RAMPING UP YOUR ANALYTICS

PLAYBOOK, LESSONS LEARNED & DO'S AND DON'TS

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FROM TELCO TO BEAUTY & RETAIL. MORE SIMILAR THAN YOU MAY THINK.

TELCO USE CASES

- Network Analytics
- Crowd Analytics

COMMON

- CLV, CVM, NBA, CLM, SEM, RFM, ...
- Digital Marketing & personalization
- Customer Care analytics
- Store optimization
- Pricing / mark-down analytics
- Business Intelligence & reporting
- BI: Finance, Sales, HR, ...

RETAIL USE CASES

- Category, Assortment & Purchasing analytics
- Supply chain & Logistics optimization

BUSINESS & ADOPTION

"VALUE REALIZATION OFFICE"

DATA SCIENCE & ANALYTICS

DATA AQUISITION, PIPELINING & QUALITY

TECH & PLATFORMS

UNDERSTAND WHERE YOU ARE AND WANT TO GO

	Reporting	BI	Analytics	Machine learning	Deep Learning ("narrow Al")
Typical question/objective	What is (Descriptive)	What is (Descriptive)	Why did (Descriptive)	When will (Predictive)	When will, and what to do (Predictive & prescriptive)
For what	Ad hoc questions (Sales, customer, finance)	Ad hoc → periodic questions, mgmt. dashboards & visualizations	Root cause, trends, CLV,	Scoring, propensity modeling (eg churn, up- sell), anomaly detection, fraud	Anomaly detection, fraud, NLP, image classification,
Typical analyst roles		Data A na lyst, Business analys	Data Scientist HIG	H VALUE,	MORE
				/	
Data Scientist / Analyst Skills	EASY 1		SQL, Statistics	ORT TO R	Python, Math, DL
Data Scientist / Analyst Skills Typical data	SQL EASY 7 Very structured and curated	SQL, Visualization FOREALIZ Very structured and curated	SQL, Statistics EFF Moderately structured (eg crm, sales)	Python, Stat, Math, R ORT TO R Structured and unstructured (eg logs, mails)	Python, Math, DL arcAre ture and Uning, Keastern and lots and lots (often labeled)
Data Scientist / Analyst Skills Typical data Typical tools /capabilites	SQL EASY 7 Very structured and curated Excel, Business Objects, Power Pivot7Query	SQL, Visualization FOREALIZ Very structured and curated Tableau, Qlik, Power BI, Zoomdata	SQL, Statistics EFF Moderately structured (eg crm, sales) SAS, SPSS, Zoomdata, data lake	Python, Stat, Math, R ORTTOR Structured and unstructured (eg logs, mails) Jupyter, SAS, Knime, data lake	Python, Math, DL arcAreture ad Luning, Keaster 2 Cuning, Unstructured, lots and lots (often labeled) Jupyter, Keras, Tensorflor, CUDA, data lake, GPU:s

THE DATA & ANALYTICS ECO-SYSTEM (TECH)



PLAYBOOK FOR HIGHER VALUE FROM YOUR DATA

Operationalization				
API:s				
Machine & Deep Learning ග				
Data mining & Analytics ହ				
Dashboards & Bl 👀				
Business "data cubes"				
Analytics Access layer				
Transformation & data pipelining				
Raw data layer				
Real time access & processing				
Data Ingestion & Integration				
Data Sources				

<u>The basics</u>

- Define a clear business/use-case for the overall analytics domain
- Explore data and first MVP/Pilot

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- Secure feeds from initial data sources into "data lake"
- Hypothesis testing w/ business
- Anchor, verify and iterate insights and dashboards with business

	Operationalization					
1	API:s					
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	Data Sources					

Delivering insights to business (descriptive)

- Build and Industrialize pipeline from Raw → Access → Data cubes
- Initial analytics layer based on data cube requirements
- Build initial productify business dashboards & insights, including potential statistical, trend and forecasting features
- Constant iteration with business stakeholder, build roadmap and backlog

3	Operationalization
	API:s
	Machine & Deep Learning 🌀
ta Governance, GDPR.	Data mining & Analytics 😳
	Dashboards & BI ଡି
	Business "data cubes"
	Analytics Access layer
le, Da	Transformation & data pipelining
ineag	Raw data layer
-	Real time access & processing
	Data Ingestion & Integration
	Data Sources

From descriptive to predictive Use of data science notebooks (eg

- jupyter) and associated Industrialize and scale the Access layer,
- based on data needs from data scientists Build predictive models (churn,
- optimization, forecasting, fraud etc) Verify and pilot with business

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Scale and operationalize. Deep Learning

- Re-skill and secure Machine learning engineers
- Secure insights & models can be consumed by down-stream business processes and applications (API:s)
- Set up clear cross functional teams and tribes/squads

TOP ADVICE AND LESSONS LEARNED...



GO CLOUD

- Putting your data and analytics in cloud will significantly increase agility, productivity and time to market
- Compared to only a few years ago, cloud has surpassed on-prem in maturity, and TCO
- Low/no need for application operations & maintenance. Except your data pipelines and analytics apps.
- Avoid bill chock understand cost-drivers (data movement, compute, storage, ...)
- Regulations and legal aspects may still require on premise for certain use cases and data.

RECRUIT, SECURE AND RETAIN THE ANALYTICS TEAM

- The first skills you want to secure is the **Data Engineer**, closely followed by **Data Scientist**.
- Secure your "Value Realization" function. Staffed with business-savvy "data translators", able to quantify and prioritize analytics opportunities
- The **DevOps** skills is crucial to ensure quality in the CI/CD processes. "If you build it you deploy it"
- As you embrace deep learning you need the new unicorn "**ML Engineer**"

Infrastructure	Analytics		Applications
		CRRC THE REFAREL CONTRACT THE REFERENCE OF THE R	Chartbeat Trocket/unit Trocket/Unit Trocket/unit Trock
Open Source	Line and a second	ICITY INCOME	
HIDERS Sport	Mongo DB Stoop		Matchine Rearring Bebow Coud
Data Sources			
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NAVIGATING AND SELECTING THE RIGHT TECHNOLOGY BETS

- Choose wisely among all new 'cool' technologies.
- Plain vanilla BI, DWH and analytics are your core data and analytics assets, before going "data lake" & ML
- Focus on quality of data over amount of data
- Random forests, regression (et al) will take you quite far, but ensure you have a grip on more advanced ML
- Barriers to become a "data scientist" is lower than just a year ago, with new "Auto ML & low code" solutions.
- Don't forget the operationalization of analytics.

NAVIGATING THE TECH OPTIONS

	Operationalization into business processes	AWS	Google Cloud	Azure	"Standalone" (examples)
	API:s & model production	AWS API Gateway	Cloud BQ, ML API and more	API APPs/ Management	Apigee
	Deep Learning	AWS Sagemaker, Keras, TF, (Jupyter), GPU:s	Tensorflow, Jupyter Kubeflow, GPU:s	Databricks, ML Studip,	Jupyter, Keras, Cloudera workbench, Tensorflow
DPR	Machine Learning	Athena, Redshift, Elasticsearch, Kinesis	BigQuery, ML Engine	ML Studio	Jupyter, SPSS, Dataiku,
nce, Gl	Dashboards, Bl & Viz	Quicksight	DataLab	Power Bl	Tableau, Qlik, Power BI, Zoomdata, Looker
vernar	Business "data cubes"	AWS Athena, Glue (S3), Redshift	BigTable/BigQuery	SQL DW, SQL DB	Impala, mySQL Data marts
ata Gov	Analytics Access layer	AWS Athena, Glue (S3), Redshift	BigQuery	Data Lake Storage, SQL DW	Hive, Spark, Impala, Hbase,
age, Da	Transformation & data pipelining	AWS Glue, AWS EMR	DataFLow/DataPrep/DataPr oc	Data Factory, HD Insight. DataBricks	Spark, MapReduce, Airflow, Talend, Pentaho
Linea	Raw data layer	AWS S3	Cloud Storage, BigTable	Data Lake Storage	HDFS, Cloudera
	Real time access & processing	Kinesis Data Stream, Lambda	Managed Kafka, PubSub	Stream Analytics, Event Hubs	Kafka, Spark Streaming
	Data Ingestion & Integration	AWS Snowball, Kinesis Firehose	PubSub	Data Factory,	Kafka, MFT
	Data Sources				

Examples

PEOPLE, TRIBES AND CROSS FUNCTIONAL EXECUTION

- Encouraging and enforcing a "tribal" way of working is essential to minimize building the wrong (data) product
- Analytics, IT, Business the golden triangle
- • Analytics is perfect for working with MVPs
 - Lack of cross functional cooperation, ownership and accountability is the number one reason why value is not realized
 - Identify the most critical value-chains and processes and **put business in lead**

BALANCE BETWEEN QUICK WINS AND BIG BETS

- You have to do both..
- **Quick wins** creates a pull from the organization and ensures funding for the next budget.
- **Big Bets** is vital for changing your (company's) business from the ground, but often takes longer time
- Quick wins are often descriptive and BI centric. Big bets are often based on Machine Learning.
- Your job is to select wisely among the right use cases – and stakeholders.
- Don't underestimate change, people & stakeholder management.

