

# **Machine Learning in IBM Planning Analytics**

mit Python, Jupyter  
Notebooks & H2O.ai

**03.09.2020,  
Johannes Droste, Alexander Gusser**

# Agenda



## Prozesskette & TM1

```
from TM1py import TM1Service

# Connect to H2O
h2o_url = "http://localhost:54321"
h2o_token = "h2o"

h2o_client = H2OClient(h2o_url, h2o_token)

# Check H2O status
h2o_client.status()

# Connect to TM1
tm1 = TM1Service(address="192.168.1.10", port=1521, user="admin", password="admin", h2o_client=h2o_client)

# Run a TM1 query
data = tm1.cube.execute(cube_name="Revenue", view_name="Revenue", dimensions=["Date", "Product"])

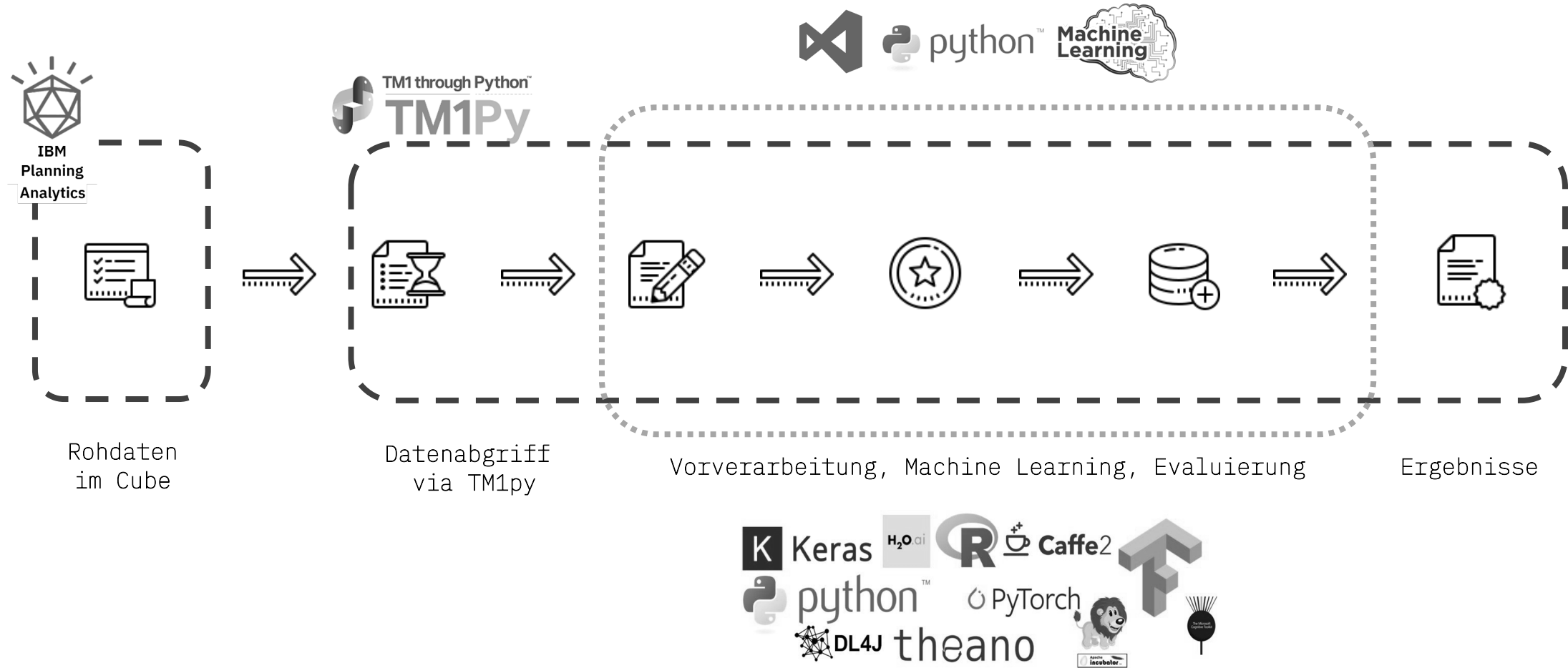
# Display the data
data
```

## Jupyter & H2O.ai



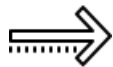
## Take-Away & Lessons Learned

# Prozesskette



TM1

- 24retail
  - Anwendungen
    - Cubes
      - Allocation Calculation
      - Allocation Source Definition
      - Asset Life
      - Benefit Assumptions
      - Calendar
      - Capital
      - Compensation
      - Compensation Reporting
      - Depreciation
      - Employee
      - Exchange Rates
      - ExternalFactors
      - FcstMethod
      - GLTransactions
      - Income Statement
      - Income Statement Reporting
      - Job Code Assumptions
      - Job Type Assumption
      - Line Item Detail
      - Metrics
      - Phased Costs
      - Rate BOM
      - Relative Time
      - Revenue
        - Dimensionen
          - organization
          - Channel
          - product
          - Month
          - Year
          - Version
          - Revenue
      - Ansichten
        - Revenue



Actual							
product	Channel	organization	Year	Month	Revenue		
					Unit Net Sales Price	Volume - Units	Unit Direct Cost
		Massachusetts	Y1	Jan	70,00	272	47,04
				Feb	70,00	272	47,04
				Mar	70,00	272	47,04
				Apr	70,00	272	47,04
				May	70,00	272	47,04
				Jun	70,00	263	47,04
				Jul	70,00	200	47,04
				Aug	70,00	190	47,04
				Sep	70,00	181	47,04
				Oct	70,00	173	47,04
				Nov	70,00	163	47,04
				Dec	70,00	154	47,04
			Y2	Jan	67,90	250	47,04
				Feb	66,54	243	47,04
				Mar	65,21	236	47,04
				Apr	63,91	158	47,04
				May	62,63	154	47,04
				Jun	61,38	149	47,04
				Jul	60,15	144	47,04
				Aug	58,95	104	47,04
				Sep	47,14	98	47,04
				Oct	48,12	63	47,04
				Nov	47,16	61	47,04
				Dec	46,21	73	47,04
				Jan	63,00	226	47,04
				Feb	62,00	219	47,04
				Mar	62,00	211	47,04
				Apr	61,00	126	47,04
				May	60,00	145	47,04

# Jupyter & H2O.ai



# DEMO

Predictivev2 ▾							
product	Channel	organization	Year	Month	Revenue		
					Unit Price	Units Sold	Unit Cost
			Y1	Jan	70,00	233	47,00
				Feb	70,00	179	47,00
				Mar	70,00	179	47,00
				Apr	70,00	279	47,00
				May	70,00	303	47,00
				Jun	70,00	230	47,00
				Jul	70,00	274	47,00
				Aug	70,00	286	47,00
				Sep	70,00	283	47,00
				Oct	70,00	168	47,00
				Nov	70,00	161	47,00
				Dec	70,00	160	47,00
			Y2	Jan	70,00	199	47,00
				Feb	69,00	173	47,00
				Mar	69,00	143	47,00
				Apr	68,00	249	47,00
				May	67,00	265	47,00
				Jun	67,00	215	47,00
				Jul	66,00	225	47,00
				Aug	66,00	225	47,00
				Sep	66,00	225	47,00
				Oct	66,00	225	47,00
				Nov	66,00	225	47,00
				Dec	66,00	225	47,00

Product Total		Channel Total		Total Company			
		Version		Revenue			
		Actual			Predictivev2		
Month	Year	Unit Price	Units Sold	Unit Cost	Unit Price	Units Sold	Unit Cost
+ Year	2019	402,33	230.134	239,08	394,41	226.440	221,96
	2020	345,47	213.062	209,82	345,48	213.261	185,13
	2021	358,93	212.020	198,22	346,77	207.546	188,10

# Take-Away & Lessons Learned

- Aufbau und Umsetzung innerhalb einer Woche möglich!
- Vorkenntnisse in allen Technologien jedoch notwendig (ratsam 😊)
- Vorteile beider Welten nutzen und die Stärken von TM1 sowie ML ausreizen!
- Prozesskette ist beliebig einsetzbar! (Use Case)



**Feedback oder Fragen?**

*Ihr gmc²-Team*