

→ 2024 DEC 02

Data Management in the Real World

Bridging Academic Knowledge with Business Impact

CapTech



About Me - csnapp@captechconsulting.com



TECHNICAL DIRECTOR / DATA ARCHITECT

20+ years designing, developing, deploying data solutions
Joined in 2006, currently Capabilities Lead in Data & Analytics Practice Area
Specialize in creating data strategies & implementing analytic platforms



UR A&S '03 / UVA MCINTIRE '07

Bachelors in Computer Science from the University of Richmond
Masters in IT Management from the University of Virginia



AGGPRO ANALYTICS LLC

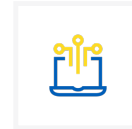
Founded my own MLB Data Analytics Company

CapTech.

Agenda

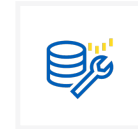
The ability to manage, understand, & leverage data is a fundamental business skill.

Embrace the opportunity to use data to reshape industries, solve complex problems, and create value in ways existing business leaders couldn't have imagined decades ago.



THE STRATEGIC VALUE OF DATA

**Business Acumen in
Data Management**



REAL WORLD DATA CHALLENGES

**Practical Insights and
War Stories**



CAREER DEVELOPMENT AND INDUSTRY INSIGHTS

**Navigating the Data
Management Career
Path**



INTERACTIVE Q&A

**Hearing from You on
Where I Can Help**

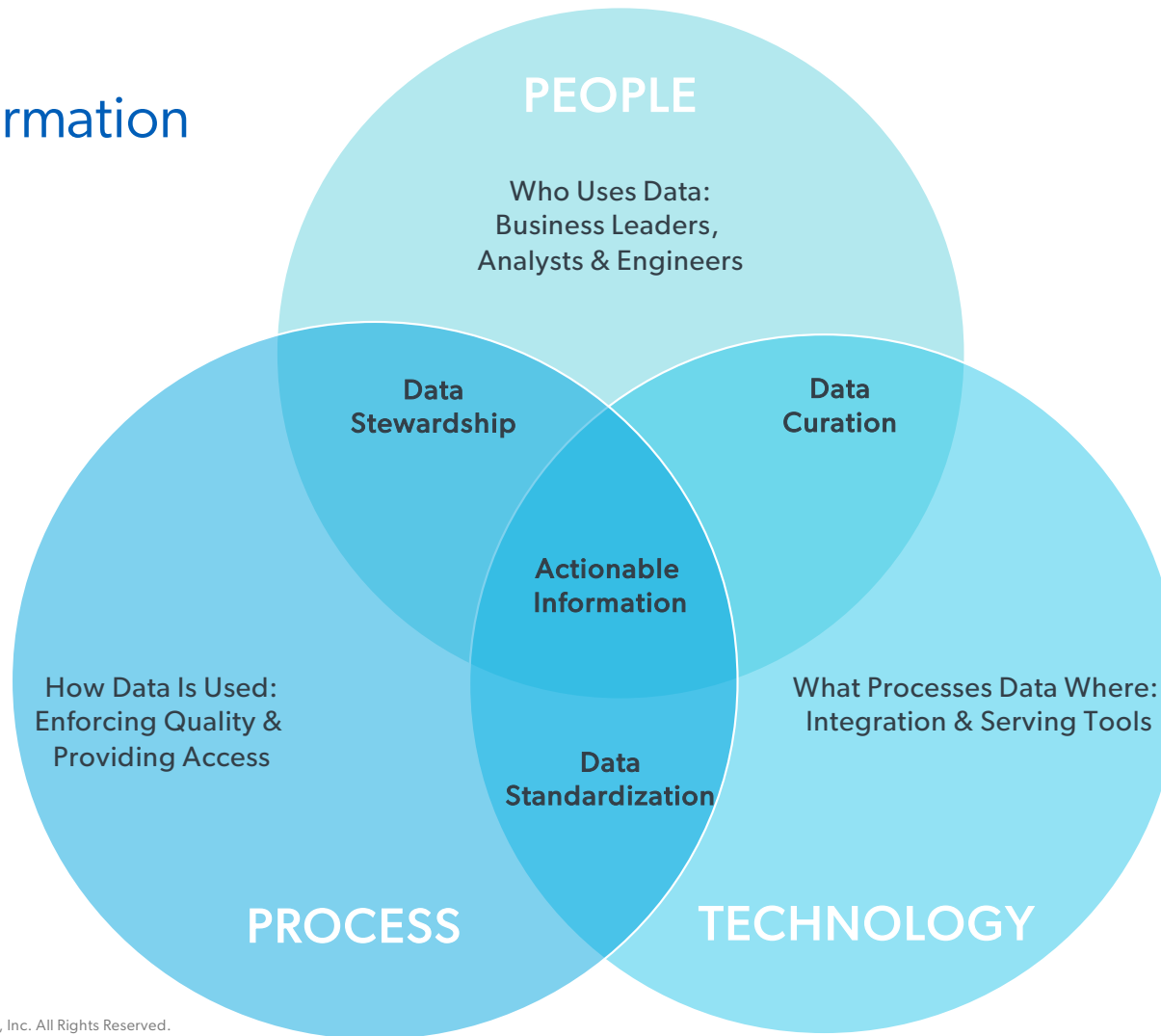
THE VALUE OF DATA MODERNIZATION: ENABLE DECISION INTELLIGENCE



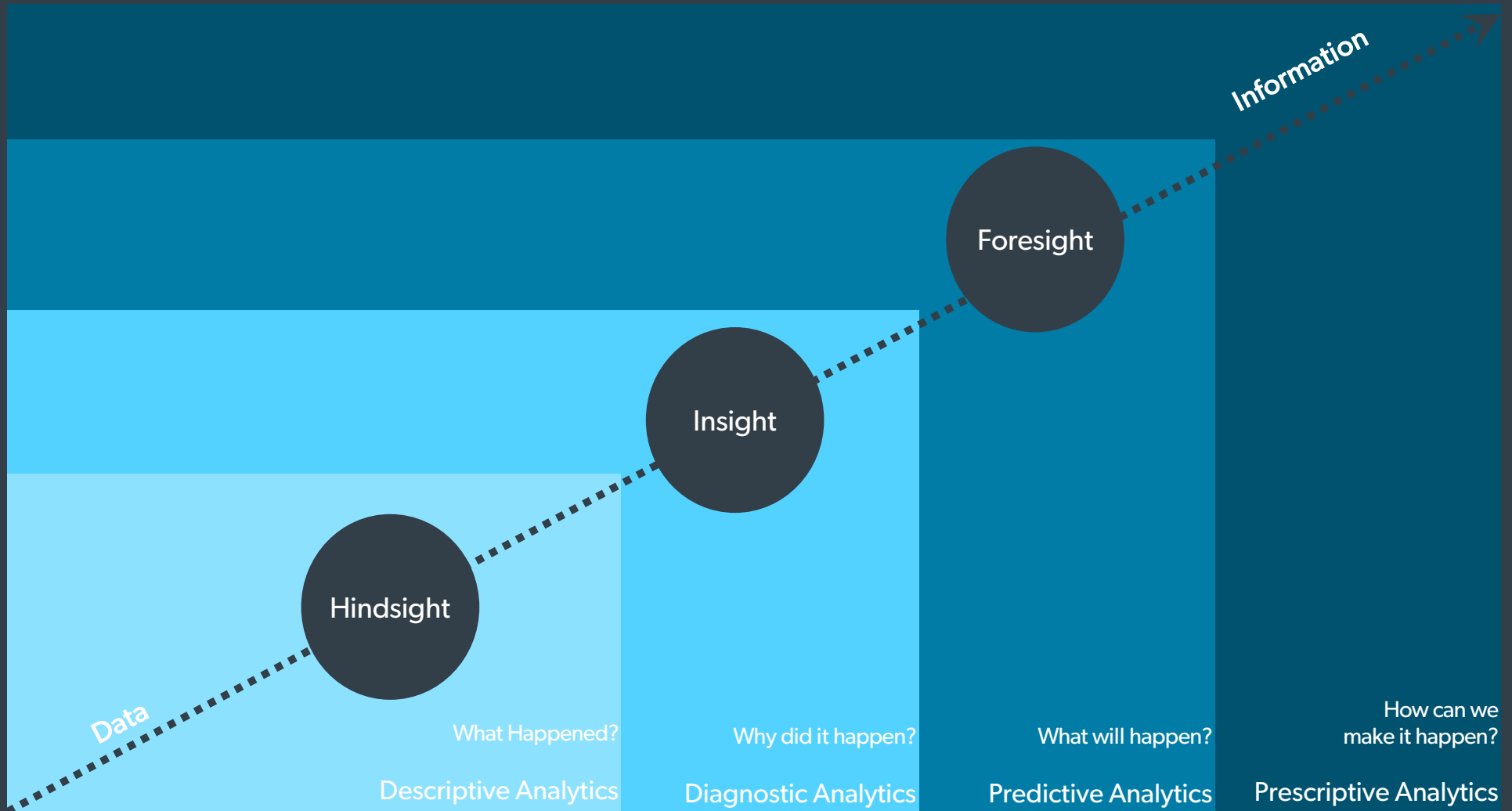
“Decision intelligence is an innovative approach that blends the realms of data analysis, artificial intelligence, and human judgment to empower businesses with actionable insights. Decision intelligence is not just about crunching numbers or relying on algorithms; it is about unlocking the true potential of data to make smarter choices and fuel business success.”

-Dataconomy, June 2023

Data -> Information



THE "NEW" ANALYTICS PARADIGM



Business Acumen in Data Management



Build Comfort with Technical Capabilities

- Managing data long thought of as an IT function but closer alignment on strategy & blending of skills has changed landscape dramatically.
- Communicating technical solutions to non-technical stakeholders builds bridges between IT & business units.
- Vital to have culture of trust - data quality audits, tracking data lineage between systems, & source of truth data governance policies are table stakes.



Believe Data is a Corporate Asset

- Must consider data a competitive differentiator
- Metadata about operations & systems is transformed into tangible data-driven insights.
- Allows firms to deepen customer base, generate new revenue channels, & accelerate growth.
- Treating data as a first-class citizen allows companies to make decisions with confidence, explore data monetization opportunities, & improve understanding of customer friction points.

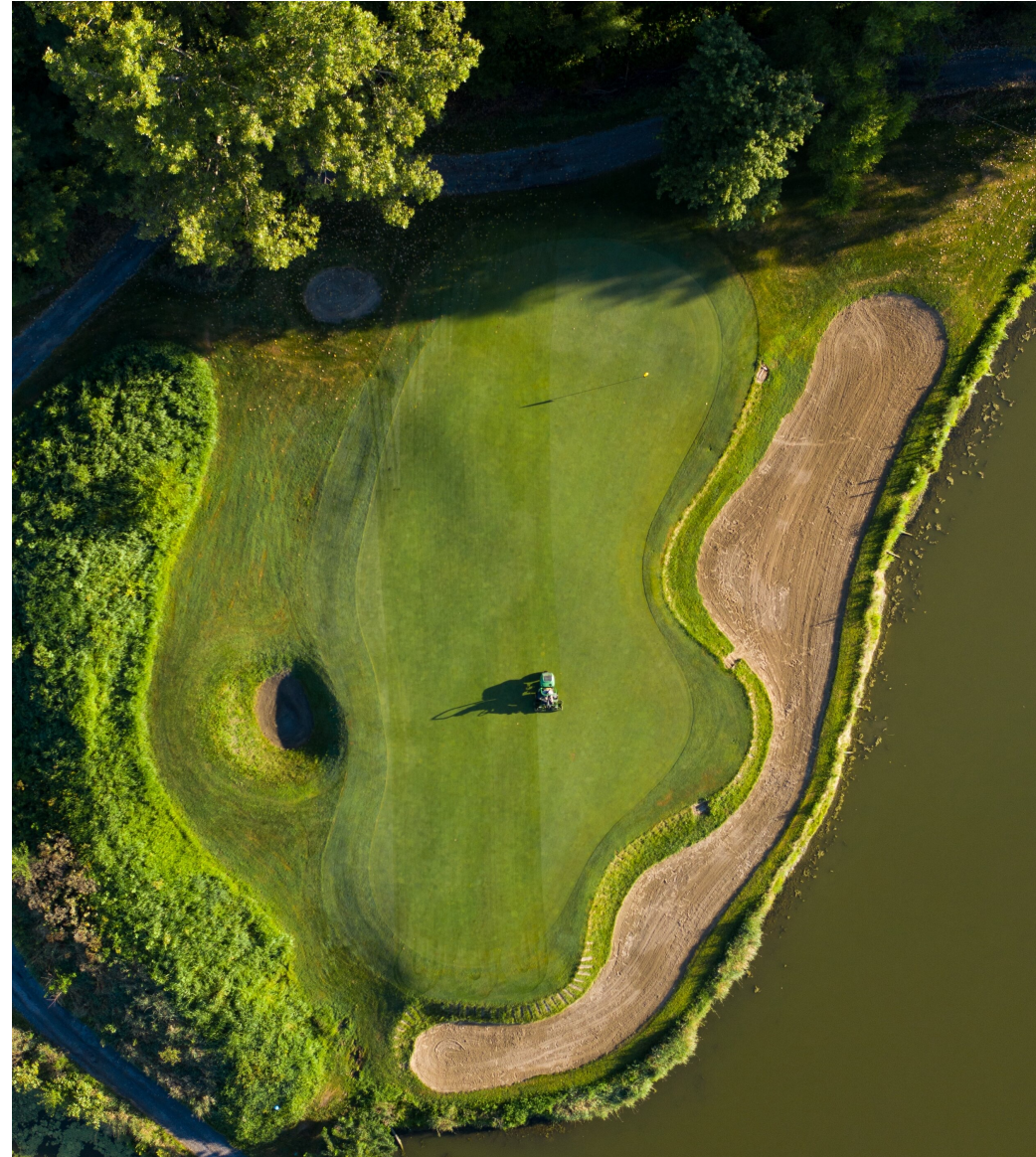
PGA OF AMERICA

Enabling a Robust Fan Experience via Mobile App

A major American sports league hoped to provide fans attending a major championship a more personal experience. By personalizing messages to the fan's account settings & using corporate marketing partnerships, the league saw significant improvement in reopen and engagement rates. Future usage of AI, additional courses, and other events now in pipeline.

- Created 7 detailed personas with overlapping interests and goals.
- Predicted activities and ideal journeys across 52 potential touchpoints. Developed upfront contextual messaging triggered at various times, locations, actions. Identified unique start points and onboarding paths.
- Managed messaging in command center, enhancing user experience in real-time utilizing geo-fencing.
- Message open rates of 8.42% (4.5x better than 2% goal) with return rate of 66% (against 50% benchmark).
- Integrated partner messages opened at 3.34%, 112% return rate.

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Real World Data Challenges



Data Silos

A lack of internal system integration means disparate datasets. Leaders need data at their fingertips. Engineering solutions collocate curated info for analytics and data driven decisions.



M&A Integrations

Business consolidation means integrating different software platforms & Master Data Management remains a struggle. MDM solutions help companies reconcile data between systems.



Highly Manual Processes

Companies spend countless hours manually inputting, retrieving, & reconciling data. Modern solutions automate data acquisition, information transformation, ML training, and secure serving.



Scenario Driven Analytics

Even companies with mature data systems struggle to reliably ask “What If”. Algorithms can determine if a business direction will yield positive ROI or have adverse impacts.

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Lack of Trust in Information

When users get inconsistent answers for the same metric, they lose faith in company data. A cohesive data strategy and BI roadmap can ensure report consistency enterprise wide.



Regulatory & Ethical Compliance

Data breaches, financial audits, & misuse of personal data present daily risks. Sound data governance & privacy expertise can help protect a firms’ reputation & profitability.

NATIONAL RESTAURANT CHAIN

Discovering Revenue Opportunities with a Modern Data Platform

CapTech was tasked with designing a cloud hosted data analytic platform to provide the company's operations team granular insights to sales performance and goals. The architecture needed to provide scalable and repeatable methods for data ingestion, processing, and reporting to enable better decision making by business leaders.

- Automated the data collection process, saving 500-man hours per month in efficiency
- 70+ datasets automatically ingested
- 10+ views of operational data previously unavailable
- Implemented new MDM tool from vendor selection through to implementation and governance.
- Removed vendor dependency of limited reporting for operational data



Strategies for Solving Real World Challenges

So what do YOU do?

Being inquisitive, communicating effectively, and thinking strategically will set you apart.

Always think about the big picture – there are many things influencing your work.

Not obstacles, but opportunities to be impactful & create meaningful value.



Data Quality

Implement data validation processes at entry point w/ frameworks. Leverage tools (OpenRefine, Trifacta, Talend). "Can I trust this data?" Be systematic & insist on mapping documents.



System Integration

Familiarity with data exchange terms (APIs, Streaming, Queuing, Eventing, ELT, Clean Rooms). Think beyond tech solution to make a case for why integrate. Translate tech debt into business language.



Scalability and Performance Bottlenecks

Explore performance monitoring tools & understand cloud scaling technologies. Design with scalability in mind from the start. Learn to design flexible, future-proof data architectures.



Ethical Considerations and Compliance

Regulations (GDPR, CCPA, HIPAA, SarBox). Data anonymization, consent management, ethical AI/ML. Create clear data usage policies which have a privacy-first mindset & put human impact first.

FORTUNE 500 AUTO RETAILER

Maximizing Customer Engagement Through Personalization

Marketing analysts needed a high performant environment to run experiments and develop models. The team specifically wanted to streamline the generation of vehicle recommendations displayed on the website. There was not sufficient infrastructure for the storage and compute of large datasets, prohibiting real time analysis. CapTech was asked to deliver a modern data platform to automate data ingestion, model refinement, and recommendation serving.

- Client saw a 10% increase in customer engagement on website search
- Recommendations were made in under 150ms
- Data scientists enabled to run 15+ experiments a week
- 30TB of enterprise data from 6 batch & real-time sources
- Process now runs multiple times a day (down from once every few weeks)
- Proven capability of performing big data analytics at scale and enabling investigation of new value insights.



Data is the Most Powerful Tool for Innovating Business

- Data management is a critical business function, not just a technical skill
- Ethical considerations are as important as technical capabilities
- SQL, ERD modeling, and BI tools are important tools to understanding business context, enabling you to ask the right questions & create value
- Continuous learning and adaptability are crucial in the data field – landscape changes rapidly
- Learn to translate complex data findings into compelling business stories - the most successful data professionals are those who can communicate insights clearly
- Your challenge is not just to manage data, but to see the human stories, the business opportunities, and the transformative potential hidden in every dataset.

WHAT REAL-WORLD PROBLEM WOULD YOU SOLVE WITH DATA?

HOW DO YOU SEE DATA TRANSFORMING YOUR FUTURE INDUSTRY?

WHAT EXCITES YOU MOST ABOUT THE POTENTIAL OF DATA?



Beyond the Degree - Architecting Your Data-Driven Future

4 Critical Traits to Differentiate Yourself after College: Curiosity, Sense of Drive & Mission, Social Intelligence, Agility



SKILLS BEYOND THE CLASSROOM

Become a great storyteller
Importance of continuous learning
Emerging technologies and trends
Personality profiles, management training, EQ



CAREER PROGRESSION STRATEGIES

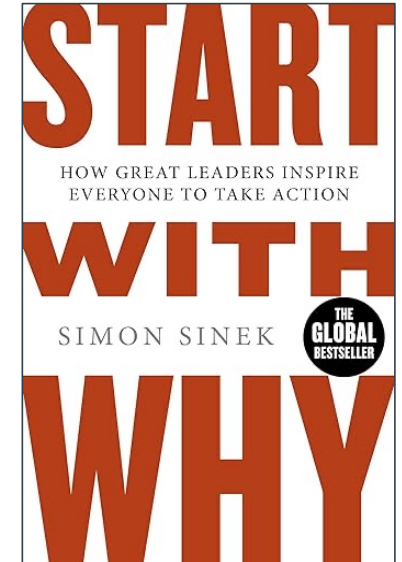
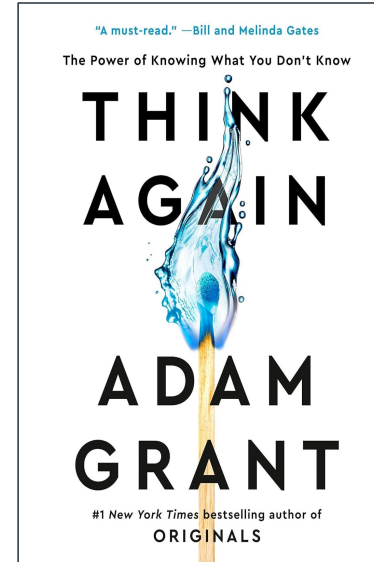
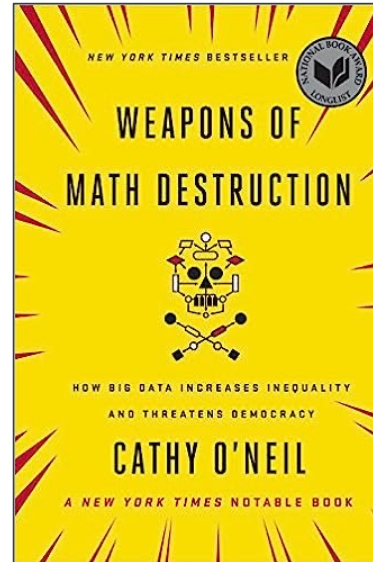
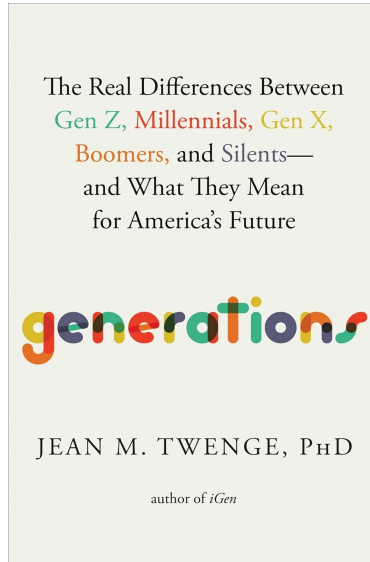
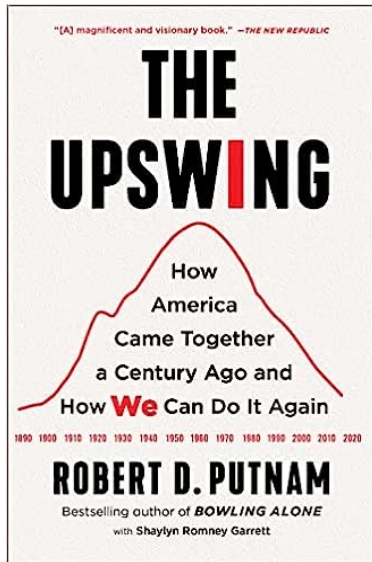
Building a compelling professional narrative
Networking and professional development
Certifications and additional learning paths
Find a mentor who thrives with a skill you want to develop



INDUSTRY PERSPECTIVES

With automation, managing people has changed
Interdisciplinary nature of modern data careers – many traditional roles/responsibilities merging
Emerging specializations in data science, persona definition, & multi-generational profiles

Book Recommendations



DATA THOUGHTFULNESS



“In this new age where data is so abundant, our task as a civilization is effective beneficial utilization. The challenge now is doing good things with that data - things that make our lives and the lives of future generations of people more fulfilling and more joyful and more prosperous.”

-Hendrith Vanlon Smith Jr

Thank You!

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