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1) In my opinion, the CDR scenario doesn't fall under the Kimball definition of a data warehouse, although it does share a couple of characteristics. Two of the key characteristics of the Kimball definition is that it is centered around the transaction of the end user and built up from that transaction and that it is for a small team. Others include a readily available direct access to the data warehouse to meet urgent requests and low start-up cost.

   The CDR doesn't meet these characteristics in the sense that its data sources are based more on an overall picture of the business as opposed to specific transactions, rather, it is composed of many different tables that are related to meet the needs of different groups. Because of this, it's suited to serve different groups of users which may have different reporting needs based on their roles in the organization. The CDR also doesn't provide immediate access to the data warehouse itself; it has an intermediary that stores relevant information for different reporting templates so use of the data warehouse itself isn't a good measure of popularity of the CDR. Additionally, there is a high start-up and maintenance cost of running it which goes against the Kimball methodology.

   One of the key areas where the Kimball method would fail to meet the changing needs of the users of the CDR is in the ability to be used by various teams all striving for different types of reports. Since the Kimball method is constructed to meet the needs of a small team as opposed to the organization at large, it wouldn't be able to accommodate the different needs of groups like analysts, clinicians, students, or researchers. One area where the CDR meets a Kimball requirement is in the regard of speed. The CDR is efficient and producing results quickly for on-the-fly medical professionals. However, this can be attributed to the construction of templates for reports since there is no direct connection to the data warehouse.

2) One of the top challenges faced by the CDR is the ability for everyone in the organization to use it. For something to be an affective tool, it must be not only accessible to everyone, but everyone must have the proper ability to use it.

   The area where the CDR is positioned shows one of its biggest flaws. Being that it is in a medical environment, professionals need to be able to access information quickly due to the high paced, high demand environment that it is in. Because of this, they must be reliant on intermediaries like data analysts to be able to run their results for them which can produce problems, chief among them that they don't know exactly what they are looking for or what they are looking at.

   For the regular employee to be able to access the information without the use of a data analyst, which would just slow the process down, they would need to know how to use it in real time. Unfortunately, ironically, the professionals don't have time to go through the training. Another drawback to the state of the CDR is the data backup frequency. It is backed up quarterly which causes some sources to be many months behind. This is a major issue if we are requiring frequent, timely and accurate reports.

3) One new technological development since the publication of this case study is the development of tools like Tableau and Microsoft Power BI. These tools are excellent for data visualization and gives the user the ability to view data in many different forms. These include bar charts, graphs showing trends, heat maps, and regular tabular reports.

   This would help the issue of employees not knowing how to use the system well in two ways. First, these types of systems are intuitive and can be learned on a basic level. This would

solve the problem of professionals not having time for lengthy training sessions and could get rid of the need for intermediaries. Second, intermediaries could create generalized dashboards which are easy to understand but have filters for users to be more specific with their queries. This would be somewhat of an equivalent to analysts using SQL or other tools to create reporting templates to expedite analysis.

Although it's not a new technological advancement, the more widespread knowledge of advanced Excel techniques is crucial in the development of organizations' ability to advance their use of data. With more professionals understanding how to manipulate Excel sheets and use different formulas and formatting, it reduces the need for the intermediary to hold their hand throughout the entire process.