



# ethical and trustworthy artificial and machine intelligence

EBDVF 2022 – etami kick-off

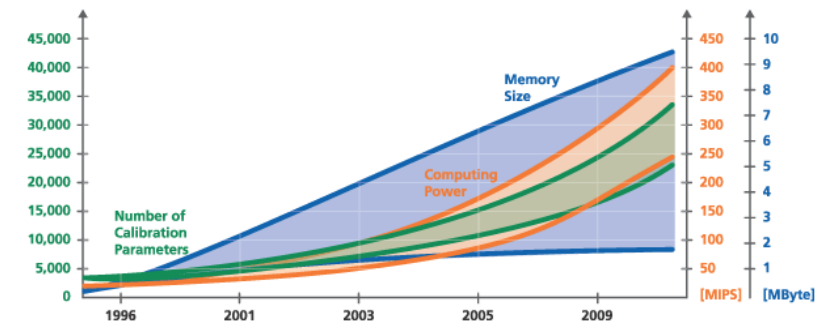
Dr. Bernhard Peischl

# Artificial intelligence for engineering drivetrains

- Collection of end-user feedback
  - Online portal to obtain feedback on the powertrain (e.g., inquiries about irregularities in the shifting comfort)
  - Short-term measures: e.g., software updates
  - Medium term: e.g., adjustments in production and
  - Long term: e.g., product features of the next generation
- AI-based controls
  - Calibration of control strategies is time consuming effort
  - Saving costs in implementing adaptive control strategies
  - Control strategy makes use of environmental data (e.g., driver behavior, vehicle location, ...)



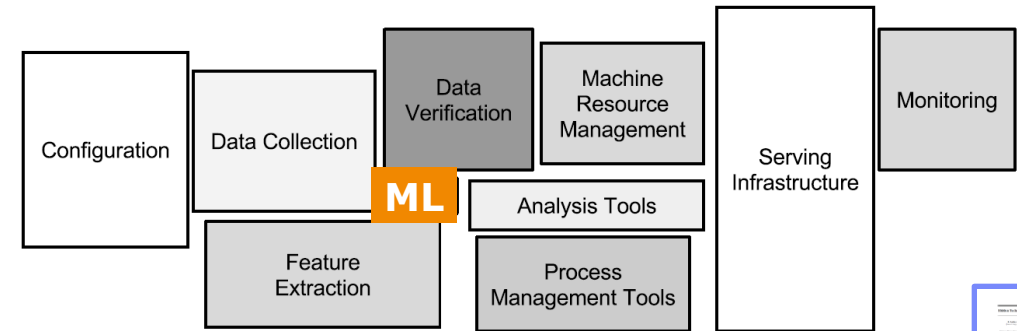
Source: „Künstliche Intelligenz aus der Steiermark lässt Autos mitlernen“ (in German language), WKO, 25/10/2022.



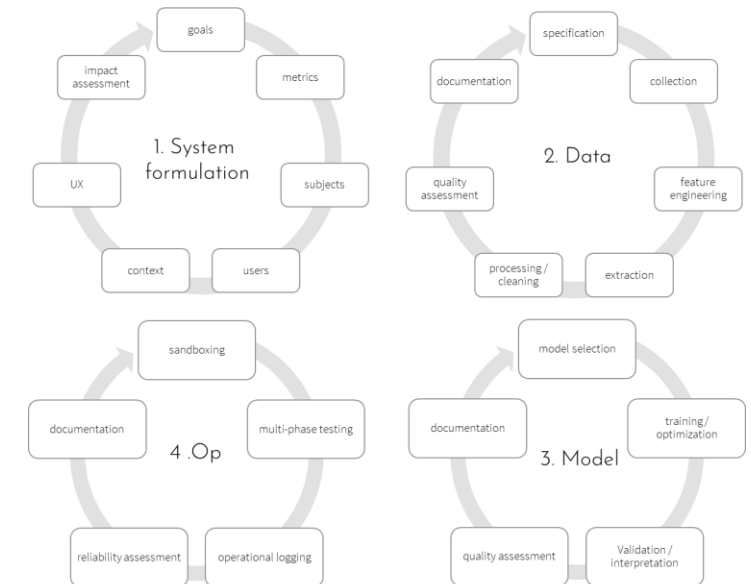
Source: Calibrating automotive electronics, [ETAS](#)

# etami Open Guidebook

- Data Sourcing Effort
  - Data scientists spend 80-90% time on finding relevant datasets and data integration/cleaning.
- Technical Debts in ML Systems
  - Glue code, pipeline jungles, dead code paths
  - Plain-old-data types, multiple languages, prototypes
  - Abstraction and configuration debts
  - Data testing, reproducibility, process management, and cultural debts
- AI documentation practices – etami Open guidebook
  - Datasheets for Datasets
  - Model Cards for Model Reporting
  - A Methodology for Creating AI Fact Sheets
- Implementation of practices in automotive sector (OEM-s, Tier-1-s)



[D. Sculley et al.: Hidden Technical Debt in Machine Learning Systems. **NIPS 2015**]



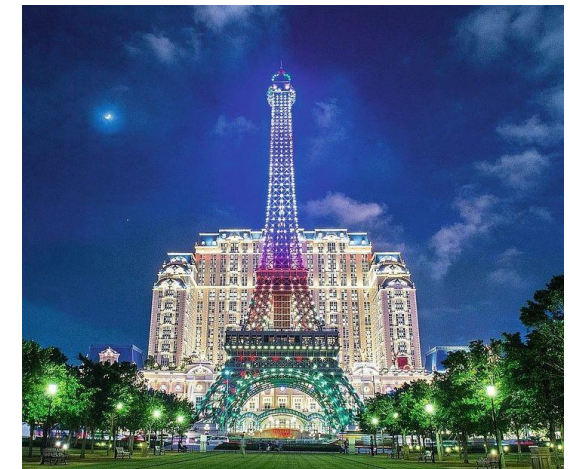
[etami](#) Open Guidebook, 20/22/2022]

# AI certification: automotive industry

- AI has enormous potential both when embedded in automotive products, in
  - Safer, cleaner, more efficient and more reliable mobility ecosystem
  - Improve productivity
  - Product safety and comfort (AI-based controls)
  - Objectivity (mitigation of human bias, end-user feedback).
- Currently, the in-vehicle deployment of AI has limitations.
  - Software needs to be analyzed and rigorously tested before deployment
- Online-retrained parameters for both
  - Safety and non-safety critical functions cannot be applied in operation unless correct functioning is proven
- Adequately tailored certification procedures
  - AI-act, Data-Act, Data-Governance Act
- European laws and regulations have established global norms
  - Despite its long list of crises in recent years
  - From Brussels to the Rest of the World: How Europe Became a Model for the 21st Century, Ullrich Fichtner, 04/02/2021, Spiegel International



Source: ACEA Position Paper, Artificial Intelligence in the Automotive Industry.



A replica of the Eiffel Tower in Macau, Source: action press

A JOURNEY ALONG OUR CUSTOMER'S ROADMAP

AVL



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