



The AI Academy

Maturity Model for data organizations

Introduction

We live in a Data dominated world. Both at individual and professional level, we have uncountable daily reminders of how our actions, our decisions and even our feelings are transformed into an ocean of data used in turn to fuel our digital lives and economies. But not all companies are as prepared to extract business value from data.

*If you can't measure it,
you can't improve it.*

Peter Drucker

Paraphrasing a famous quote by Peter Drucker, the only way to improve an organization's ability to generate value from data is to measure how well it is doing. So the question becomes: how do I measure my company's Data Maturity?

The AI Academy's **Maturity Model for** **data organizations**

Maturity Models have been around for some time and there are several available from multiple technology vendors. The challenge with these models is that they are typically focused around the areas addressed by the vendor's products.

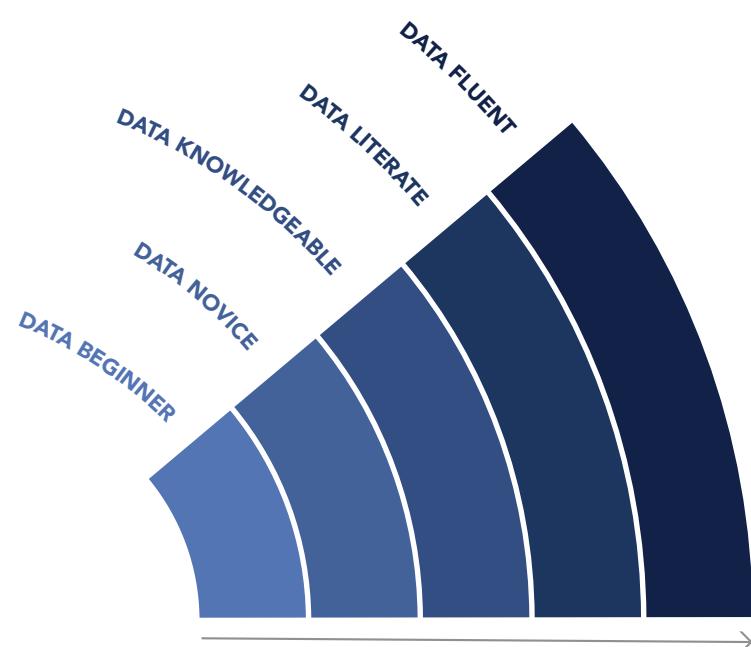
At The AI Academy we have treasured our consulting engagements with a number of large enterprises to build a more strategic framework for companies' Data Maturity. Our Maturity Model offers a 360-degree view on the strategic aspects a company needs to focus on to become Data Fluent.

Maturity Levels

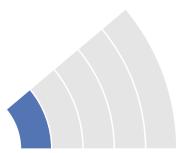
Data Maturity is a measurement of the company's ability to embed data in its strategy and decision-making process. Data Fluency represents the highest level of a company's Data Maturity. When achieved, it can become the foundation for a significant competitive advantage.

To reach Data Fluency, an organization must develop a harmonized set of actions around human resources, processes and technical solutions. It is a very complex transformation journey, but the impact on business performance is so high that it will separate successful companies from those who will be left behind.

In order to analyze and understand a company's Data Maturity, we've developed a framework that defines different Maturity Levels.

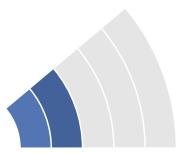


DATA BEGINNER



Data lives in silos and an excessive amount of time and energy is spent to extract it and prepare it to perform an analysis. Data Analysts explore and summarize data using deductive techniques and basic tools, such as Excel. Insights are presented on hand-crafted PowerPoint presentations.

DATA NOVICE



The company has invested in consolidating all its raw data in data lakes in more specialized tools for data preparation and transformation and started hiring a few data scientists. Still data quality issues and lack of scalable processes generates more frustration than results.

DATA KNOWLEDGEABLE



The company has a clear vision for data analysis. It recognizes Data Science as a core competency for competitive advantage. The Chief Data Officer (CDO) or Chief Analytics Officer role has been introduced to help manage data as a corporate asset. More advanced tools are used to provide automated model deployment to generate business value to the company.

DATA LITERATE



A data-driven approach to decision making is embraced. Data teams are routinely generating value across the organization. Collaboration tools are introduced to enable sharing, modifying, tracking, and handing off data science artifacts (features, models, pipelines etc). Company uses Metadata management tools and predictive models are deployed and monitored in production across heterogeneous systems (on-premise/cloud).

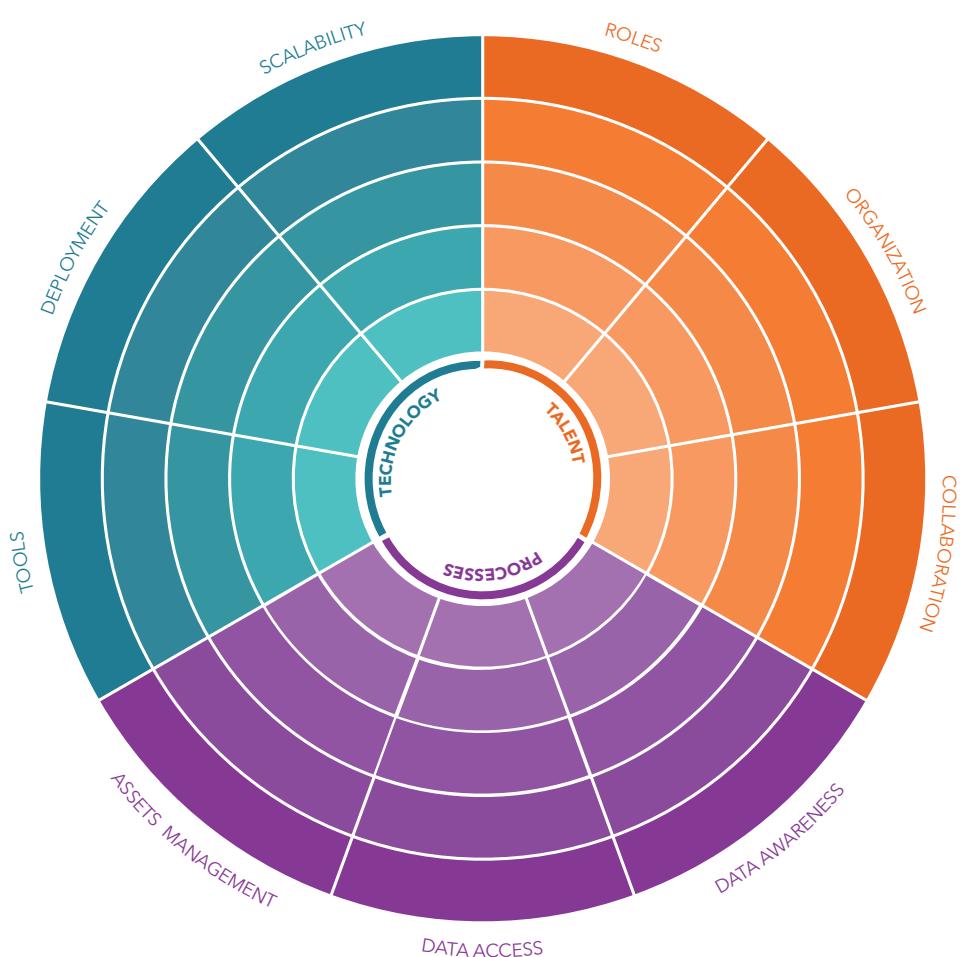
DATA FLUENT



Prescriptive data analytics is used to empower the company's business strategy. The process to transform data into strategic and operational decisions is streamlined and automated. The data science professionals are integrated within cross-functional teams to build core products and services. A clear data governance is established company-wide and data-driven decisions blossom as a culture within the organization.

Pillars and Dimension

The Model is built around **3 main pillars**, each detailed in 3 dimensions:



TALENT & COMPETENCES

Roles
Organization
Collaboration

PROCESSES & GOVERNANCE

Data Awareness
Data Access
Assets Management

TECHNOLOGY

Tools
Deployment
Scalability

TALENT & COMPETENCES

Any company transformation journey has to start from people: it won't matter how well your strategy is designed if you don't have the talent to execute your vision. To effectively evaluate a company's Data Maturity from a Talent perspective, we should consider how it is doing in terms of Roles, Organization and Collaboration.

Roles

Most companies have data analysts exploring and summarizing data using deductive techniques, but only those who have designated data leaders and well defined career paths for data professionals can truly harvest business value from data. When roles are well defined, the organization has a clear understanding of the competences required to extract value from data and expectations for each role are clearly set. This leads to an efficient execution of data projects with defined responsibilities and effective interactions.

Organization

Achieving Data Fluency also requires changes in the organization. Enterprises at the beginning of their transformation journey are characterized by the lack of coordinated efforts towards the adoption of data science best practices. This is sometimes followed by the creation of a centralized team (data Center of Excellence). Only Data Fluent organizations thought are able to strike a balance between a well-defined company-wide data governance and the ability to scale data science practices throughout the organization.

Collaboration

It is often said that Data is a team sport. The spectrum of skills required to produce a data product (be it an analytics dashboard or an API making data-informed decisions on millions of credit requests) spans across multiple functions: it takes a team to master it. Being able to work across these functional barriers is often a difficult challenge to overcome, but is a key trait of companies who have reached Data Fluency.

PROCESSES & GOVERNANCE

Very often, organizations fail to reap the full benefits of the investment in talent because internal processes are not designed for the new organizational structure and roles. The result is frustration, both for the newly hired Data professionals and for top management that feels it is taking too long for the data team to produce business impact. This is why the second pillar of our Data Maturity Model is centered around Processes and Governance and evaluates the company's Data Maturity in terms of Data Awareness, Data Access and Data Management.

Data Awareness

Every company, regardless of size, uses tens or hundreds of systems to perform their operations across several functions (marketing, finance, sales, HR, etc). The amount of data generated by these systems on a daily basis is enormous, but all this data can be worthless if data professionals don't have a systematic way to discover the available data sources and their characteristics. Data Fluent companies have standardized catalogs and metadata management tools that allows them to routinely assess the quality and the utility of such data to address business problems.

Data Access

Oftentimes enormous amounts of data are stored using more or less efficient techniques, but data scientists do not have access to it and this limits the impact they can generate on their organization. This barrier is made even more challenging by recent regulations on data privacy and user data protection. Only companies with the highest level of maturity have implemented solutions that provide authenticated, programmatic access to anonymous data and data lineage tracking.

Assets Management

Most companies start their journey towards Data Fluency by allocating specialized resources to perform analytical work using advanced data science techniques. At the beginning the assets produced through this analytical work are owned, stored and organized by the individual specialists, but as the adoption of data science grows, the only way to scale is to have a systematic management of all assets consumed and produced (data, features, models, etc) by multiple teams across the organization.

TECHNOLOGY

A common cognitive bias is often at play when it comes to technology: since data transformation is often placed in the hands of technical leaders, there is the tendency to place a disproportionate emphasis on investing in tools.

There is no doubt that tools are absolutely critical for a successful data transformation strategy, but in some cases they are seen as the only need to execute the strategy. Unfortunately the road to Data Fluency doesn't stop with the acquisition of powerful tools: it takes a great deal of coordination to be able to routinely deploy and scale data-driven solutions.

In order to assess a company's Data Maturity from a technology perspective, our Model evaluates its approach to Tools, Deployment and Scalability.

Tools

The end-to-end workflow to build data products spans several stages from Data Acquisition, Data Preparation and normalization, Feature Engineering, Predictive Models development, Deployment and Monitoring. The performance of data teams can be significantly improved by selecting the right technology stack for each of these steps, as well as tools for end-to-end workflow management and automation.

Deployment

Transforming predictive models into a solution integrated with the company's operational tools and processes brings to the table a series of additional challenges. This is why only a small percentage of the models being developed are deployed in a production environment: only Data Fluent companies have mastered the ability to continuously deploy and monitor predictive solutions in production.

Scalability

The scale at which an organization is capable of leveraging data science is a clear sign of its Data Maturity: this typically requires having hardware and software components (both on premises and in the cloud) specifically dedicated to all stages of the data science process. The ability to automate and scale each stage of the data product lifecycle is a clear sign that the enterprise has achieved Data Fluency.

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Peter Drucker

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