

BIS Report2519363

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A REPORT ON NEURALINK

Company: Neuralink



Neuralink (2016). *Elon Musk Neuralink Logo*. Available at: <https://logodix.com/elon-musk-neuralink> [Accessed: 11 May 2020]

Abstract

This report will discuss the new technologies that Neuralink will bring. It will report some of the short-term and long-term goals of Neuralink on improving their products. The report will examine the company's shares and funding opportunities. It will argue the products' benefits for people with brain disorders and paralysis while also approaching the benefits from healthy people's perspective as well.

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Introduction

The start-up company, Neuralink, was founded by Elon Musk and his eight other business partners in 2016. Neuralink uses neural networks and brain-machine interface technologies for establishing a third layer between the limbic and cortex systems that are in cooperation with each other. Basic emotions (survival skills) are controlled by the limbic system whereas problem (critical thinking) solving skills are dealt by the cortex system.

This company was chosen to be the topic for my BIS Report due to me being interested in technologies involving artificial intelligence and fascinated by the work of Elon Musk. When I became aware of Neuralink, I have done research on the key principles and developments of neural networks and brain-machine interfaces (BMI). I have been following Neuralink's work for some years now and thus the company was suitable for my BIS Report.

Body of the report

A branch of machine learning, deep learning's main concept benefits from the existence of neural networks that have been known and studied since early 40's. Developing the network involve data recording and storage, enabling the network to track and analyze the pattern and provide outcomes where suitable. Neural networks designed to have three layers: input layer, hidden layers and output layer. Firstly, the data is perceived by the input layer then hidden layers process most of the computational tasks. Finally, the concluded outcome is defined by the output layer. Another technology that Neuralink uses is a brain-machine interface (also called brain-computer interface) that allows creating a direct communication way between a brain and an external device such as a computer or a machine.

The third layer is planned to be achieved by implementing a chip using small threads that compare to about a tenth of the cross-sectional area of a human hair. The implementation process involves a minor brain surgery that will not result in any damage or scaring. The testing process of the new product on patients is planned to be conducted by the end of 2020. In the soon future, Neuralink plans to achieve the ability to monitor the spikes in neurons that will be recorded in a safer and more durable ways with increased amount of neural data. Neuralink (2019) stated that their aim is to apply the approach less complex and more autonomously, avoiding any major operations.

Neuralink's BMI technologies are capable of comprehending and treating brain disorders such as Alzheimer's and Parkinson's. The technologies are able to help paralyzed individuals to use a computer or a mobile device by controlling an application with their primary motor cortex (Neuralink, 2019). This way, primary motor cortex becomes capable of regulating the signals that are being sent down to the spinal cord and muscles for driving movement. The application does not need the paralyzed individuals' movements, the patients are able to control the product by only thinking about the movement or watching someone else who is doing the movement. Neuralink (2019) claims, in both of these situations, the cells in the motor cortex are recorded to respond similarly.

People without any background of brain disorders will benefit the product as well. Controlling a computer or a mobile device using neural waves is possible with this new technology as well. Neuralink aims to enhance the human brain by achieving a symbiosis with artificial intelligence.

Neuralink is a private company that is mainly funded by Elon Musk himself. There are no shares available for the public just as another Musk's company, SpaceX. However, some of Musk's other companies such as Tesla and Paypal are available for public funding and listed on NASDAQ (National Association of Securities Dealers Automated Quotations). The total funding for Neuralink from 2016 to 2020 is reported to be 66.3 USD (Craft.co, n.d.).

Conclusion

In conclusion, Neuralink is a start-up company that was founded by Elon Musk in 2016. The company aims to create a symbiosis with artificial intelligence by creating a third layer in the brain's systems. Brain-machine interface and neural network technologies are being used in this process of developing a layer. This approach is likely to change the lives of people that have neural brain disorders and paralysis. Also, it is possible for healthy people to enhance their brains with this new technology such as being able to control their mobile devices/computers via neural waves.

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