

# AI based Solution : A Business Perspective

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**Abstract:** Artificial Intelligence(AI) is an independent technology having its own entity, and hence capable of taking decisions and acting accordingly. It has impacted our lives largely and has its existence everywhere. AI uses information to perform tasks like humans in more efficient ways. At the same time, it is computation intensive and consumes energy. Transformations occurring due to AI are inevitable. Businesses are also fascinated by this technology. Every business tries to find an AI opportunity to implement. This research paper highlights the questions towards AI implementation which leads decision makers in business to think once before implementing an AI solution. It also emphasizes the importance of proper evaluation of the metrics for AI usage .

**Keywords:** Artificial Intelligence, Feasibility analysis, Decision support analysis, causal loop diagram

## 1. INTRODUCTION

Artificial Intelligence (AI) is the application of machines in simulation of human intelligence. It is more of natural language processing, expert systems, speech recognition and machine vision.

Technical advancements within the subject of artificial intelligence (AI) lead towards development of human-like machines, able to operate autonomously and mimic our cognitive behavior [1].

Businesses can use AI to make good managers better. They can look upto AI for improving with their interactions with customers and also with their employees. Adoption of AI based solutions have immensely benefited certain industries. For example, adoption of artificial intelligence in the finance sector means taking the finance sector towards automation, i.e. less human intervention and more work done by intelligent machines[5].

AI can also help businesses to find the patterns in huge data, utilizing these patterns to make effective decisions and also to perform repetitive tasks. The expert systems can help businesses in achieving good market share, great profit margins and overall growth.

Thus, AI is changing the rules of competition within industries all over the globe [1]. AI based solutions have been sought after even in industries or their components which traditionally do not extensively utilize ICT tools. Conventionally, AI based solutions have been seen to be beneficial for large companies, for example, Fortune 500 companies. However, AI based solutions are being promoted for small and medium scale businesses as well [6][7]. In this study, various factors associated with successful implementation of AI based solutions are analysed and potential pitfalls are discussed. System dynamics approach is used here and causal loop diagram is used for exploratory analysis of relative dependencies of various factors affecting the usage of AI in business.

## 2. MULTIDIMENSIONAL INFLUENCES OF AI

*“Information technology and business are becoming inextricably interwoven. I don’t think anybody can talk meaningfully about one without talking about the other”--- Bill Gates*

This quote highlights the importance of technology in every business.

According to [artificial intelligence statistics](#), 75% of business owners believe that AI will open up new job positions and will boost productivity. Although AI will create 133 million jobs by 2022, it will make as many as 75 million positions obsolete[8].

AI has a well informed impact on business decision making. The decisions can cause effects on three fundamental dimensions of sustainability: economic, environment and social.

These factors need to be evaluated before making any decision. There are two aspects for and against AI for business in view of economics and the environment. As per the recent discussions in the field of ICT, complex relationship between AI, climate policy, and possibilities for a just and liveable future. Many researchers questioned the deployment of AI, whether AI will benefit society without hampering the environment. It addressed the issue of choosing the AI and considering it as a solution to the sustainable use of natural resources and environment.

In addition to new technologies and use cases, AI has a deep impact on society and social life and has the potential to seriously shape and change humanity[2].

The multidimensional influences of AI can be summarized as in Table 1

Table 1: Benefits and Risks of AI

<b>Dimension of business</b>	<b>Benefits</b>	<b>Risks</b>
Economics/ Finance	<ul style="list-style-type: none"> <li>● Efficiency in handling large volume of information</li> <li>● Efficient budgeting and forecasting</li> <li>● Eliminate bias of metrics</li> </ul>	<ul style="list-style-type: none"> <li>● High end technology is too expensive</li> <li>● Human intuition is elusive</li> <li>● Lack of regular scrutiny is a problem</li> </ul>
Environment sustainability	<ul style="list-style-type: none"> <li>● Transform production by better monitoring and managing</li> </ul>	<ul style="list-style-type: none"> <li>● Increase in company's use of energy due to high computations</li> </ul>
Social impact	<ul style="list-style-type: none"> <li>● 24*7 availability</li> <li>● Repetitive tasks and scalability</li> <li>● Rational decision making</li> <li>● Selfless with no breaks</li> </ul>	<ul style="list-style-type: none"> <li>● Misuse and manipulations is dangerous</li> <li>● No creativity</li> <li>● Invasion of privacy and social grading</li> <li>● Information tracking without one's consent</li> </ul>

### 3. FEASIBILITY ANALYSIS

Causal loop diagram (CLD) model prepared in VENSIM software, explaining the dynamics of relationship between artificial intelligence and size of the company. In this work, a conceptual Causal Loop Diagram (CLD) is developed to study how implementation of AI methodologies in new ventures is expected to influence revenue streams.

For an industry which does not have existing setups and corresponding paraphernalia for using Artificial Intelligence, the first step required would be identification of the problem. In Figure 1, it is represented by AI applications. An internal assessment of the products, services and process needs to be carried out. Such an assessment can bring out opportunities for implementation of AI methods and clearly define the problem statement.

For such an AI project, a team of AI professionals or consultants needs to be hired. This is a critical step as it requires significant investment on a recurring basis. Moreover, with a skilled AI team, more opportunities for AI applications can be explored.

With larger and more AI applications, the revenue is expected to increase. Simultaneously, the requirement of the computational resources increases. With higher utilization of computational resources, electricity usage and hence, carbon emissions increases.

Operating expenses of the company would directly be influenced by the size of the AI team and computational resources.

The marginal increment in the revenue can then be obtained from the increment in the revenue because of AI adoption and increment in operating expenses.

The figure 1 clearly shows the factors under consideration while implementing automation with AI in business. It has the following contributors

- Revenue
- AI applications
- Operational expenses
- Computational resources
- Employment of AI experts

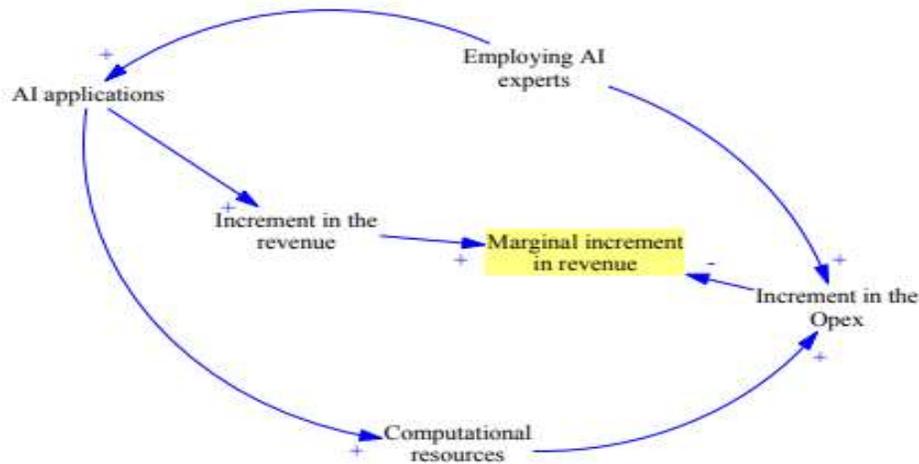


Figure 1: Causal Loop Diagram (Author's Construction)

## 4. DISCUSSIONS

Firstly, revenue is the key in any business. The economics of the business broadly decides the acceptance or rejection of technology deployment. Merely the advancements, as a boom, can not be accepted in business if it consumes a high revenue portion.

Secondly, the need for AI applications is to be justified in order to get the profit in the business. The AI application identified and its utilization needs to be evaluated wisely before investing.

Third, the operational expenses of AI projects are very high. The business requirement and these operational expenses should be balanced out properly. Excessive operational expenses are harmful to the business.

Fourth, computational resources will be governed by the AI applications and will directly contribute to the operational expenses. These resources may also adversely affect the environment and in turn sustainability.

Lastly, the AI applications can be well handled by employing the AI experts or in house training can be given to the employees. The former contributes to increased operational cost and the latter will require an excessive time slot which in turn contributes to higher operational cost.

Substantial progress in many areas has accelerated the development of AI, which has the potential to reshape the competitive landscape of companies, jobs, and the economic development of countries[4].

Undoubtedly AI has a deep rooted impact on every field across the globe. The system

dynamics approach discussed here, talks about whether the AI implementation in business will be affective or effective on various levels. The profound use of this technology may apparently look profitable but a wise thought should be given to its impact on economy, society and environment. This study has attempted to propose an integrated model for the adoption of AI in new ventures.

## CONCLUSION

The dynamics provided in this paper narrates that AI can be useful in the long run and may not give you instant results. The proper evaluation of positive effects is a must before investing in an AI project. The future of AI is more dependent on IOT (internet of things). IOT takes the path of high energy consumption due to information intensive tasks. It can be helpful in simulating smart behavior using intelligent systems, accurate decision making with little or no human interference.

But, an economic growth agenda using AI in business may adversely affect the environment, society and business revenue itself. So the wise choice is to be made before actually implementing AI in the business.

Like all good things in life, utilization of AI based solutions cannot be just implemented in a broad stroke, rather should be employed only after a judicious evaluation of situations and consequences.

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