PARAGON CONSULTING PARTNERS

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Transitioning from Legacy to Leading Edge

Revitalize your legacy Health Data through effective Extract, Transform & Load (ETL) processes

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Introduction

We live in the age of data. More than ever before data drives our knowledge, decisions, and actions. While the importance of data has always been a critical element in delivering care and treating populations, we now have the ability to collect, store, present, and analyze data like never before. This, coupled with the need to continually reference historical data, is driving the policies around data retention. There are many good reasons to manage large data sets for as far back as it has been collected including performance analysis, risk management, population health, and research. However, as health systems continue to merge and acquire, and as ageing clinical systems are decommissioned and replaced there is a growing challenge in managing historical data in a way that is both meaningful and accessible.

Decommissioning Legacy Systems

It is not uncommon for organizations to maintain legacy clinical systems that are end-of-life or running on outdated hardware because the data cannot be converted to newer systems, or it is considered so inaccurate that remediation brings too high a cost and the related effort is not tenable to the organization. Often these legacy systems are propped up by a service and support agreement that minimally secures assurance that the vendor will keep the application and database functional and available. This situation is frustrating to those tasked with managing these systems and data elements as it brings perpetual operational costs and complexity related to the ongoing need to continually support legacy systems and manually extract data upon request.

There are now options associated with managing this data that can bring both cost reductions associated with the data management as well as the opportunity to better access this data for the purposes stated above. Consider the savings associated with permanently retiring legacy systems and eliminating their hardware and software support costs, and even better, the value of obtaining full access to the legacy data in a format that can be leveraged by future clinical and business applications. Experienced health IT data management specialists are providing better ideas for how legacy data can be maintained in ways that are both intelligent and relevant, and data retirement tools are available that can transition data from decommissioned systems to platforms that can effectively leverage the data for ongoing reference and analysis.

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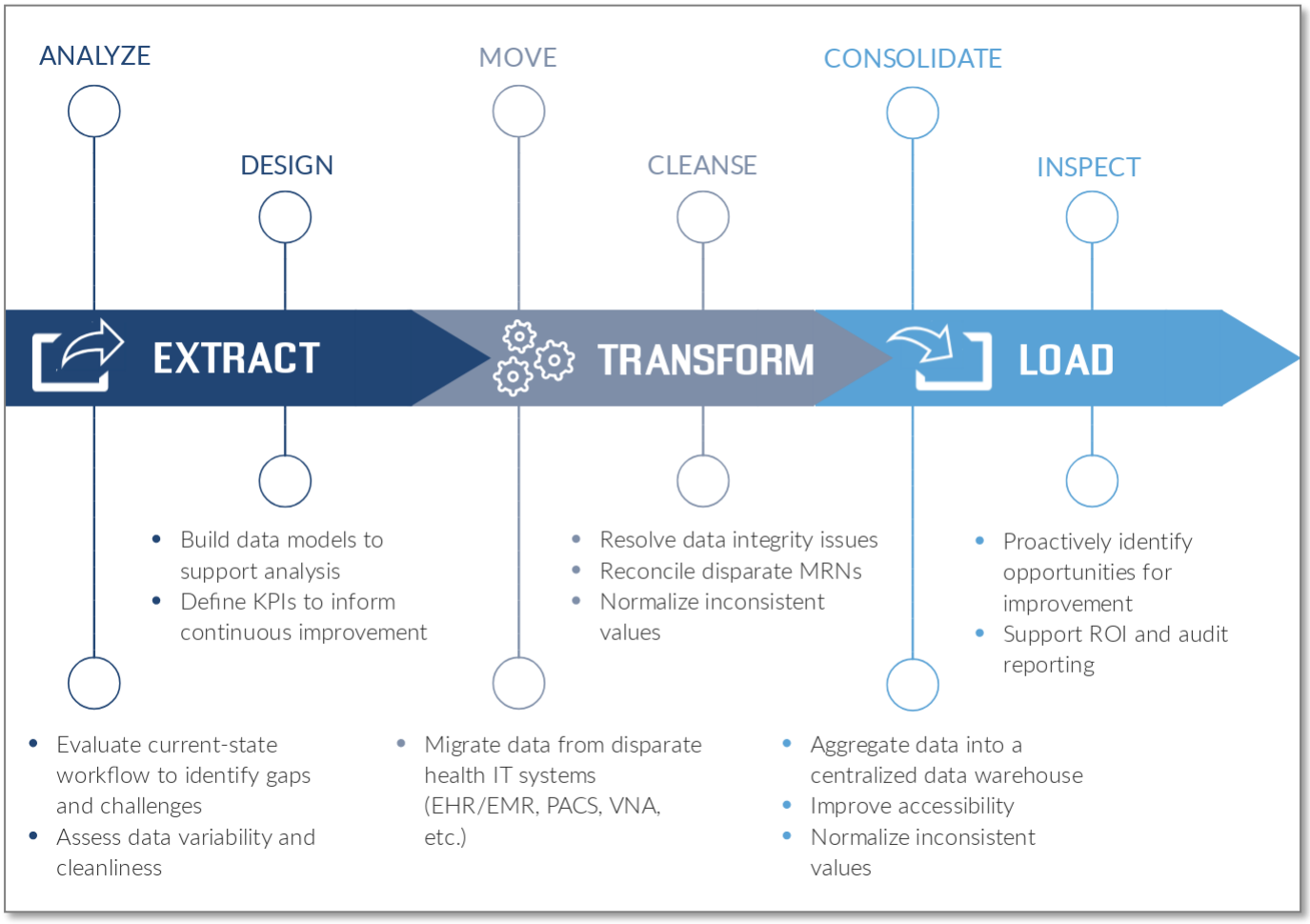
An Overview of the ETL Process

The process of converting historical data, often referred to Extract, Transform, Load (ETL) can take several shapes based on specific use cases for data utilization as well as the software platforms in-play. Software alone cannot accommodate the demands of an effective legacy data conversion project; as illustrated in the figure below smooth and successful execution of ETL projects should follow a proven methodology that reflects best practices.



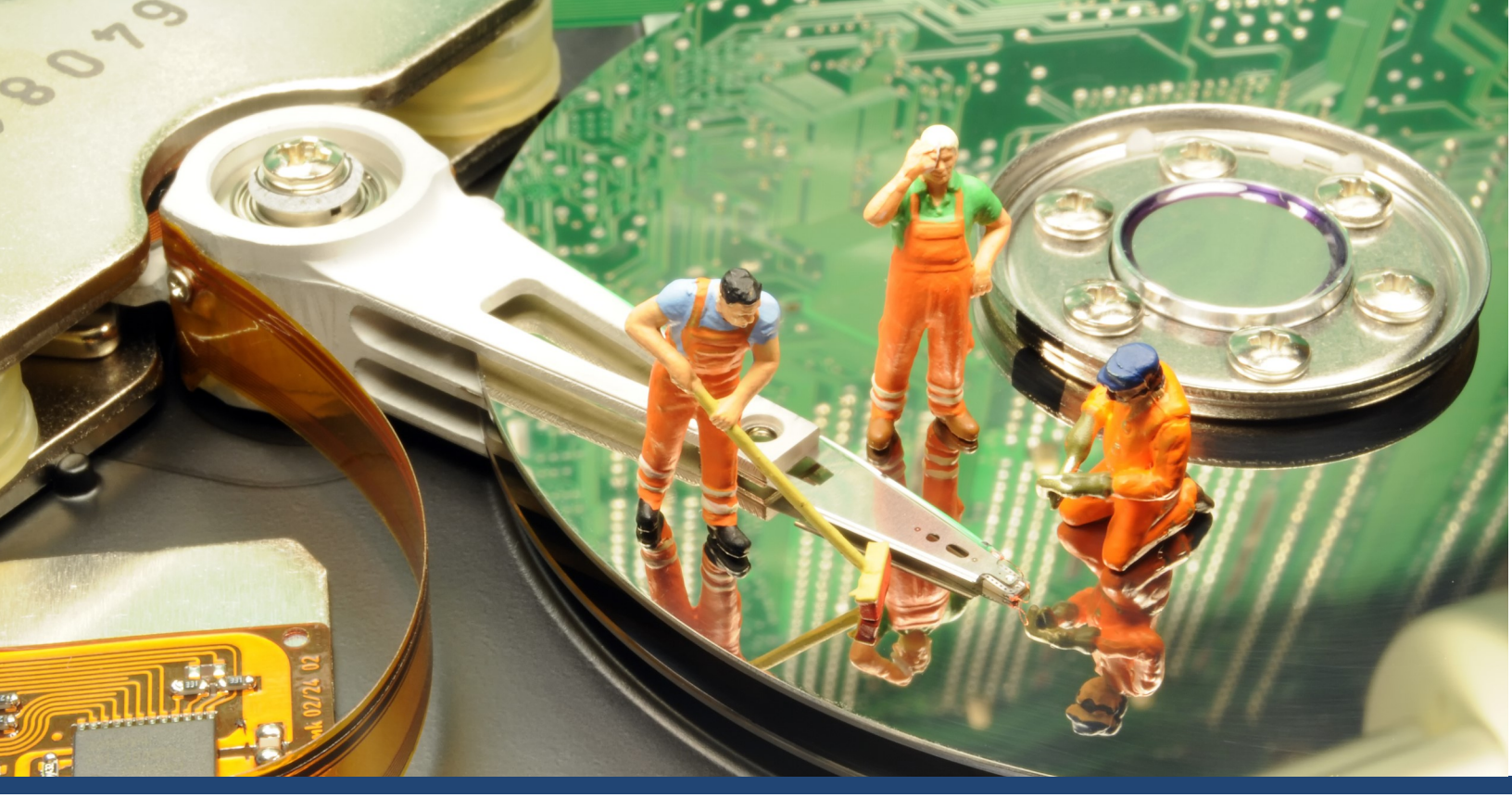
Analyze & Design

The first phase of the ETL process involves a thoughtful analysis of current-state data and careful definition of future-state use cases to inform data model and key performance indicator (KPI) design.

Building a list of data use cases requires a more than a cursory review of legacy systems and their inventory. Organizations that achieve high value outcomes from their ETL projects conduct a very careful and measured discovery of their opportunities for creating relevancy from old data. This includes identifying all stakeholder groups that have a vested interest in accessing this data including clinicians, finance, executives, managers, data scientists, researchers, and even vendor partners. From this discovery comes a detailed list of use cases and associated stakeholders that will serve to frame the entire effort and ultimately define every preferred outcome.

The value of use cases is first realized in the design of the ETL initiative. Use cases inform design from two perspectives. First, how the data retirement platform will interact with current systems, and second, how the data will be shaped and structured to meet the accessibility and utility needs of future systems to achieve the desired outcomes.

Often design is either overlooked or accelerated due to the underlying forces that typically drive these projects, such as near-death legacy systems or the need to integrate legacy data due to peripheral demands. Poor design cannot be easily mitigated once projects move into execution as revising data models in real-time is akin to changing a tire on a moving car. This is why having a solid methodology for design (and being patient in working through the process) should be considered one of the highest factors for successful outcomes.



Move & Cleanse

Once current-state analysis and future-state design are complete the data is ready to be moved and cleansed. This involves inspecting data while in transit to resolve any integrity issues and normalizing and structuring data attributes according to the future-state data model design.

When dealing with ageing systems and legacy data unanticipated issues with data integrity can arise, in particular missing or “surprise” elements that are proprietary in nature or exist in non-conformant formats or locations. This can be caused by changes in software versions or configurations over time, or even by a misunderstanding of legacy system architecture or database schemas. In either case resolving these issues requires real-time remediation throughout the migration phase.

Any time data is moving and being normalized or translated on-the-fly there must be ongoing monitoring and validation of the process and outcomes. In addition, analytics should be collected on the process including system performance, data integrity, and overall progress to ensure continued efficiency and efficacy.

Consolidate & Inspect

Loading involves consolidating all of the migrated and cleansed data into a data warehouse where it can be easily accessed and to support clinical and business operations and insights. An critical aspect of this process involves system validation and integration testing with the systems that will become the consumers of this data. The use cases developed earlier in the ETL process serve to inform the testing scripts and overall final validation phase of the ETL project. The validation plan should also include confirmation of return-on-investment (ROI) criteria and any other value propositions and success criteria that were identified early in the project, as measuring outcomes is a great way to begin instituting evidence-based decision making into intensive IT projects, and too often projects close without a careful examination of the preferred outcomes that were identified in the design phase.

Partners in Enterprise Data Transition & Optimization

Finding an experienced partner with deep clinical and technical knowledge who is equipped with the tools and technology required to transition legacy health data into relevant and actionable information can help ensure the success of any enterprise project. In turn, the outcomes of such projects can elevate the value of your business by providing the insights required to enable you and your stakeholders to deliver upon your shared healthcare mission and promise to patients.

About Paragon Consulting Partners, LLC

We are a team of passionate healthcare professionals with more than 100 years of collective clinical, technical, and business leadership experience within the healthcare IT and imaging fields. Each partner contributes a unique set of skills that together guide collaborative efforts to unify and improve healthcare delivery alongside our care provider and vendor partners.

Offering a wide variety of advisory, consultative, and professional services for healthcare organizations and industry vendors our experts can bring relevant experience to your unique situation to augment your team, accelerate success, and increase your return on investment.

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