### Problem Statement and Objective

Our aim is to develop a comprehensive framework using Large Language Models (LLMs) to quantify innovation through patents and help Accenture clients define effective innovation and research investment strategies and understand their competitive landscape.

Innovation is a vital determinant of productivity, competitiveness, and financial success. However, companies and Accenture clients face challenges in measuring and harnessing innovation. So, what is innovation?

Patents are the best-known proxy for innovation. However, they are lengthy, technical, and difficult to understand. Moreover, there is no universal quantification link between innovation patents and success. How do we measure innovation? Innovation not only influences financial outcomes but also boosts productivity and competitive advantage. But how do we value innovation's impact on corporate success?

### Data and Scope

- **Patents Data**: Claims, Status, Owner...
- **Corporate Financial Data**: Sales, R&D Spends...
- **Clinical Trials Data**: Drug, Company, Status...

**Scope**: Life and Science | 2015-2022 | Worldwide

- **45 Companies**
- **200K Patents**
- **4M Patent Claims**

### Methodology

#### Framework

1. **Understanding Innovation**
   - Patent claims are lengthy and complex. We use Large Language Models to extract key features.
   - The two main components of a patent: technology and purpose (legal protection).

2. **Measuring Innovation**
   - Using fine tuning and prompt engineering, we adapt the LLM to extract key features while respecting the scientific and specific nature of our task.

3. **Harnessing Innovation: Portfolio Recommendation**
   - Prediction models are created.
   - Client meetings are conducted to finalize the decisions.

#### Potential revenue generation:

- 10+ client meetings to share methodology and identify pharma client-specific actions in the following areas:
  - Augment the strategic decisions on innovation strategy including which patents are pursued, their potential future value and how they are positioned in the competitive landscape
  - Conduction of R&D budget and allocation decisions
  - Support asset valuation for external innovation (e.g., licensing and M&A) by integrating the Innovation Index into asset evaluation
  - Improve productivity of patent reviews by 98% (Assumed 2 hours per patent to read, understand and classify for 200K Patents. Processing time reduced from 400K hours to less than 10000 hours), translated into a 199 FTE reduction.

### Results and Impact

- **Scan for a demo of the fully deployed Dashboard and InnovateGPT, our LLM-based Chat Agent**