

# Cybernetic Augmentation - a Key to Utopia or Dystopia?

# WM0324LR Ethics Essay 2014-2015

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## Abstract

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## I. Introduction

This is introduction

## II. Analysis

To explore the potential ethical implications of cybernetic augmentation in a more structured manner, a distinction is made between the two types of cybernetic augmentations:

1. Augmentations to enhance the user's physical ability
2. Augmentations to enhance the cognitive ability.

For example, if one's arm is replaced by a robotic arm which gives the user a superior arm strength and agility, then it is seen as the augmentation which enhances the physical ability. On the other hand, if a computer chip is implemented in one's brain to increase the memory capacity, then it is considered as the augmentation which enhances the cognitive ability of the user.

With such distinction in mind, let us analyze and discuss the ethical implications of cybernetic augmentation. Before we start, it is important to ask ourselves "What is meant by an ethical implication?". According to the Longman Dictionary of Contemporary English, an implication means "a possible future effect or result of an action, event, decision, etc" [1]. Therefore, an ethical implication would mean the possible future effect or result with regard to associated moral values and principles of morality. For analysis, this can be viewed as divided into two main aspects: namely, the potential benefits and risks. Therefore, in this section, the potential benefits and risks of the cybernetic augmentation are contemplated and discussed.

### A. Potential benefits

What are the potential benefits of cybernetic augmentations (in short, CAs) which are implemented to enhance the user's physical and cognitive ability? The following section answers this question by identifying various beneficial aspects which may arise as a result of cybernetic augmentation.

### A..1 Benefits of physical CA

There can be numerous potential benefits when the cybernetic augmentation is implemented to enhance the user's physical ability. For example, these are: better well-being, increased efficiency and productivity, self-defense, further development of technology. Of course, there will be many other unmentioned potential benefits (and risks), but it should be noted that our intention is to give an overview and "food for thought" that is useful and adequate to comprehend the general implications, rather than to give you an exhaustive list of every possibility in the future.

### Better well-being of the user

Among the various potential benefits of the physical cybernetic augmentation, the most apparent beneficiaries would be the amputees (i.e. those who lost their limb due to accident, war, etc.) and patients with physical disability. The cybernetic augmentation can plausibly allow those people to move and look like a normal person again, and moreover, it can give them extra physical abilities beyond the normal standard level. Besides, this can affect them not only physically, but also mentally; they can gain higher self-esteem and confidence, which would give them more sense of happiness.

Moreover, just an average people can also enjoy the sense of better well-being as the cybernetic augmentation can enable them to carry out their daily actions in a more convenient way. For example, with augmented arms or legs, one may never have to struggle when lifting or carrying things. Also, the level of pain might be controlled in those augmented organs - for example, when you touch something very cold or hot beyond a certain threshold level, then it may regulate the synaptic information to your nerve system that you do not feel the pain you would have felt if you were not augmented. Such technology can give the user more control over their bodies, and thus reducing the level of inconvenience and stress.

In addition, the cybernetic augmentation can help the users maintain or improve their health by incorporating advanced medical technology. For example, the research is ongoing on the development of the nanorobots which are designed to navigate through our bodies' blood vessels, detect the cancerous cell, and kill it [2]. Through the technology of

cybernetic augmentation, such nanorobots can monitor our body more comprehensively, and perform medical tasks more quickly and efficiently at an early stage.

Such strengths gained by the cybernetic augmentation are likely to increase the chance of the user's survival in wild nature (or in the unfamiliar environment or situations) as this technology can possibly allow him/her to evolve into a stronger and more adapted species.

#### **Increased efficiency and productivity**

An enhanced physical capability of the workers by means of cybernetic augmentation is most likely to increase the efficiency and productivity of the work and industry. This would be a good news to the employers, since they can either reduce the labor cost by employing less number of people to do the same job, or increase the profits with the same number of employees because they would have enhanced efficiency and productivity, thanks to cybernetic augmentation.

#### **Self-defense and military application**

One may claim that cybernetic augmentation which enhances the physical ability would lead to more security as it can be used as means of self-defense. However, this is indeed subjected to the dispute that it can be used also as a weapon to attack others, which is analogous to the current debate regarding the gun control issue in U.S. Nevertheless, it is hard to deny that the cybernetic augmentation can be used to enhance the level of self-defense of the user, compared to the non-users of cybernetic augmentation.

Such advantage of cybernetic augmentation can be most extensively exploited in the field of military application; the soldiers with high-level cybernetic augmentation can gain enhanced physical combat ability.

#### **Further development of technology**

Once the physical cybernetic augmentation becomes an active trend of the society, there will be more initiatives for the further research, development and application of the technology in the fields of not only in cybernetic augmentation, but also in other fields of technology and industries. For instance, the design of the interfaces of many electronic gadgets or machines can change into a more efficient form (e.g. semi-automated guns that can be attached to the part of an augmented arm, or infrared monitors/screens when the visible frequency of our eyes can be controlled using an advanced electronic lens, etc)

#### **A..2 Benefits of cognitive CA**

This is the benefits of CA cognitive

## **B. Potential risks**

Just like any other technology, the potential benefits of cybernetic augmentation comes with concerns of potential risks. In this section, various problematic aspects of the application of this technology are identified and deliberated.

### **B..1 Risks of physical CA**

- Short-term risks that may harm the bodies and decrease convenience
- Unknown psychological effect
- Increased life expectancy has side effects: over population increased social-welfare cost, youth unemployment, etc.
- Increased sense of insecurity (Analogous to gun control issue)
- Employment issue (i.e. few people replacing many people's job)
- Military application can be problematic in view of ethics
- Necessity to change many regulations and laws, as well as to create ones
- Inequality issue
- Human dignity - loss of "humanness"

### **B..2 Risks of cognitive CA**

This is the risks of CA cognitive

## **C. Authors' viewpoint on ethical implications**

This is our opinion.

## **III. Recommendations**

These are our recommendations

## **IV. Conclusions**

This is the conclusion

## **References**

- [1] Pearson Education. *Longman Dictionary of Contemporary English*. 2007.
- [2] Alla Katsnelson. Dna robot could kill cancer cells. <http://www.cs.york.ac.uk/hise/cadiz/home.html>, 2012.