

**BUS 363**  
**INNOVATION MANAGEMENT**

**AMAZON**  
**INNOVATIONS**

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## **Introduction:**

Amazon has ranked third due to the BCG's "Top 50 Innovative Companies" report. There are several innovations that play a significant role globally, but we have narrowed them down to three that are evaluated to have the potential to shine in the future. In this report, three innovations of Amazon's are evaluated with aspects of innovation types, innovation sources, and innovation diffusion. These innovations we have mentioned are Amazon Web Services (AWS), Amazon Alexa, Sequoia and Digit (Recent logistic robot technology).

### **1. Amazon Web Services**

In the last decade, technology has incredibly improved in every aspect like artificial intelligence, machine learning, industrial 5.0 etc. The Internet plays a very crucial role in this improvement. IT infrastructure and speed has become fundamental for companies which creates a need for cloud computing. Amazon is the main competitor in this market with its Amazon Web Services product.

The main reason for being the main competitor is that AWS can serve various features according to other cloud service platforms. Some of these features are Amazon Lambda, Automatic Scaling and On-Demand Pricing, Amazon SageMaker, Amazon Outpost. Let's dive in.

- **Amazon Lambda - Revolutionizing Serverless Computing**

Amazon Lambda offers a serverless computing service which means that you don't need to worry about the underlying infrastructure yourself. Amazon automated these steps for you. All you need to do is upload your code and set a trigger event for your code. It scales automatically when there is an increase in demand. These things make it easier to adopt this innovation because it is less complex for users.

- **Efficiency and Cost-Effectiveness with Automatic Scaling and On-Demand Pricing in Cloud Computing**

When a company wants to build its own on-premises servers, they need to consider the times when the demand is high. They mostly end up buying much more servers with the fear of the inability to meet the demand. That costs them a lot of money. Amazon offers to automatically scale up or down your instances due to demand.

You pay for what you use on Amazon. When the demand is low you don't need to pay for the servers you don't use. All of these makes the AWS fast and cost efficient.

- **Amazon SageMaker**

The most important topic for companies is customer satisfaction. To provide this satisfaction companies need to analyze the data with their business keys. The machine learning platform of AWS (Sage maker) provides high-tech algorithms and mathematical calculations to analyze and project data. Companies can compare data with their periodic business goals and take action thanks to Data which is provided by AWS technology(Sage Maker). It combines cloud computing and machine learning. It is an example of recombinant innovation.

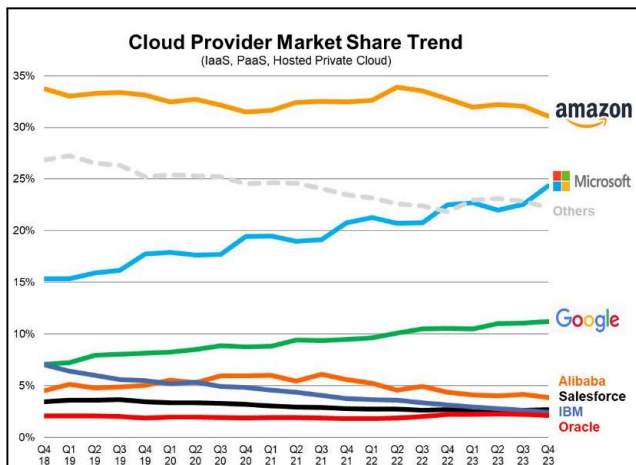
- **Amazon Outposts**

Amazon Outpost offers a hybrid approach for your on-premises servers. It is for businesses that require processing local data, low latency and data regulations. You can also use this service for your company's small edge locations. This can be an example of regulation sourced innovation.

## Conclusion (Evaluations according to Innovations)

AWS is really a tremendous innovation according to its effect all over the world. AWS provides solutions for companies in several ways. These innovation generally comes from

companies' needs and their goals. That's why we can claim that AWS is considered to be a **Need-Pull Innovations**. In the past, These needs were met by IT infrastructure. Today, IT companies mostly modify their job definition from establishing a server to fixing, making automated, and maintaining servers. These evaluations in the IT world occurred after cloud systems showed up like AWS. That's why AWS can be claimed as **Disruptive Innovations**. AWS has Early Majority as adopters and expected to diffuse widely.



AWS can be claimed as the biggest competitors in the cloud market. However, when focusing on the diffusion charts on innovation. AWS is an **Early Majority innovation**.

<https://www.srgresearch.com/articles/cloud-market-gets-its-mojo-back-q4-increase-in-cloud-spending-reaches-new-highs>

## **2. Amazon Alexa**

When we focus on the interaction with technology, The interactions are improved and expand their variety. 20 years ago, The pressed interaction with phones and keyboards came to people's lives. 10-15 years ago clickable devices like tablets and smartphones came. Today, People want to interact with technology with their natural interaction using voice and vision like a human. which caused the creation of a new innovation **ALEXA** in **AMAZON**. Alexa basically is a cloud-based voice service that enables users to interact with technology using natural language commands. Let's dive into the features of Alexa.

- **Advanced Voice Recognition and Natural Language Processing**

The most important feature of Alexa is being able to interact with humans via voice commands, which needs to calculate and solve complicated language structure. These can resolve it with voice recognition and Natural Language Processing. Each Language has their own rules and structures. That's why it can be successful based on knowledge about language, which can be solved by using cloud services. Cloud service can handle these heavy jobs and Alexa can interact with humans easily in daily life.

- **Interaction with Smart Home devices**

We can't expect Alexa to dominate the market in a short-time because people already use touchable interaction devices in their home and they have used them for over 20 years, which means that they prove themselves. That's why Alexa doesn't try to conquer their field. They try to create an environment which is in harmony with other devices. This creates an advantage to climb diffusion steps of innovations more easily in a short time.

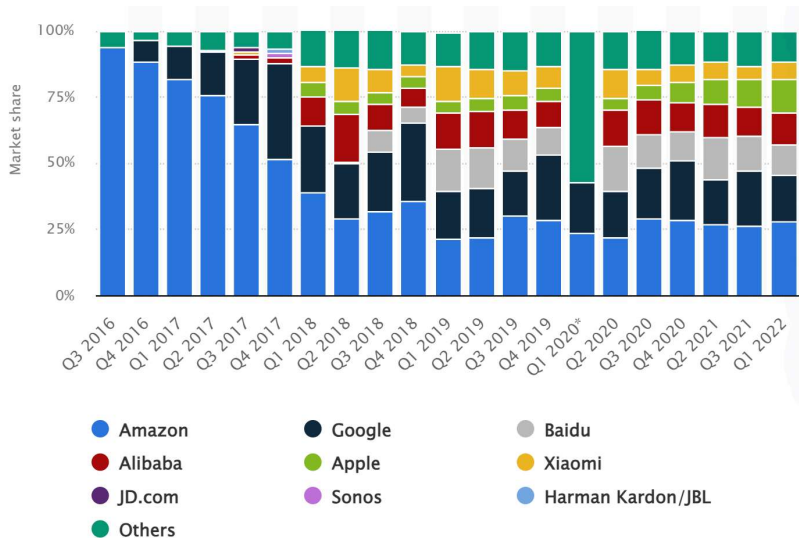
- **Alexa Skills Kit (ASK)**

Skills are what we call apps in Alexa. Skills' have invocation names that enable you to activate them using your voice. Alexa Skills Kit is a collection of tools that allows developers to build Skills for Alexa. This is a crowdsourced innovation. It leads the global community of developers to contribute to the innovations of alexa. Also an incremental innovation because the developers will continue to improve their Skills.

- **Continuous Learning through Machine Learning**

Alexa can learn the nuances of users speech, phrases and preferences fast enough. This improves the natural language processing ability of alexa. Alexa utilizes a big amount of data coming from its customers. Alexa can have more complex and meaningful conversations with these improvements. It is a great example of incremental innovation.

## Conclusion (Evaluations according to Innovations)



Alexa was born from the need for the hands-free smart home devices. As the smart home devices are developing at a rapid rate, the need for the voice recognition devices have occurred. Alexa can be considered as a **Need-Pull Innovation**.

Introducing advanced voice recognition is disrupting the other user interactions in general. Also it has created a whole new idea of voice activated smart-home devices. Alexa can be called a **Disruptive Innovation**.

In the beginning of the release of smart speakers, Amazon basically dominated the market share after other competitors came up and finished Amazon domination in the market. If we focus on the number of smart speakers, all of the manufacturers are in the line of early Adopters or Innovators but we can say that Alexa is an Early Adopter innovation.

<https://www.statista.com/statistics/792604/worldwide-smart-speaker-market-share/>

### 3. Sequoia and Digit

Sequoia and Digit are the warehouse robots that are working collaboratively with employees in the Amazon fulfillment center in Houston, Texas. Amazon most recently said that it has 750,000 robots so far that speed up the process up to %75. It is also cheaper to have robots working for you. The warehouse can be open and working 24/7. It reduces the need for a workforce from humans and creates new jobs for humans.

- **Automated Storage and Retrieval Systems**

Sequoia is an automated storage and retrieval system made for faster delivery and reduces the risk of injuries in human employees. Amazon had a lot of complaints from its employees about safety issues. By the launching of sequoia Amazon made a rapid increment in its speed and also in its safety conditions.

- **Bipedal Mobility**

Digit is a robot with human-like agility due to its bipedal mobility. It can grab packages and transform packages in the warehouse. It is designed to help employees for tote recycling.

- **Advanced Robotics and AI Integration**

Sequoia and Digit with its embedded artificial intelligence can perform tasks in a warehouse environment. People think most of the time it is more efficient than AI. Of Course this situation is valid for small computational works. However, for complicated computational works AI is more efficient than people. For example, If the error occurs in the distribution line. AI detects the problem and solves the issue in a short time. Human beings need to analyze the situation before finding a solution.

- **Increased Efficiency and Productivity**

As we mentioned before, Sequoia and Digit robots increase efficiency because they are able to solve problems easily but this is not the only efficient way. These robots do not need to breathe, sleep or use the toilet etc. Only they need periodic maintenance and electricity, which provides a 7/24 hours efficient distribution.

## **Conclusion (Evaluations according to Innovations)**

These robots have developed due to humans' advanced knowledge of AI and robotics. This development leverages the research of robotics and artificial intelligence. Sequoia and Digit have a source of **Knowledge-Push Innovation**.

The introduction of these robots, even if they are in the testing stage, has a disrupting effect. It has great potential for the future. It will dig the grave of the warehousing jobs that require human force. Meantime, it will give birth to new jobs for humans. These facts make it both **Disruptive Innovation** and **Radical Innovation**.

Although these robots have many advantages and enhanced technology, they are still in the testing stage. The innovators have adopted this innovation.

<https://www.aboutamazon.com/news/operations/amazon-introduces-new-robotics-solutions>