The reason the algorithm is called **K-Means** and not **A-Means**, **B-Means**, or any other letter lies in the **role of "K"** and the mathematical tradition of using it as a variable:

1. **"K" Represents the Number of Clusters**:
   - In mathematics and computer science, **K** is often used as a standard variable to denote a fixed, user-defined integer, especially in contexts where a count is needed (e.g., loops, partitions, or groups).
   - In K-Means, "K" explicitly refers to the **number of clusters** that the data will be partitioned into. Using "A" or "B" wouldn't make sense because they aren't commonly used to denote a number in this context.
2. **Historical and Naming Convention**:
   - The name **K-Means** was introduced in the 1967 paper by James MacQueen, and the "K" was chosen to emphasize the flexibility in specifying the number of clusters.
   - "Means" refers to the method of calculating cluster centers (centroids) as the **arithmetic mean** of the data points within each cluster.
3. **A-Means or B-Means Would Lack Context**:
   - If the algorithm were called **A-Means**, the "A" would need to stand for something meaningful (e.g., "average"). But here, the emphasis is on the number of clusters, so "K" fits naturally.
   - Similarly, **B-Means** might imply some relationship to a second cluster type or additional parameter, which is not part of the algorithm's core design.
4. **K Emphasizes Customizability**:
   - The "K" is a placeholder that emphasizes the algorithm's **configurability**—users can choose any positive integer value for K based on their data and objectives. It signals that the number of clusters is not fixed but adjustable.

So, the choice of **K-Means** over "A-Means" or "B-Means" is about clarity, convention, and accurately describing the algorithm's mechanism.