LDIS+ Report

XYZ Clinic (Medical Practice)

Logicle Analytics, LLC
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I. BACKGROUND & METHODOLOGY

The company spent two days onsite at XYZ Clinic ("Clinic"), a single location in Greer, SC on June 9th and 16th, 2021. All staff present onsite were interviewed. Given the small number of office staff onsite and the appointment-based patient care nature of the business, assessments were during the staff members' free times. This process involved four major sections:

1. Verbal interview. A standard set of questions was presented to the participants and they discussed their answers openly.
2. Short survey. This eight-question instrument collected a number of yes/no and multiple-choice answers from respondents.
3. Maturity Matrix. Nine dimensions on a five-point scale, each having to do with various elements of business intelligence maturity. A mean score is calculated from these individual dimensions.
4. Competing Values Assessment. Six questions, in which participants assigned a total of 100 points to four statements in each question. The point values are averaged (per statement group) to determine dominant values.

II. VERBAL INTERVIEW

Procedure

We interviewed participants in the upstairs break area, away from patient care and clinic operations. Participants were able to step away and tend to patient-related matters as they came up.

Participant Role

Participants were first asked to identify their title and role. This allowed us to get a sense of who does what in the office and how their answers to subsequent questions should be interpreted. Roles of those interviewed included office manager, health services coordinator, bookkeeper, medical assistant, clinical aesthetician, MD, NP, and PA. The Clinic staff is loosely divided into Office, Medical, and Aesthetic; the Office group handles general administrative duties while Medical and Aesthetic staff handle their respective areas. There is a nominal amount of cross-functional work in the Clinic and a good spirit of cooperation.

User Experience

This discussion transitioned into the user experiences with the current data environment. This included the current interaction with their office systems and biggest pain points with current data practices. Over the course of these interviews, a number of recurring statements emerged. We have consolidated these recurring statements into two key themes. The statements and themes are shown in Table 1.

Table 1: Statements and Themes

Recurring Statements	Themes
a. Orchid is complicated	1. Complexity
b. Systems do not talk to each other	
c. Manual operations on top of systems in place	
d. Can't see value of social media posts	2. Data Strategy
e. No plan for data-driven aesthetics marketing	

* The statements on the left are user-generated; the themes on the right are Logicle's summation into key themes. We have consolidated this information in order to make the information more manageable and actionable.

Complexity

A primary pain point for the providers and office staff is complexity. Those working with the aesthetic system of record, Orchid, consistently noted its complexity. Overall, there was a sense that the different systems needed to run the Clinic do not talk to each other or reconcile across the board, but should. In addition, there are manual operations on top of the various system-generated reports that add another layer of complexity to various workflows.

Data Strategy

The Clinic has some early progress in data-driven operations, as there is a social media presence and key performance indicators are shared with the staff on a regular basis. These are early wins. However, they have not culminated into a larger data strategy. In fact, the lack of a marketing strategy for the aesthetics side of the business was identified as a current pain point.

The work thus far on social media is the easiest to take over the goal line. The staff already has experience in creating and posting content, but it is currently impossible to see what sort of return the Clinic gets on those posts. Who clicks on the links? What percentage is converted to an office visit? Typically, social media post links have tracking code embedded in the link so that these simple metrics can be seen.

These are isolated instances of data-driven thinking, but the Clinic has not yet created a data strategy to align with the business.

III. SHORT SURVEY

Procedure

The short quantitative surveys include four yes/no questions, two multiple choice questions, and an open-ended question. The purpose of this instrument is to quantify specific aspects of the reporting experience and serve as a companion to the qualitative interviews.

Results Overall

The information of note from this portion include the priorities and challenges that users have in their interaction with the reporting environment. Table 2 shows the priorities ranked by the percentage of users who chose them. Table 3 shows the same, but for challenges. There were not enough participants to break these rankings out by group.

Table 2: Priorities in Working with the Data

Rank	Priority	N	Percent
1	Trustworthiness	10	83%
2	Consistency	5	42%
3	Integration	3	25%
3	Timeliness	3	25%
4	Simplification	2	17%
5	Cost Efficiency	1	8%
6	Access	0	0%

Table 3: Challenges in Working with the Data

Rank	Challenge	N	Percent
1	Don't know where to start	5	42%
2	Lack of understanding of how to use analytics to improve the business	4	33%
2	Concerns with the data (i.e., untimely, untrustworthy, incomplete)	4	33%
2	Access	4	33%
3	Lack of management bandwidth due to competing priorities	3	25%
4	Existing culture does not encourage sharing information	2	17%
5	Ownership of data is unclear or governance is ineffective	0	0%

Discussion

The priorities and challenges overlap in some cases but are not meant to align 1:1. Priorities address what participants value most in their day-to-day work with the data. Challenges address what users find most difficult in using the data effectively.

These figures are congruent with the statements and themes discovered in the interviews. Trustworthy data is valued almost universally. Next in order of importance is Consistency, which implies that data should match up across various systems of record. Data that is consistent is also trustworthy, and vice versa. Tying for third place are Integration and Timeliness. Staff values data that can be accessed and utilized from various systems of record, with very little delay, and without complication. Time is at a premium in the Clinic; users want timely data they can trust, and getting it should not be complicated.

The primary challenge facing the Clinic is simply not knowing where to start when it comes to using analytics to improve the business. The fact that participants understand this is a positive thing, as self-awareness is important. “Don’t know where to start” is slightly different from “Lack of understanding…” in that users not knowing where to start already have some good ideas and a functional understanding of how data can better serve the business. There are concerns around inaccessible, incomplete, and/or untrustworthy data that come from the lack of integration amongst the various systems of record in the Clinic. This distrust also affects the “don’t know where to start” problem, as users may feel held back from making any improvements based on the concerns with the data.

IV. MATURITY MATRIX

Procedure

Nine dimensions on a five-point scale, each having to do with various elements of business intelligence maturity. A mean score is calculated from these individual dimensions.

Results Overall

The overall composite and dimension scores are seen in Figure 1.

RESULT: OVERALL MATURITY LEVEL		
3	EXPANDED	UNBALANCED
The potential of data to empower the institution at all levels is clearly perceived. There is a strong desire to build on the small, local intelligence success stories and translate that success to a bigger, global scale. The first global, coordinated efforts are put in place and gradually incorporate/substitute the previous local initiatives. The achieved maturity level shows an unbalanced general situation where efforts must be made to improve the weak dimensions (probably by taking advantage of the strong ones).		

			LEVELS								
			1	ABSENT	2	INITIAL	3	EXPANDED	4	CONSOLIDATED	5 INSTITUTIONALIZED
DIMENSIONS	I2* TEAM	1		ABSENT		LOCAL		GLOBAL VIRTUAL		GLOBAL FULL-TIME	COMPETENCY CENTER
	SCOPE	3		UNKNOWN		SPECIALIZED		MULTIPLE		GENERALIZED	FULL
	SBU* ROLE	4		UNAWARE		AWARE		PARTICIPANTS		SUPPORTING	DATA STEWARDS
	DATA PRODUCTS	3		UNKNOWN		LIMITED		EXPANDED		MAJORITY	COMPLETE
	USER COVERAGE	4		UNKNOWN		LIMITED		EXPANDED		MAJORITY	UNIVERSAL
	USER ENGAGEMENT	3		UNAWARE		AWARE		CUSTOMERS		DRIVERS	CO-OWNERS
	DATA MANAGEMENT	3		UNAWARE		AWARE		MANAGED		SUPPORTED	ENFORCED
	BUSINESS VALUE	5		SCARCE		OPTIONAL		INTERESTING		NECESSARY	CRITICAL
	STRATEGIC SUPPORT	3		FREE FLOATING		LOCALLY EMBEDDED		PROJECT FOOTING		SUSTAINABLE SERVICE	INTERDEPENDENT WITH STRATEGY

Figure 1. Maturity Matrix

Group Differences

The Office and Medical group scores match the overall composite scores. The Aesthetic group differed, with significantly lower scores in Data Products, User Coverage, User Engagement, and Data Management.

V. COMPETING VALUES FRAMEWORK

Procedure

Six questions, in which participants assigned a total of 100 points to four statements in each question. The point values are averaged (per statement group) to determine dominant values.

Results

The results are shown in Figure 2, broken out by the three primary groups (Aesthetic, Medical, Office) and Overall.

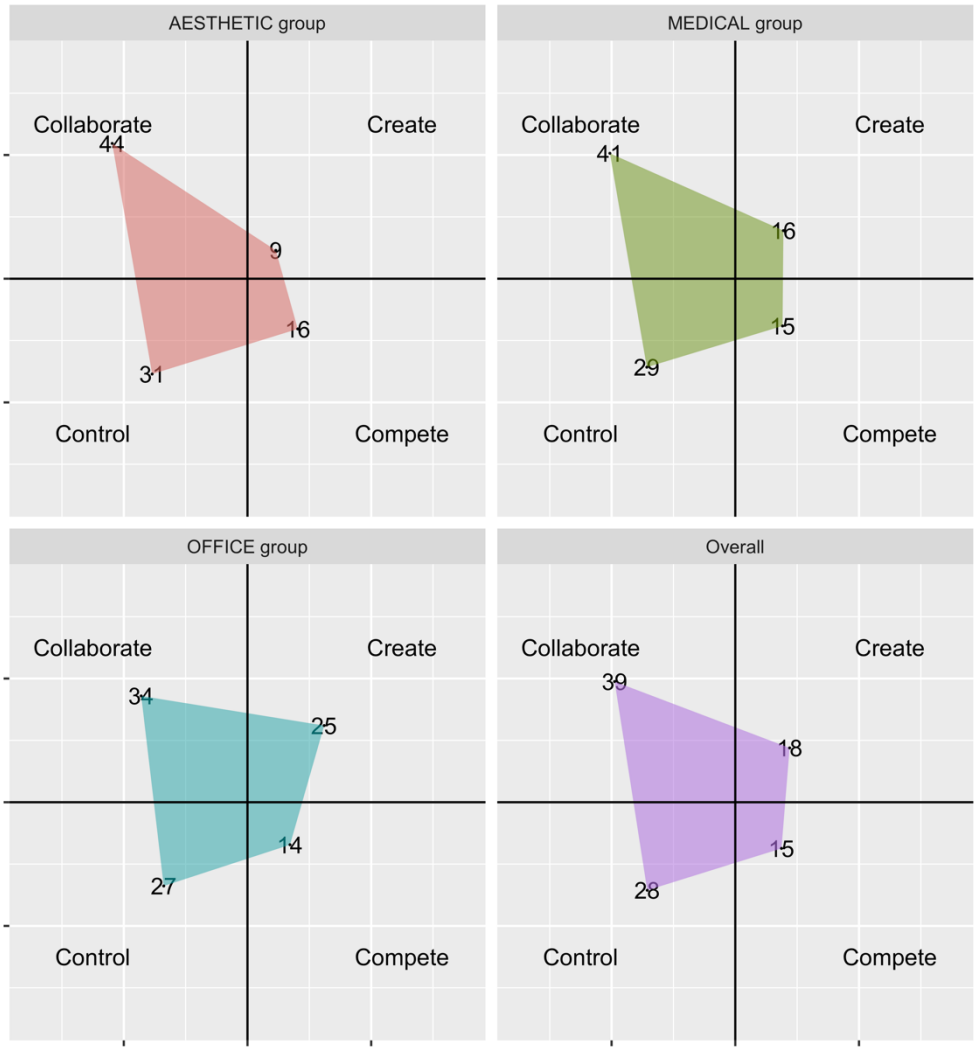

Figure 2. Competing Values Scores for Divisions and Overall

First, let's examine the Overall map for the entire office. This brings everyone's scores into one group so we have the general picture. The Clinic is dominantly driven by collaboration and control, both characteristics of internally-focused working cultures. This is primarily driven by the Aesthetic and Medical

staff being almost entirely internally-focused. One would expect, in a patient care setting, for external market considerations to be minimal and the primary focus be on working together to achieve best patient outcomes. This is exactly the sort of environment we encountered. It is worth noting that a couple of participants felt strongly that the Clinic is not a competitive environment specifically because they are focused on (a) helping patients and (b) helping each other. The Office group does not pass on external stressors to the rest of the staff. Figure 2 shows the more balanced working culture for the Office group, still focused on internal collaboration and control but with an eye on innovation and competitiveness.

What does this mean for data analytics and information usage in the Clinic? Figure 3 shows how information is used primarily in the four quadrants.

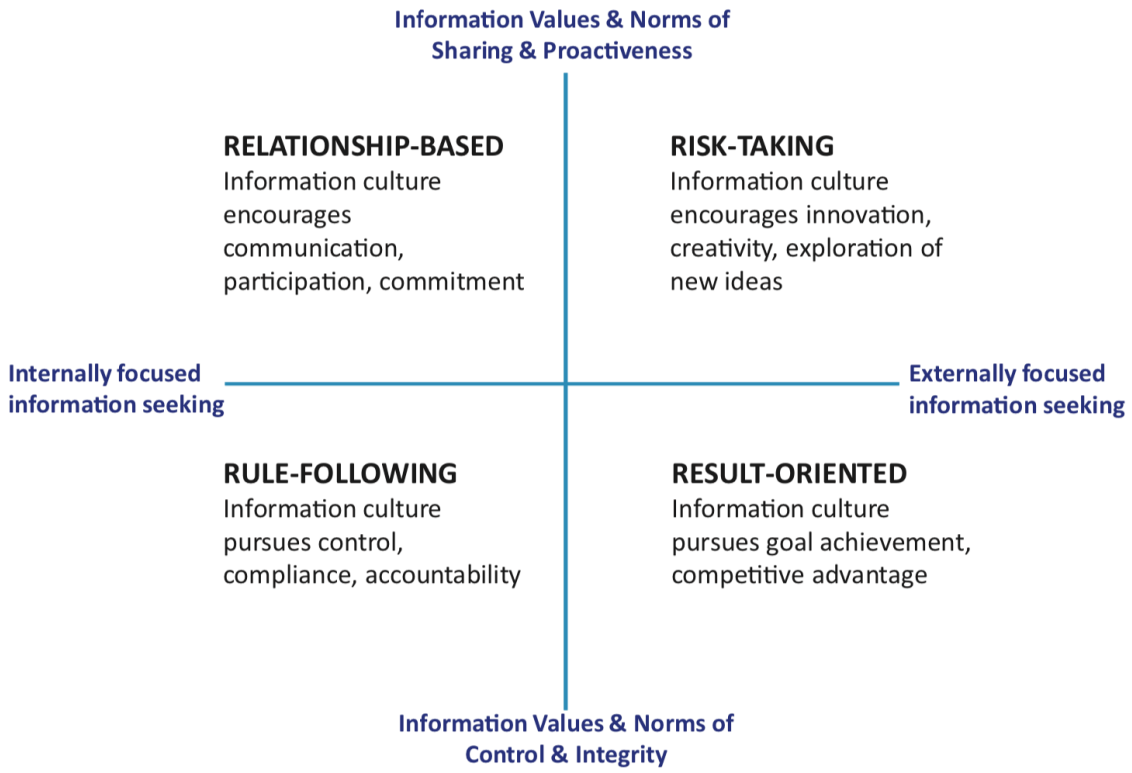

Figure 3. Information Usage in the CVF

Based on the assessment results, it appears the Clinic primarily uses data to encourage communication, participation, and commitment. The secondary function of data in the Clinic is to promote control, compliance, and accountability. Bringing this back to our priorities and challenges, we can conclude that the Clinic values data that is trustworthy and consistent, able to promote participation and commitment across the organization, with an emphasis on compliance and accountability.

VI. SUMMARY AND RECOMMENDATIONS

Having spent the time assessing the data environment and participant interaction with that environment, the priorities in working with the data, the challenges, and all discussion around these points during the assessment process, Logicle makes the following key observations and recommendations.

Early Stages

As the maturity matrix scores indicated, there are some initial efforts in play to make data-driven decisions (e.g., scorecards, website metrics). However, these efforts are not unified and do not drive a specific data strategy that is aligned with the business. Its business value is clear, but connecting the dots just hasn't happened yet. This is primarily due to the challenges of complexity and not knowing where to begin.

Key Initiatives

Logicle has identified 4 key initiatives that would help create a coherent data strategy and align it with the goals of the business.

1. Central data store and reporting engine
2. Building on existing wins and strong culture
3. Aesthetics data-driven marketing
4. Deep dives into patient patterns

Central data store and reporting engine

The Clinic already holds a wealth of information in its systems of record and continues to collect hundreds of data points on a daily basis for each patient. There is currently no system beyond the out-of-the-box reporting these systems offer and Excel spreadsheets to give the practice better insight into these data points; moreover, the information currently delivered does not yield the sort of advanced analytics necessary, and getting the limited information is overly complex.

Deploying an analytics engine and maintaining it as an integral part of the practice would be an investment into the long-term plan for the Clinic. It would provide the necessary information and key performance indicators to reduce cost, enable effective growth, and allow the providers to do more patient interaction and care with less complex effort. Growth is good, but *effective* growth driven by analytics is preferable to inorganic and one-size-fits-all growth.

Building on existing wins and strong culture

The Clinic already implements a number of data-driven practices that can be built upon. For example, various patient visit metrics are tracked already. The team reviews key performance indicators (KPIs) via weekly scorecards. Social media marketing efforts are underway. The aesthetic practice is aware of seasonal patterns in sales. All of these are project footholds on the way to a broader data strategy for

the Clinic. We recommend focusing on two areas: (1) improved social media tracking, and (2) automated KPI monitoring.

It's often very easy to make social media posts but not track what the return value of those posts are. By creating traceback URLs and leveraging the data pipeline from Google Analytics, every single post on any social media platform can prove its value. We can quickly gain insights into behavior, such as when the best times to post on various platforms are, what subjects gain the most attention, if any seasonality is at play, which consumers are converting to paid services, et cetera. The great thing about making a single change such as tracking is its domino effect over other areas—with this data, we open up many more possibilities for answers to questions we haven't thought to ask yet.

The Clinic is using KPIs already in its weekly staff meetings, informing everyone of the state of the practice through a number of regularly-updated data points. This is a major project footing and plenty of ways to leverage this for greater data-driven strategy. A suggested first step is to transition the aggregation of these KPIs to an automated system (via the central data store and reporting engine) that can display them on demand, even perhaps a dashboard that is always available in staff-only areas. The staff are already keenly aware of KPIs from the weekly meetings, and given the highly collaborative nature of the Clinic, making these available on demand would prove to be a major asset. It fulfills the first priority of information use here: to encourage communication, participation, and commitment.

Aesthetics data-driven marketing

More than one participant mentioned that the aesthetics side of the Clinic does not have a fully-realized marketing strategy. As the aesthetics practice is a major profit center for the business, it is important to fully capitalize on the opportunities available here. Because the Clinic has a project footing in being a data-driven practice, most of the puzzle pieces are here for assembling this marketing strategy. It may be tempting to consider it the same as the medical practice and lump in the marketing efforts accordingly. However, the staff already knows these are two different animals. The data has and will bear that out.

Logicle recommends taking stock of all currently available data points on the aesthetics practice, gathered from the central data store and reporting engine in recommendation 1. From there, both the overall picture of the practice and the various group-based patterns are available for analysis. This helps to understand current state. The business sets the desired state (or goals), and the data uncovered from the discovery work identifies where the efforts can be best utilized. As the strategy is executed, it will be important to monitor performance measures and adjust accordingly.

Deep dives into patient patterns

Missed appointments vary from 10% to 50% worldwide, the North American average being 27% (Mohammadi, Wu, Turkcan, Toscos, & Doebbeling, 2018). The cost of these missed appointments in the United States is $150 billion (Gier, 2017). At the Clinic, a missed appointment means a loss of anticipated revenue for the day, a disruption in the schedule, and no opportunity to reschedule a paying patient in

the vacant slot. While no-shows and cancellations ("NSC") represent lost revenue and time for the providers, they also have broader health implications. Patients who do not keep consistent appointments disrupt continuity of care and impact the value of the treatments provided. Sometimes, even one missed appointment is a strong indicator that the patient will not return at all (Hayhurst, 2019).

Combating the NSC phenomenon is done most effectively with data. Mehra et al. (2018) documented a study of this phenomenon at a local teaching hospital and reduction of no-shows by 34%. Currently, the Clinic has a variety of data points that could yield productive analysis and modeling of NSC appointments. There are a number of reasons patients do not show for appointments, and the first step in reducing it is to understand why it is happening. An in-depth analysis of no-shows and cancellations on a rolling basis would allow the Clinic to identify the categories they fall in (family or work obligations, forgot they had an appointment, unreachable, et cetera) and how to address them. Given enough time to collect data and build a model, an algorithm could assign the probability of a particular patient being a no-show.

Conclusion

The Clinic is in a good place with respect to a project footing for data-driven operations. There are existing wins that should remain in place and serve as springboards for other initiatives. The culture is highly collaborative and information is used to cultivate communication, participation, and commitment. This focus positively impacts patient care. Addressing the areas for improvement mentioned above will significantly contribute to the existing collaborative culture, strengthen the Clinic's position as a leading healthcare & aesthetics provider, and forge a data strategy that is tied to—and informs—the business strategy.

VII. APPENDIX A – OPENING INTERVIEW

1. Is this interview in person or via phone?
2. What is the participant's name?
3. What does the participant do at this company?
4. Where is the participant in the reporting chain?
5. How does the participant use reports?
6. What are the participant's biggest pain points regarding reporting?
7. What systems does the participant interact with regularly?

VIII. APPENDIX B – SHORT SURVEY

1. What is your business unit?
2. I have an active role in deciding what information goes into the reports and analytics for my business unit.
    a. Yes
    b. No
3. The reports and analytics for my business unit contain the information I have asked for.
    a. Yes
    b. No
4. I understand where the data comes from and how it is used for the reports in my business unit.
    a. Yes
    b. No
5. The designers of the reports and analytics have helped me think about new ways to get the answers I need from the data I have.
    a. Yes
    b. No
6. The top 2 data priorities for my business unit (or role) are:
    a. Integration (connecting disparate data sources)
    b. Consistency/Standardization (defined similarly throughout organization)
    c. Simplification (reducing complexity of data environment)
    d. Trustworthiness (confidence in the data)
    e. Timeliness (freshness of data at point of use)
    f. Cost efficiency (reducing the cost of data management)
    g. Access (enabling more business users)
7. The biggest challenges to using our data most effectively in our business unit are: (select all that apply)
    a. Lack of understanding of how to use analytics to improve the business
    b. Lack of management bandwidth due to competing priorities
    c. Existing culture does not encourage sharing information
    d. Ownership of data is unclear or governance is ineffective (too hard to resolve conflicts across silos)
    e. Inability to get the data
    f. Concerns with the data (i.e., untimely, untrustworthy, incomplete)
    g. Don’t know where to start
    h. Other (write-in)

IX. REFERENCES

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