Consider a news recommendation system
The objective is to recommend the news article which is more relevant or engaging or more of interest for the user, hence maximizing the time the user spends on the platform.
ARMS-each arm represent a news article
REWARD- The reward is based on the user interaction with the article . We can assume four scorings for the article based on the engagement of a user with a certain type of article like didn't view the article, opened the article, read most of the article, left a comment or shared the article.

For new users we'll focus on exploration as we don't yet know the preference and hence will focus on sharing diverse articles.
After the algorithm cracks their taste then it will focus on exploitation where it'll mainly show the content related to their taste but sometimes a new recommendation.
Then according to the algorithm we'll update their recommendations.

We'll focus on the use of Epsilon-Greedy Algorithm for this problem
Start with a small, random selection of articles as our initial arms.
Explore :Randomly select an article that the user hasn't seen before.This helps in discovering new user interests and prevents the system from getting stuck in a local optimum.
Exploit :Select the article with the highest expected reward based on past performance and the user's profile.
Update: After the user interacts with the recommended article, update our estimate of that article's value for that user or similar users.

Challenge:
Diverse type of news article available, and to handle a large amount of data