wanted to use their own methodology to do specific things, so personally, for me, I want to be back to being a part of the bigger family. We want to be part of UNT World.”

“Right now, we're actually still mapping a lot of things that can be done by ITSS. So we're in the process of gradually learning what they can provide. The hardest part is that you don't know what you don't know. ... It will be great when someone in Denton or someone in ITSS can help us, ‘Oh, see this is everything that we can do. We already designed that for Denton and you guys can use that too.’”

## 6. **Optimized Balance between Centralization and Decentralization**

“[The DAR Assessment will be] successful when units that had been allowed to develop in potentially not as comprehensive as systems can all start to operate in the same system and take full advantage of the investment we've made.”

“One of the noble goals of this project is to have one set of tools, one set of technology; for example, SAS to be used by all areas of UNT. This way, we have enough resources and skill sets and people in-house who know about SAS technology and we can kind of form an internal group and run ideas and talk to each other in the same language, same technology.”

“There are a lot of pieces of data that are messaged back and forth between the three systems and they're shared. And there are some systems that are outside of EIS that are systems of record. But I think that's probably what it is: we have an identification of what those systems of record are. We know what they are, and we know who our data owners are, and it's probably getting all of that together. That's one of those pieces I'd like to see.”

## 7. **Long Term Consequences Included in Technology Planning**

“[I want to] see a change in how we purchase technology, and who approves it, and what the ROI is listed, and what the total cost of ownership. If we're serious about change, I think those are the things we need to focus on within the data and reporting environment. And we can't kid ourselves that people are constantly looking to acquire new analytic and reporting tools across the enterprise.”

“Success would be that you have done enough from this process that sets yourself up - not just from a cost savings perspective or at least in alignment of labor or whatever is trying to be achieved - but that you also have done that to project outwards and to project forward. To know that this is not only going to solve maybe some issues, but it's going to set us up for other things to come later on. As long as this isn't like a straight line and this isn't like a big slash to a budget ... then that would be a success to me.”

“My workload is never going to go down. It's just going to continue to increase. [One component of success would be that] some of the burden to do my work is alleviated because some tough decisions were made and that that will continue.”

## 8. **Institutional Support at All Levels for Initiatives**

“It has to be supported from the top down completely. So it can't just be the Chancellor; can't just be the CIO; it has to be across the board. They really have to take it to the CFO Council, but they really need to get sign-off from all the presidents. ... I think a lot of times, decisions are made at the top, but not always

brought all the way down. So they need to talk to all the people where the rubber meets the road, because messages get lost.”

“If we truly implement data governance, it will require some dedicated resources and some time from our day-to-day job to carve out and plan those things. But I'm sure it will come: ‘Here, squeeze another thing into your belt. Now you are going to do the data governance.’ Okay, let's do it. But if the support, the investment, and the people are not there, the job is not done fully; its corners are cut. People just do it enough to make it look like it's done, but they don't put the heart and soul into those things. It's not that they don't want to. They just don't have enough time in the day to get that done. So that is my recommendation: when we talk about these improvements, we should also look into what kind of resources are available today if people, departments, and the teams are struggling to keep up with the day-to-day work today.”

## Appendix: Interview Guide

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### Project Background

The Data and Reporting Assessment is one of seventeen initiatives across thirteen categories under the scope of UNT World's Project Proteus.

The interviews we are conducting will focus on the discovery component in order to help define the scope of the project, identify data providers and consumers, and gather information that will be helpful as we move into future phases of this project.

### Interviewee Background

- I have reviewed your responses to the Data and Reporting Services Providers survey, so I know a little bit about your position and some of the data-related duties of your role, but I am interested in learning more about your role and responsibilities.
- How long have you been working at UNT?
- In your role as [position name] at [institution name], what are your primary responsibilities?
- As a member of [team name], how would you describe your responsibilities with respect to the overall responsibilities of your team?

### Team Mission

- How would you define your team's mission?
- How long has your team been in place in its current mission?
- How many people on your team are dedicated solely to data and reporting services?
  - Are these team members dedicated full-time or part-time? (i.e. distinguish between FTE and head count)
- What services does your team provide in terms of data, analytics, reports?
- What other services does your team provide that are not data, analytics, and reports?
- To whom do you provide those services (i.e. who are your customers)?
- Can you tell me about a time when you provided data to a customer and you could see that they used your data in a way that resulted in a significant change?
- Where does your team fit in UNT's organizational structure?
  - Why do you think that's where your team is placed?
- Does your team use data, analytics, or reports produced by other groups at UNT?
  - If so, who? Explain?
- What are your team's primary sources of data?
- What are the primary subject matters of data with which you work?
- Do you feel your team is short-staffed?
- What challenges does the team face in accomplishing its tasks?
- What is the future you would like to see for this team?
  - What improvements would you like to do within the team?

## Organization

We did a similar study in 2015 where we learned that functions in Denton seemed to occupy a more central position and functions on other campuses seemed to occupy a more peripheral position. For instance, technology decisions might be made primarily with Denton's needs in mind. In some situations the "core" seemed to be the UNT System rather than Denton.

- *If interviewee was employed with UNT in 2015, do you feel things are still that way in 2020?*
  - How are things the same or different?
  - Can you provide a few examples of this?
- *If interviewee was **not** employed with UNT in 2015, do you feel that this holds true in the present day?*
  - How so?
  - Can you provide a few examples of this?
- If an issue, what are your suggestions for how you and/or your team/department should and can be more involved?
- Can you tell me about a time in the past when a decision about data and/or reporting was made locally within your team/department without engaging others who would also be affected by the decision?
  - Is this a common occurrence? If yes, why?
- Can you tell me about a time in the past when a decision about data and/or reporting was made outside your team/department without engaging your team (who were affected by the decision)?
  - Is this a common occurrence? If yes, why?

## Data Needs, Provision, and Analysis

- What is working well for you in accessing needed data/analysis/reports?
  - Can you describe a past experience where obtaining the data and information you needed was optimal or nearly optimal?
- Can you tell me about a time when you were unable to access needed data in a timely manner?
- What are the major challenges you face in obtaining the data needed to fulfill your responsibilities?
  - Can you provide an example?
- What are your suggestions for making improvements moving forward?
- When providing data and/or reporting services, how do you determine which data consumer is served first, second, third, etc. when there are competing priorities?
  - Is there a system that determines prioritization and helps govern the process?
  - Who and what drives these priorities?
- Can you think of opportunities for your team to provide better service related to data and reporting?

### Data Integrity, Standardization, and Use

- Do you have any concerns about the data you access in terms of *standardization, ambiguity, transparency*?
- If any, what are your concerns about the data you provide to others via reports? (*e.g., standardization, ambiguity, transparency, sources, definitions, etc.*)
- Regarding data integrity across UNT World:
  - Have you encountered data ambiguity in your role? (*e.g., sources, definitions, etc.*)
    - If yes, please describe a time this occurred.
    - Is this a frequent occurrence?
    - What are your suggestions for decreasing data ambiguity?
      - How can data transparency be improved?
      - How can data sources be clearly outlined?
      - What are your suggestions for determining a standardized set of data definitions across UNT World?
- Regarding standardization of data across UNT World:
  - In which areas do you think data standardization is working optimally or nearly optimally?
    - Can you provide an example?
  - From the viewpoint of your responsibilities, in which areas is data standardization most critical?
    - Can you provide an example?
  - What are your suggestions for improving data standardization across UNT World?
  - What should be prioritized in this process?
- In general, how can data be used more effectively and efficiently across UNT World?
  - What already works well and efficiently across UNT World as it relates to data and reporting?
  - Can you provide an example of inefficient data usage and/or reporting that you have experienced?
  - What are your suggestions for improving the efficiency of data-related tasks across UNT World? (*e.g., as it relates to non-duplicated data, accessibility, integrated tools, etc.*)

### Data Governance and Documentation

- How would you define *data governance*?
- Compared to data governance and documentation practices at other institutions,
  - What is UNT doing well?
  - What is not working well?
  - If any, what are your suggestions for improving data governance and documentation at UNT?
    - Within your department/team?

- Do you think that data governance and documentation could help eliminate silos at UNT?
  - If so:
    - What is UNT doing well in terms of eliminating silos?
    - What is not working well?
    - If any, what are your suggestions for furthering the efforts to eliminate institutional silos?
    - How can your department/team contribute to this process through data governance and documentation practices?
- On the topic of *trusted data*:
  - Do you trust data you are accessing and receiving?
    - Why or why not?
    - What could be done to increase your trust in data you access and receive?
  - Do you think the people to whom you provide data trust data they receive from you/your team/department?
    - Why or why not?
    - How could greater trust be developed?
  - How do you ensure consumers know where data came from and how it was gotten?
- How are data governance and documentation practices enforced within your department/team?
  - Can you provide an example?
  - Do you have suggestions regarding how adherence to these practices can be assessed and enforced?
    - When it comes to data ownership, how do you determine who owns the data?
- Which tools and/or formalized structures are working well when it comes to data governance?
  - What is not working well?
- When it comes to managing data quality, what are the initiatives or steps you/your team/department take?

### Assessing Success

- How will you know that this DAR project has been successful?
  - Would it affect your role? If so, how?
- What advice do you have about what a path to success might look like for this project?

### Conclusion

- Is there anything that has not yet been brought up that you would like to discuss?
- If I have any follow-up questions to our conversation today, would you mind if I emailed you?