Transforming a business problem to an AI Problem

**Key Points:**

1. Align your strategic business objectives and AI development
2. Set up your organizational capabilities to support AI development
3. Understand your data, your data capabilities, and needs
   1. Gather data but understand its potential use early on  
      **Top-Down:** Be informed about use cases and capabilities of the technology from the start  
      **Bottom-Up**: Start to collect data as early as possible  
      **Data Science Hierarchy of Needs:** Collect (data), Move/Store (data, pipelines, storage, etc), explore/transform (cleaning, anomaly detection, prep), Aggregate/Label (analytics, metrics, aggregates, features, training data, segments), Learn/Optimize (A/B testing, experimentation, simple ML algorithms), AI/Deep Learning
   2. Understand the intricacies of data & technology in Machine Learning (how accessible/representative the data is; its unbalanced datasets, inability to generalize, and multidimensionality of data quality)
4. Identify operational challenges & build the technology to meet them
   1. Understand how external factors can influence your AI application (example Tay (twitter chatbot) by Microsoft)
   2. AI frameworks come and go in unmet speed (strive for Open-Source software (FOOS); avoid vendor lock-in);
      * Organization, software, and hardware has to be flexible to quickly adapt to new frameworks
5. Plan your AI efforts but remain agile (what do you promise? What can you deliver? How large is that gap? - iterate towards your goal instead)
   1. Refine & Iterate constantly
   2. Adapt your processes and remain agile (experimentation is crucial to analyzing new data to model and evaluate)

Supplementary notes:

* Make a better model to get better data
* The problem is not the data (or the lack of), the problem is labeling
* AI’s move from supervised learning to an unsupervised world (the solution may be semi-supervised or semi-unsupervised)
* Formal knowledge + Technology = third wave

Examples of AI technologies:

* Remote sensing and satellite data analysis for emergency response
* Climate change mitigation (monitoring of industrial facilities, etc.)

Using new neuro models to change the world