

Summary 1 : A Case for Business Process-Specific Foundation Models

This article mainly focuses on the development of foundation models and the creation of a new class of foundation models to handle tasks such as process mining, optimization and decision making due to the unique characteristic of business process data representations (images, code, music, graphics ...) which would allow the data to be processed holistically and no longer separately.

The first main point mentioned in the article is the importance of AI currently in the business sphere and in particular the large language models (that led to the creation of foundation models) and deep learning thanks to different numbers that highlight the importance of them.

Then, it describes the notions of BPM (Business Process Management) and Foundation Models :

- **BPM** : taking the example of a mortgage application process, a business process is a collection of ordered tasks, followed by a business to produce a product or a service. Business process model and notation or BPMN are graphical representations of these process by differentiating events and decisions points through swim lanes and traces.
- **Foundation Models** : refer to deep neural network models trained on massive data and can be reused. Their main feature is to have « emergent knowledge » : the model is able to make predictions and perform downstream tasks that it has never seen before and wasn't trained on and that large language models were the first known foundation models.

Concerning the architecture of the models, the authors focus on the Mixture-of-Modality-Experts (MoME) which would make it possible to process different data holistically such as language, vision or graphics among others through two main architectures : dual-encoder and fusion-encoder and two types of downstreams tasks : domain agnostic downstreams focusing on process mining and optimization whereas domain specific downstreams focusing on the tasks prediction and decisions.

Finally, it highlights the challenges that implicates foundation models such as the data scarcity and privacy concerns that is linked to the violation of industry standards or company policies, audatibility, the fact that foundation models trainings are very complicated due to the breadth of tasks and the different types of data that must be processed, the prompt engineering during the process since the little changes due to this engineering must be taken into account during the process and must be modified often for these changes and the human feedback and intervention.

In conclusion, these challenges implies some risks for these new foundations models but also opportunities for companies to improve their business process but AI and BPM actors have to join forces to create a better and easier foundation models and this involves the identification of current data sources and the curation of specialized datasets for training and fine-tuning purposes.