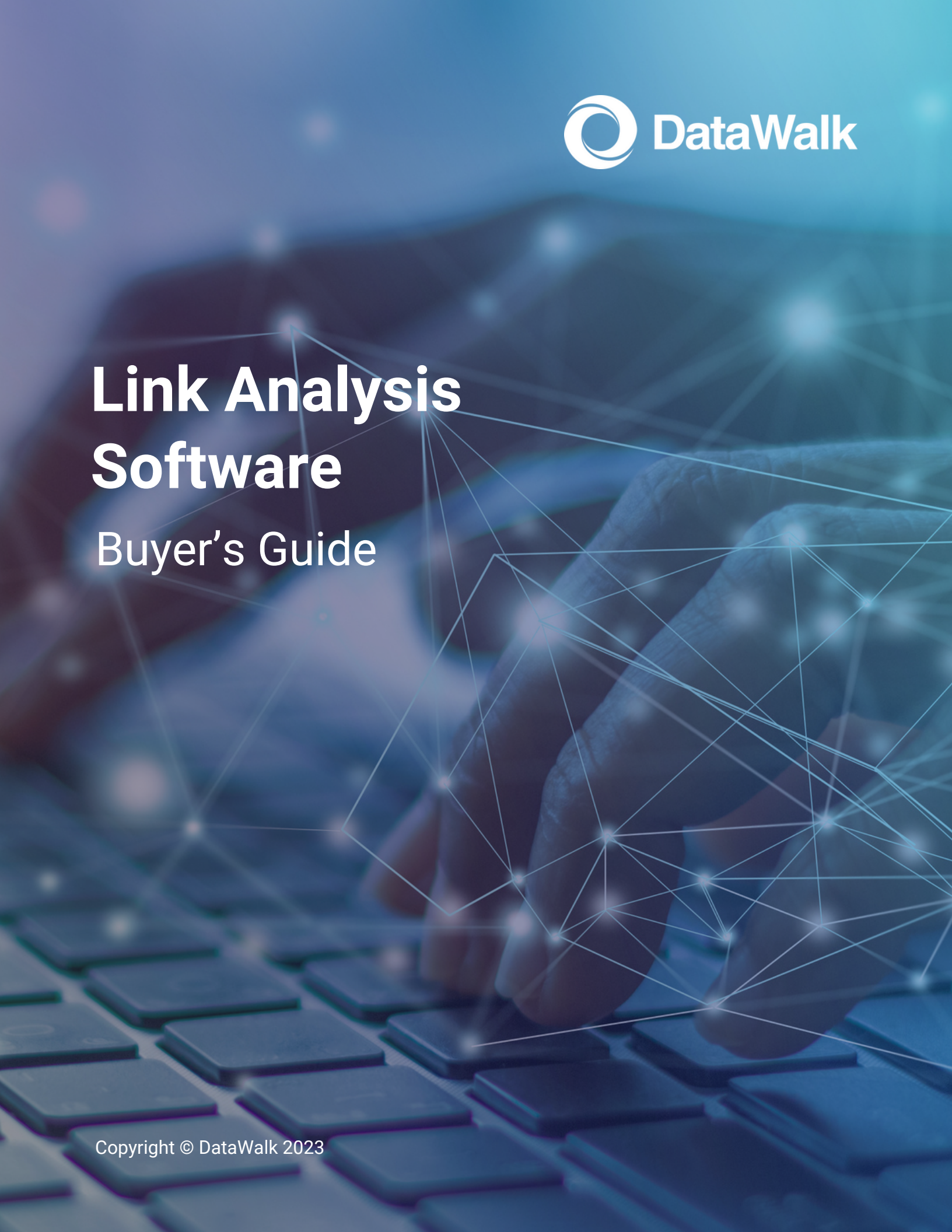

DataWalk

Link Analysis Software

Buyer's Guide

Introduction

Link analysis is an invaluable technique for a wide variety of use cases such as intelligence analysis, fraud investigations, and many others. Link analysis software enables you to identify, visualize, and analyze relationships between entities. Acquiring the right link analysis software product is critical for many organizations.

The first step in selecting a link analysis software product is for you to understand and document what you need, i.e., to identify your requirements. Based on our work with customers and partners worldwide, in this paper we suggest the following key criteria for you to consider when formulating your requirements, and then when evaluating link analysis software products:

Is link analysis all you need?

The first question to carefully consider is whether you only need link analysis functionality, or whether you need (or should have) a broader data analysis platform. A broader platform may include things like a "database" connecting your data, which can dramatically simplify data access for various types of users. Other capabilities might include things like visual querying, dashboards, reporting facilities, natural language processing (NLP), machine learning facilities, and so forth. Keep in mind that a "narrow" product can often be at greater risk of getting dropped if budgets get tight in the future.

What's the usage model?

The second critical question is the usage model. There are several aspects to this:

- Do you need a link analysis tool for just yourself, or maybe for a few users who operate independently? Or do you have a number of users, and who need to collaborate?

- Is the need only to create drawings/visualizations, or is there a need to do true link analysis where you discover and explore relationships? There's a big difference – in price and capability – between drawing tools and analysis tools.

What's the nature of your environment?

- Is yours a standalone environment, or an environment where you need to integrate your link analysis software with other systems? If you need to integrate, then look for solutions with pre-existing integrations/connectors, as well as APIs for integrating with other systems and sources.

- For larger and/or Enterprise environments: do you need to integrate with management frameworks, user authentication tools, and/or other infrastructure?

- What are your security requirements? How sensitive is your data?

- What are your requirements for tracking data lineage and/or auditability?

- Can you afford the risk of unexpected downtime due to a hardware failure? If not, then you will need to select a link analysis solution that can support a high availability configuration with no single point of failure.

What's the nature of your data?

- How much data do you have? Many tools can provide basic link analysis capabilities for small amounts of data for independent users, but choices are narrowed if you have larger amounts of data.

- What are your data sources? Many environments require data not only from internal systems, but also from public records services, social media, government data sets, industry-specific data sets, and other external sources. Link analysis tools vary substantially in their ability to integrate with the various internal and external data sources.

- Is your data "clean," or does it require preparation in order to support effective analysis? If preparation is required…and it almost always is…then you either need to have ETL tools and/or processes that provide you with clean data, or you will need to have data transformation capabilities in your analysis tool.

Other considerations:

- Vendor commitment: Is your vendor committed to you and your industry? Is your vendor responsive? Capable? Frequently delivering new capabilities via new software releases? Explore all of these aspects for any candidate vendors on your short-list.

- Does the solution actually work? Incredibly, anecdotal stories abound of organizations that attempted to implement a project with a link analysis solution (particularly Enterprise-class solutions), but had to abandon the project as they simply couldn't get it to work. Before buying, convince yourself that there's no such risk with the product you have in mind.

- What's your budget: Obviously, you'll need to have sufficient budget for acquisition and maintenance of a product which is consistent with your needs.

- Link analysis functionality: The feature sets of individual link analysis software products change over time, as vendors deliver new software releases with new capabilities.

  Requirements vary by customer, but a few key link analysis features to consider are:
  - Reading data from different formats and sources
  - Process and time for preparing the data each time you draw a link chart
  - Built in transformation features to clean-up, standardize, and format the data
  - Ability to save and retrieve link charts
  - Ability to share link charts with other users
  - Ability to visualize and analyze data on a map
  - Ability to merge and un-merge objects
  - Ability to visualize and display flows between entities (e.g., money flows between organizations)
  - Ability to print high-resolution link charts on a large format printer
  - Incorporation of Natural Language Processing (NLP)
  - Appropriate security and permissions on the data, charts, and reports

Candidate Solutions

The figure below shows the relative positioning of the most popular link analysis software tools. Once you have a shortlist of candidate vendors, compare those vendors using the criteria outlined in this paper to help guide you towards an appropriate solution.

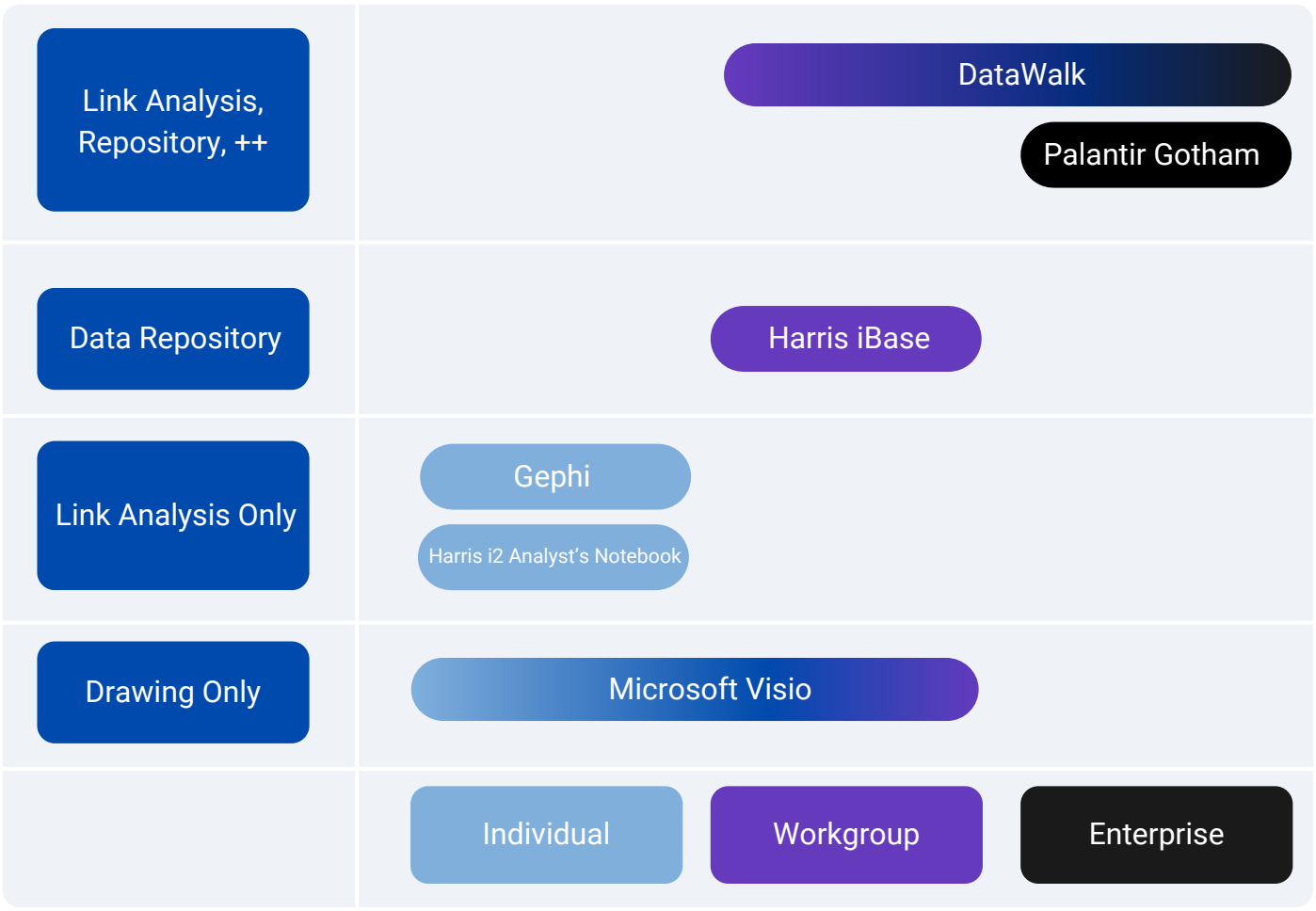

Figure 1. Positioning of candidate link analysis products.

Introduction to Candidate Products:

- Microsoft Visio®: Though not link analysis software, it's a tool that can be used to manually draw link chart visualizations and create diagrams, without the use of a dataset. If all you need to do is manually draw attractive charts, Visio may meet the need.

- Gephi®: An open source product, without cost, often used by researchers, academics, and journalists.

- Harris® i2® Analyst's Notebook®(ANB): Commercial desktop-based link analysis software to visualize spreadsheets and fixed files. A popular product for standalone users. Can optionally be coupled to Harris iBase, which is effectively a database that holds data that can be assembled in ANB link charts.

- Palantir® Gotham® : High-end Enterprise-class data analysis software, Palantir Gotham handles multiple users and large amounts of data, and includes link analysis and various other data analysis facilities. Palantir Gotham is a server-based system and requires configuration.

- DataWalk®: An Enterprise-class data analysis platform providing link analysis; a repository for connecting and accessing all of your data; unique technology for rapidly executing ad-hoc, no-code complex queries; and various other analytical facilities. Highly flexible server-based system.

Summary:

The right link analysis tool for you will depend on the specifics of your environment and the problems you need to solve. Create a shortlist of candidate vendors based on the nature of your environment, use the criteria in this paper to help you identify your key requirements, and then evaluate those vendors against these criteria. This process should help ensure you select a product that is appropriate for you and your organization.