Project title: *Using Deep Customer Knowledge as a Competitive Advantage in Bank Business Models*

Supervisors:

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Aim of the project:

The aim of this project is to study the use of deep customer knowledge as a competitive advantage in bank business models. The algorithms developed in this study will be based on real financial datasets through TEFT Lab.

Project Description:

Due to PSD2, European banks are facing dramatic industry disruption due to open banking. Banks will need to address this disruption through completely reconsidering their business models and what it means to be in banking at all. New competitors, who are less constrained by regulatory requirements, will provide services more tailed and adaptable to customer needs than traditional banks can provide. However, banks may still have a large advantage through control of customer data and trust. Banks may become platform providers creating banking ecosystems, connecting customers with third-party applications; or they may serve niche markets where a high touch is necessary, among many other possibilities. They may also differ in how open their APIs are. Regardless of the business model strategy they pursue, one things that is clear is banks will need to be best in class at understanding their customers through all data and contact points.

Banks are in a unique position, given their size, role and regulatory requirements, to have more in-depth knowledge about their customers than their third-party competitors or collaborators in open banking. Banks store years of transaction data, customers profiles, marketing activities and other useful information. The challenge is how to translate this massive amount of information into meaningful insights at the level of the individual and segments. AI and machine learning tools can be used to transform data into insight that allows for intelligently addressing customers at the right time and place, with the right service or combination of services that provide the greatest value. In short, using data to know the customer far better than competitors/partners. These insights may be used by the bank themselves and/or shared with third parties connecting with their customers, depending on the business model employed. To achieve this goal, sophisticated machine learning models to predict customers' behavior, AI to automatically offer optimized and personalized services. Tools and algorithms developed in this project will be tested and validated using real financial datasets and customers profiles provided by Sparebank Møre and TEFT lab.

Position Requirements:

- Experience with Big Data ML toolkits, such as TensorFlow, AML, Microsoft CNTK, and Apache Singa.
- Strong programming skill in Python programming language.
- Proficiency with Hadoop and MapReduce.

Project plan:

Methodology. There are two main objectives of the PhD work:
1. Behavioral and predictive modeling of customers
2. Identification of potential competitive business models for open banking

Objectives. The PhD candidate is expected to carry out the following tasks within the PhD period:

T1: Collaborate with other researchers, financial professionals, and PhDs in TEFT Lab and acquire the transferable knowledge and skills on data processing, data analytics and the use of ML tools for building regression and classification models using financial data;
T2: Develop predictive models of consumer behavior under various scenarios
T3: Identify potentially competitive business models for Banks given the context of open banking
T4: Apply customer knowledge to business model innovation for Banks
T5: knowledge dissimilation

Tasks	Year 1	Year 2	Year 3	Year 4
T1	■			
T2	■	■		
T3		■	■	
T4			■	■
T5	■	■	■	■