

ENTERPRISE DATA & DATA ORIENTED JOBS

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AGENDA

- Presenter profile
- Enterprise processes and systems
- Increased focus on data
- Data oriented professions
- Take away
- Q&A

PRESENTER PROFILE

Over 30 years in IT at Silicon Valley high tech companies

Graduate degree in linguistics, computer systems certificate, various business and technical courses

College instructor, programmer, business system analyst, project manager, master data management and data governance consultant

Presentations at industry conferences

Love data

ENTERPRISE PROCESSES — BIRD'S VIEW



BUSINESS APPLICATIONS LANDSCAPE



DATA INSIDE: CUSTOMER SUPPORT





Customers



Locations



Installed Base



Contracts



Open Cases



Service Representatives

BUSINESS APPLICATIONS LANDSCAPE



OPERATIONS VERSUS ANALYTICS

Operations

- Used to run business
- Optimized for transactional processing

Typically limited to one system

Answers to simple questions:

- How many orders did we book this month
- Open customer cases
- Inventory levels
- How many quotes became orders

Analytics

- Used for analysis and planning
- Optimized for retrieval
- Relies on integrated & aggregated data from multiple systems

Answers to complex questions:

- Which of our product lines are more profitable
- If 75% quotes convert to orders, what should be inventory levels next month
- How many support specialists we need in different geographies based on our installed base

BUZZ AROUND DATA

Data Driven Culture

- Data Visualization
- Data Quality
- Data Governance
- Data Manifesto
- Big Data
- Data Lake
- Chief Data Officer
- Data Scientist

DATA IS VALUABLE

Data as an Enterprise Asset Can be monetized Presents competitive advantage Has quality implications Needs ownership and governance

Revenue Growth Cost Avoidance

The possession of rich amounts of data is hardly unique in today's world. Indeed, data itself is increasingly a commodity. But the ability to monetize data effectively – and not simply hoard it – can be a source of competitive advantage in the digital economy.

(MIT Sloan Management Review, Spring 2017 Barbara H. Wixom, Jeanne W.R)

DATA ROLE IN COMPLIANCE: EXAMPLES

US Business Regulations
Healthcare, Banking
International data protection
EU GDPR
International trade
Embargo, denied party list

Risk Management Cost Avoidance

IT UNDER PRESSURE TO DELIVER FASTER AND CHEAPER

No appetite for big BI projects

Speed and flexibility are key

"Self Service" model is preferred

"Just give us our data!"

Lines between business and IT blur

Cost Avoidance

RISE OF BIG DATA

High volume, high velocity

Variety

Structured and unstructured

Promise of new insights

Competitive Advantage

EMERGING BUSINESS APPLICATIONS LANDSCAPE



BUSINESS INTELLIGENCE VERSUS DATA LAKE

DW / BI	Data Lake
Wholly IT owned	Business/IT owned
Long development cycles	Faster cycles
New data sources require significant development	New data sources are easy to load
Used by business users	Used by data scientists
Reasonable volumes of structured data	High volumes of structured and unstructured data
Predominantly internal data	Could be either or both
Traditional technology	New faster and cheaper technology (e.g. Hadoop)
Reports and dashboards are developed by IT for business users	Data scientists are responsible for their data processing

DATA PROFESSIONS IN BUSINESS AND IT



DATA ARCHITECT

Work/Decisions	Competencies	Deliverables
Enterprise / system	Enterprise	Architectural
level; what entities	processes,	diagrams;
reside in different	systems &	presentations in
systems; how they flow	entities; data	powerpoint and
and interact with other	organization;	visio
systems; usually at the	analytical &	
entity (not column)	political skills	
level		



DATA ARCHITECT

Data Architect / Enterprise Data Architect / Data Warehouse Architect

- The Data Architect will expand the company's use of data as a strategic enabler of corporate goals and objectives. The Data Architect will be responsible for strategically designing, developing, and implementing <u>data models for enterprise-level applications</u> and systems. This role is responsible for understanding <u>data sources</u>, usage and lineage for enterprise information.
- This role will be responsible for data architecture including <u>mapping systems and</u> <u>interfaces</u> used to manage data, review/set standards for data management, analyze current state and design desired future state. This role will have overall responsibility to manage data across different analytical platforms
- <u>5-8 years experience in ETL</u>/data integration tools
- extensive experience (<u>15 years minimum</u>) in data modeling, data architecture, and data warehouse development on multiple platforms

DATA STEWARD

Work /Decisions	Competencies	Deliverables
Data domain level;	Expertise of	Presentations,
data quality,	specific data	email and oral
metrics, conflict	domain(s) and	communication,
resolution,	processes; political,	rules and
exception handling	organizational and	policies
	analytical skills; data	
	analysis tools	

DATA STEWARD



- Responsible for the data <u>definition, lineage</u> and data governance aspects of the BU/domain end to end from data definition and related metadata to data creation and consumption
- Define the <u>data quality rules</u> associated with all critical data elements (CDEs) assigned to the BU/domain and ensure monitoring is in place to manage quality
- Manage <u>Data Quality</u> problems to closure and provide impact assessment/escalations to Data Governance team for data quality problem prioritization
- Instinctual understanding of the value of data in an organization, and the ability to drive awareness across business leaders
- Strong <u>technical acumen</u> working with data; experience working with <u>SQL</u> or other comparable query languages strongly preferred
- College degree required; business or information systems degree preferred

DATA ANALYST

Work /Decisions

Entity/column level; data quality determination; data rules and exceptions; root cause analysis Competencies Knowledge of enterprise data structures; data quality & analysis tools; SQL Deliverables Data metrics; exception reports; dashboards; root cause analysis

DATA ANALYST



Financial / Healthcare / Sales Operations/ Data Analyst

- Work with large amounts of data: facts, figures, and number crunching to sift through the data, analyze it to find conclusions and generate statistical and analytical reports
- Present findings and translate the data into understandable documents and visual dashboards
- Build metrics dashboards and design queries to measure how well we're doing
- Resolve <u>exceptions and proactively determine their cause</u> and the possible software or process solutions to eliminate them
- <u>B.A./B.S</u>. degree in Computer Science, Math, or commensurate industry experience preferred
- Experience with SQL databases
- <u>2+ years of strong analytical and problem-solving experience</u>
- Experience with <u>Tableau</u>, Salesforce, demonstrated ability to use a BI tool
- Deep <u>curiosity</u>, excellent communication skills, next level organizational abilities and <u>intense smarts</u>

CHIEF DATA OFFICER

Work / Decisions	Competencies	Deliverables
Enterprise level;	Enterprise	Presentations, email
data governance;	processes,	and oral
strategy to drive	systems and	communications,
revenue growth,	data; business	metrics
reduce operational	acumen;	
costs and manage	political skills;	
risks	communication	

CHIEF DATA OFFICER



- Responsible for enterprise-wide governance and utilization of <u>information</u> <u>as an asset</u>, via data processing, analysis, data mining, information trading and other means to create value for organization and ultimately to support key business initiatives driving <u>growth</u>, <u>efficiency and risk</u> <u>management</u>
- Evangelize and communicate a <u>data vision for the enterprise</u>
- Develop and execute a central data strategy to drive <u>revenue plan</u>
- Experience overseeing and directing the work of data specialists, including data scientists, analysts, data developers and operations staff
- Expert knowledge and experience with all <u>key data domains (e.g.,</u> <u>Customers, Products, Vendors, Supply Chain</u>, etc.)

DATA SCIENTIST

Work /Decisions	Competencies	Deliverables
Works with heterogeneous data sets at multiple levels	Statistics, Python, SQL, high level programming languages, business acumen, communication	Use analytical rigor and statistical methods, machine learning, programming, data modeling, simulation and advanced mathematics to analyze large amounts of data, recognizing patterns, identifying opportunities, posing business questions and making valuable discoveries

DATA SCIENTIST

- The Data Scientist is responsible for helping on defining and performing advanced analyses against large and varying data sets. The objective of these analyses will be to answer <u>important business questions</u> and should result in input parameters and/or new algorithms to be leveraged in highly-sophisticated analytic applications. This individual will work closely with a team of product manager, R&D, and software engineers to provide the solution.
- Analyze the various data sets, based on the business goal, find the characteristics of the data and create proper <u>advanced models</u> for them
- Generate and test hypotheses, designing experiments to answer <u>targeted questions of</u> <u>advanced complexity</u>
- Develop and implement algorithms to solve business problems
- <u>M.S. or Ph.D.</u> in Statistics, Computer Science, Mathematics, Physics, Engineering, or other relevant technical fields
- Fluency in <u>Python, SQL</u> and one high-level programming language like <u>R or Matlab</u>

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WHAT THEY DO: ACQUISITION

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Role	Responsibility
Data Scientist	Produces market and competitive analysis resulting in acquisition decision
Chief Data Officer	Creates strategic plan for data / systems integration and drives execution
Data Steward	Determines new data volumes, business rules conflicts, works with owners & data architects on transitioning to enterprise data rules/systems
Data Architect	Identifies acquired data architecture, creates target data architecture, proposes transition roadmap; identifies necessary changes in enterprise systems to accommodate acquired data
Data Analysts	Analyzes acquisition data, shares results with data architect and steward; emphasis on gaps, conflicts & problems

WHAT THEY DO: NEW SYSTEM IMPLEMENTATION

Roles	Responsibility
Chief Data Officer	Communicates upcoming changes and impacts to the enterprise, facilitates training
Data Steward	Works with data owners to assure data readiness for the project, including data modification and cleanups
Data Architect	Creates data architecture for new system, including inputs, outputs and integration
Data Analyst	Analyzes existing data and communicates findings to the data steward and data owners; assists with data cleanup

TAKE AWAY



Data is the new oil of the digital economy



Demand for data professionals in traditional and new roles is growing in business and IT



Preparation for data professions varies; technical skills are a good place to start



Keep your eyes open to data profession opportunities



QUESTIONS?

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