

How will future brain-computer-interfaces be affected by data engineering and data science?

Data Engineering in der Praxis WS 17/18

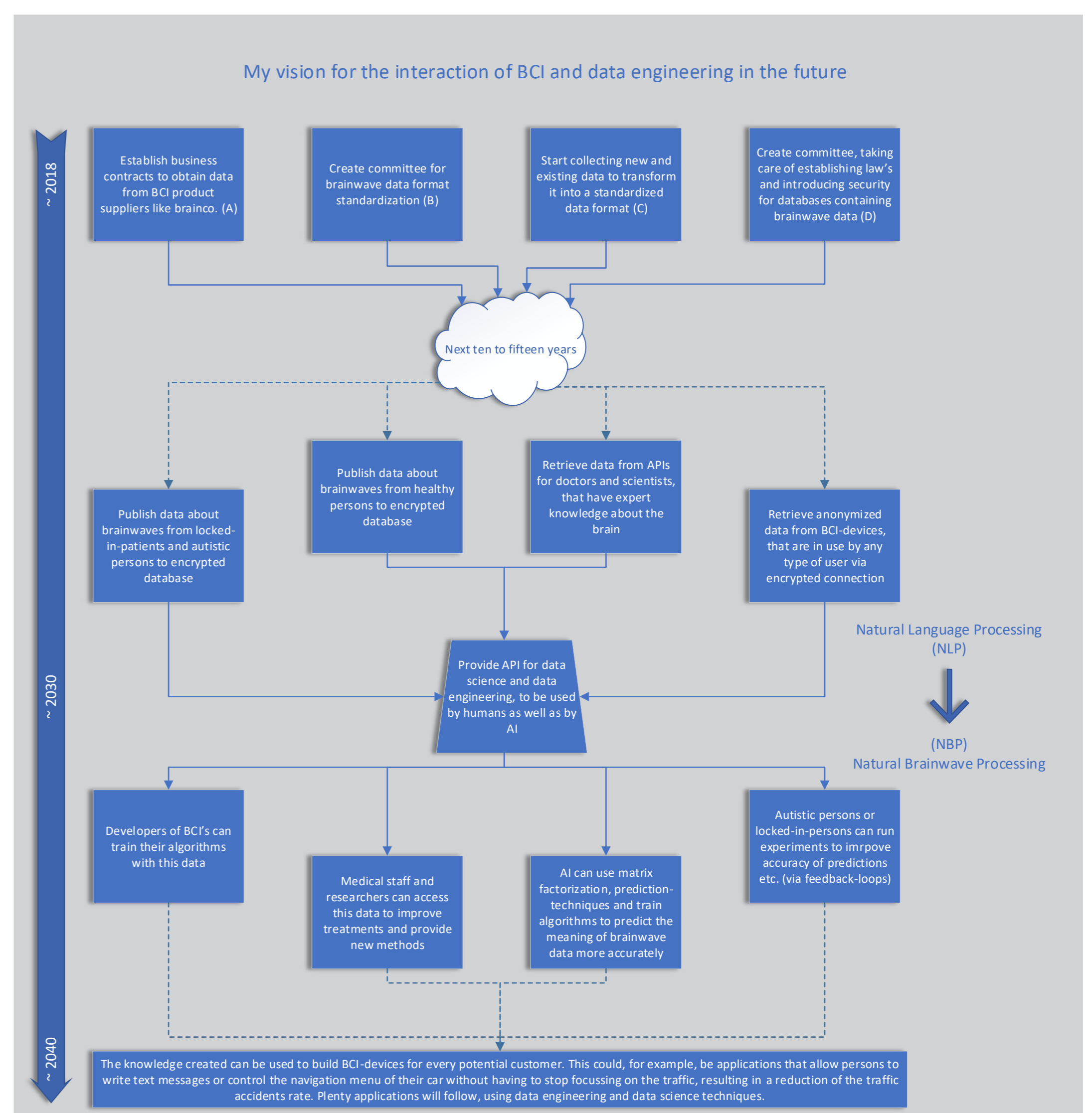
Nowadays industry often faces the problem to retrieve clean data

Many companies have to cope with not normalized, duplicate and not standardized data, although there exists a high demand for clean data that can be used for different analysis. Here there are two interesting areas: established and emerging markets. Emerging markets are very interesting, because they offer a whole lot of opportunities. One can establish new standards and create the legal framework with the legislators. For emerging markets, one can think of a possible roadmap for data engineering, visualized on the example of Brain-Computer-Interfaces (BCI), like this.

Brain-computer interfaces (BCI) are an emerging technology

According to the Gartner Hype Cycle (E), BCI's will be ready for the market in over ten years from now

- By using big data analysis algorithms such as matrix factorization on large amounts of data consisting of brainwaves and feedback loop evaluations, many digital health applications will be created for BCI's (D)
- Data Science will affect BCI's in an impressive way. Machine learning and the use of techniques such as collaborative filtering will dramatically increase the accuracy of correct user input (brainwave) estimates
- More publicly accessible databases are needed that provide medical data according to data protection requirements of the federal government and institutes like health insurance companies



Additional up-to-date information related to the topic

A: www.brainco.tech/#/

B: <https://brain.ieee.org/news/brain-data-bank-competitions/>

C: https://shop.austrian-standards.at/action/en/public/details/553360/OENORM_K_2204_2015_11_15

D: http://bnci-horizon-2020.eu/images/bncih2020/Roadmap_BNCI_Horizon_2020.pdf

E: <https://www.gartner.com/smarterwithgartner/top-trends-in-the-gartner-hype-cycle-for-emerging-technologies-2017/>

Projektpartner

Lectures with content related to the elaboration:
XING AG - Data Engineering for Job Recommendations
Open Knowledge Foundation - Data Engineering in the newsroom
Bakdata - Plugging Data Science into Big Data Processing Workflows
Amazon - Scanning Exabytes of Data using Amazon Redshift Spectrum

Projektbeteiligte

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