HOW A HEALTHCARE PROVIDER MOVED FROM SILOED SYSTEMS TO INTEGRATED DATA AND SELF-SERVICE BI

onebridge

Confidential Client

Our client is a renowned health system with a substantial behavioral health service organization.

Company Size

This is one of the largest integrated health systems and clinician networks in the Midwest. It includes dozens of facilities, 2,000+ staffed beds, 25,000+ team members, coupled with extensive research and academic efforts.

Technologies

Microsoft Azure
Cerner HealtheEDW
Microsoft Power BI
SQL Server
SSAS
Client's custom applications

Services

Data Management
Data Literacy
Data Engineering
Data Integration
Business Intelligence
Dashboard Design & Development

Challenge: Integrate and Gain Value from Data in Disparate Systems

It's a common business problem. Many organizations have most of the data they need within their own ecosystems, but accessing that data to create meaningful insights is a massive hurdle because the data resides in disparate sources.

Such was the challenge for a large healthcare provider's behavioral health practice.

They wanted the ability to slice up behavioral health data and view it in a way that would enable clinicians to understand important and relevant utilization statistics. Leadership would use this view to gauge quality and make decisions.

Much of the data required to create a self-service data solution already existed but was spread across a somewhat disconnected technology ecosystem. The necessary information was there but was often siloed and inaccessible.

Without a way to integrate the data and lacking a self-service view into all the desired data domains, the healthcare provider couldn't produce a clear data-enabled story specific to behavioral health. The challenge was to build bridges to the data in the existing landscape and create an integrated data solution for a behavioral health lens. We partnered with the client's data and analytics team to lead the project to success.

Solution: Deliver Decision Intelligence through an Integrated BI Experience

A simple discussion led to brainstorming and the creation of this solution. A new business leader within the provider network told Onebridge she could not get the insights she needed into what all the health systems' behavioral health activities were.

The data existed, but extracting these insights would require the data to be identified, accessed, aggregated, and presented in digestible manner. Without that in place, the leader couldn't get a handle on behavioral health.

Other clinical areas within the health system, like diabetes, oncology, and heart disease, did not experience this problem. They all used the "groupers" in the existing data warehousing and healthcare analytics platform to group together different data elements into datasets that could be analyzed to provide that vision.

But groupers aren't as sophisticated for behavioral health data as they are for traditional primary or specialty care, so that's why our client couldn't gather enough datasets in that field.

One issue is that behavioral health data isn't so straightforward. For example, a patient with a heart condition is diagnosed with heart disease, and their clinical data is associated with a heart disease diagnosis and treatment codes. It's easier to pull data from disparate sources when you have those diagnosis codes as a starting point.

But in behavioral health, patients suffering from depression may not receive a definitive "depression" diagnosis, so their health records may not have that diagnosis code. Although you can look at a siloed prescription database and see that the patient was prescribed an antidepressant, you must infer that the person has an underlying behavioral health issue.

Having experts in the healthcare data space, we understood these issues and why those gray areas make data collection so challenging for behavioral health.

While other data cubes existed to support other clinical areas, behavioral health didn't have one that supported its nuanced needs. After much discussion, Onebridge knew that a behavioral-health-specific solution was necessary and completely achievable.

Our Approach

To ensure success, we proposed a **phased, crawl-walk-run approach to tackling the problem.** Start by crawling, get the confidence to walk, get comfortable with that, and then you can run.

In an initiative of this scope with so many moving parts, breaking down the solution into smaller parts makes it less formidable to a client. We work on one aspect at a time, show value and substantive progress, and then the decisionmakers can decide whether to proceed with our recommendations for the next phase.

Our clients like this approach because they aren't locked into a massive and costly long-term project. Frequently with custom software development, once users get their hands on the product and work with it, they might want other functionality they didn't think of at the start. This approach provides the flexibility to make adjustments as the project moves from one phase to the next.

Phase 1: Discovery & Recommendations

The client was eager to start crawling, and we partnered with their data and analytics team to move forward. The first phase of the project was a **very intentional discovery effort** to understand and document the client's strategy and goals, as well as behavioral health's current data landscape.

This process is a **critical first step when solving any business problem that involves and impacts process, technology, data, and people.** It helps you move forward with alignment and clarity.

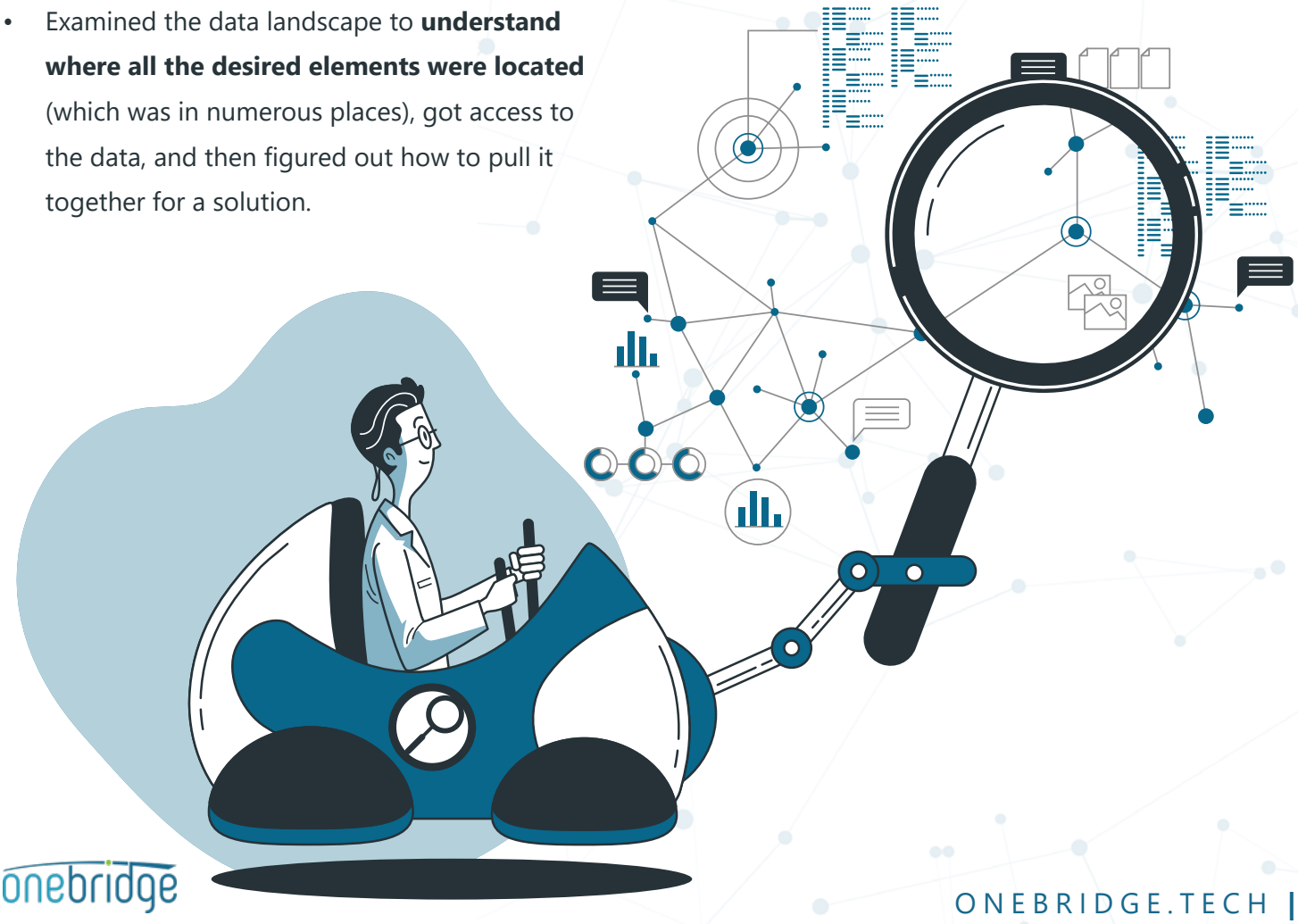
In this phase, we:

- Established a **current state record of the business processes, needs of the practice clinicians and end users, technical capabilities, and data existence, accessibility, and quality.**
- **Interviewed numerous behavioral practice stakeholders,** including the business leader, clinicians, and physicians, to learn what they would like to be able to do, how they wanted to consume the data, what issues they wanted to solve, and more.
- **Worked with the analytics groups to explain what questions were being asked and what data we needed to answer them.** Doing so, we earned the team's trust and developed that into an effective partnership to deliver the solution together and in a timely manner.
- Examined the data landscape to **understand where all the desired elements were located** (which was in numerous places), got access to the data, and then figured out how to pull it together for a solution.

The culmination of these first efforts were:

- **A gap analysis**
- **A source-to-target mapping of the required data**
- **Recommendations for a future- state analytics solution that would meet all needs.**

Then we went back to the business leader with our assessment and explained that we had everything in place to build a custom Behavioral Health data cube to solve the problems initially discussed. That would be Phase 2. We aligned on the strategy, and the client decided to forge ahead.



Phase 2: Building the Cube

In the walk phase, we agreed to set up, design, and implement a data cube that would meet the department's initial analytics needs using metrics and attributes that were readily available.

The Behavioral Health cube would **pull data from the different sources, put it in an accessible environment, and provide adjustable visualization capabilities** that they could adjust depending on what question they were trying to answer.

In this process, our team:

- Mapped and documented the metrics needed for the Behavioral Health cube, as well as the source systems where the data is housed.
- Copied the data elements into a single, staged environment targeted for behavioral health.
- Built and developed the custom cube, analytics, and dashboards.
- Used advanced data modeling to develop custom groupers for behavioral health.
- Constructed new Microsoft Power BI self-service solutions.
- Tested, documented, and trained end users.

In the end, the behavioral health clinicians and practice leaders **got the desired insights that were not previously available.** They now have a working visualization with functionality at their fingertips.

Our work is now in queue (another intentional pause we established from the start) as we wait for the completion of a separate external initiative to bring online other systems that are necessary for a much richer data landscape.

The enriched data landscape will better supply insights to the workflows and clinical protocols necessary for improved behavioral health treatments.

Meanwhile, our client is using this opportunity to work with the behavioral health view we created to see if they would like to add more functionality or make improvements to the interface.

Phase 3: Expand Access to More Data

Once that work is complete, the next phase will be to "run." The main objective will be to expand the data elements available in the new data cube by incorporating the measures and attributes in a health portal data source. We'll also bolster the insights already available by aggregating future data elements into the cube to provide more robust visualizations as time goes on. We'll then look to outside data sources and groupers to finalize the development of any remaining requirements.

Results: Impact on the Client Organization

Our client's behavioral health organization now has the **ability to effectively and efficiently make intelligent practice and patient-related decisions using and supported by data involving providers, diagnostic categories, and substance abuse.**

Some of the impacts include:

- End users have **access to insights evaluating behavioral health services versus medical services.**
- Leaders and stakeholders in the organization can **interactively self-serve** through a **consolidated, user-friendly BI dashboard.**
- The behavioral health group now has access to **robust information, expanded intelligence, and thoughtful insights** that they previously struggled to find or where the value of the data wasn't obvious.
- Business stakeholders have achieved a **higher level of data literacy** acquired through our discussions in this process and through training our team has provided.

Impact on Stakeholders

Eliminated the challenges of siloed data

Enabled users to see the story the data is telling

Empowered intelligent decision-making

The client was grateful for **Onebridge's willingness and ability to partner with the organization's business stakeholders, IT leadership, and the data and analytics teams** as a representative and extension of the clinical business organization we were primarily serving.

Illustrations by Storyset