Playbook Methods Repository

**Data Architecture**

Data Architecture deals with the systems, schemas, or patterns of data handling and storage. Considerations should be made for scalability, security, reliability, and performance as well as model simplicity or compatibility.

### Remote Agility: **•** High

### Linked Tactic(s): Solution Architecture

## Why we do it:

* Data architecture is the foundation of an effective data strategy on a project. It is essential that data is easily accessible, extensibile, and updated regularly.
* Strong data architecture standardises the processes to capture, store, transform and deliver usable data to all stakeholders. Most importantly, it identifies the people who will consume that data and their unique requirements. A good data architecture flows right to left: from data consumers to data sources—not the other way.

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## When to apply it:

## Best Practices & Considerations:

* **Be customer-centric, not solution centric.** Rather than focus on the data or the technology required to extract, ingest, transform, and present information, a modern data architecture starts with business users and their requirements and flows backward, as mentioned above. Customers can be internal or external to an organisation and their needs vary by role, by department, and over time. A good data architecture continuously evolves to meet new and changing customer information needs.
* **Decoupled and extensible.** Modern data architectures should be designed to be loosely coupled, enabling services to perform minimal tasks independent of other services and easier maintenance of code and change implementations
* **Apply a test-and-learn mindset** when designing and constructing architecture, and experiment with different components and concepts. Rather than engage in drawn-out discussions about optimal designs, products, and vendors to identify the “perfect” choice followed by lengthy budget approvals, practitioners can start with smaller budgets and create minimum viable products or string together existing open-source tools to create an interim product, releasing them into production (using cloud to accelerate) so they can demonstrate their value before expanding and evolving further.
* **Be cloud native.** Modern data architectures should be cloud native in order to support elastic scaling, high availability, end-to-end security for data in motion and data at rest, and cost and performance scalability. Cloud is probably the most disruptive driver of a radically new data-architecture approach, as it offers companies a way to rapidly scale tools and capabilities for competitive advantage.
* **Real-time data enablement.** Modern data architectures should support the ability to deploy automated and active data validation, classification, management, and governance.
* **Allow for seamless data integration.** Data architectures should integrate with legacy applications using standard API interfaces. They should also be optimised for sharing data across systems, geographies, and organisations.
* **Document everything.** Get into the habit of documenting all parts of your data process so that data visibility and data remain standardized across the organization. Documentation should help you keep a tab on how much data is collected, which datasets are aligned, and which applications need to be updated. Consistent documentation should work seamlessly with data integration.
* **Security and Access Controls Are Essential** The emergence of data security projects has made it easier to ensure unified data security. Data architectures must be designed for security without compromising access controls on the raw data.

## Responsible roles:

* Software Engineer

## Tools

* Online tools/platforms/services
  + xx
* Websites
  + xx
* Databases
  + xx
* Other
  + xx

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## Thoughtworks Examples - Linked

* Client working docs, airtable, miro/mural boards
  + xx
* Client polished presentations/deliverables
  + xx
* Internal assets - clinic materials / guild docs
  + xx

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## Learn more: How we do this?

* Templates (docs, decks, sheets, miro, etc.)
  + xx
* How-To Resources (external or internal)
  + xx
* Outside References (articles, books, etc.)
  + <https://www.eckerson.com/articles/ten-characteristics-of-a-modern-data-architecture#:~:text=A%20data%20architecture%20defines%20the,sources%E2%80%94not%20the%20other%20way>.
* <https://www.simplilearn.com/what-is-data-architecture-article>
* <https://www.cio.com/article/190941/what-is-data-architecture-a-framework-for-managing-data.html>
* https://www.indicative.com/resource/decoupled-architecture/
* https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/how-to-build-a-data-architecture-to-drive-innovation-today-and-tomorrow
* Sub-set Activities
  + xx

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