

“The Impact of AI Annotation on Product Development”

Quantigo AI



Prepared by
Humaira Ferdous Medha
ID: 201011055

Supervised by
Abdul Baten, PhD.
Assistant Professor
School of Business

Submitted in Partial Fulfillment of the Requirements for the Degree
Bachelor of Business Administration



Date (14th December, 2025)



Internship/Project Report Approval Form

Student Name: Humaira Ferdous Medha

ID No.201011055

Major: Marketing

Year: 2025

Mobile Phone: 01629656830

Email: humaira.ferdous.bba@ulab.edu.bd

INTERNSHIP/PROJECT INFORMATION

Internship Organization: QUANTIGO AI

Internship /Project Report Topic: The Impact of AI Annotation on Product Development

Term (Tick one): ☐ Spring 2025 ☐ Summer 2025 ☐ Fall 2025

SUPERVISOR APPROVAL

(Tick One)

☐ Approved ☐ Not Approved ☐ Partial Re-write ☐ Full Re-write

Remarks (For Not Approved): _____

Signature: _____

Date: _____

Name: Abdul Baten, PhD.

E-mail: abdul.baten@ulab.edu.bd

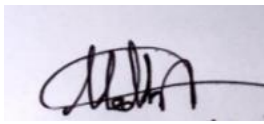
Phone: +880 1759-510388

PLAGIARISM DECLARATION

1. I know that plagiarism means taking and using the ideas, writings, works or inventions of another as if they were one's own. I know that plagiarism not only includes verbatim copying, but also the extensive use of another person's ideas without proper acknowledgement (which includes the proper use of quotation marks). I know that plagiarism covers this sort of use of material found in textual sources and from the Internet.
2. I acknowledge and understand that plagiarism is wrong.
3. I understand that my research must be accurately referenced.
4. This assignment is my own work, or my group's own unique group assignment. I acknowledge that copying someone else's assignment, or part of it, is wrong, and that submitting identical work to others constitutes a form of plagiarism.
5. I have not allowed, nor will I in the future allow, anyone to copy my work with the intention of passing it off as their own work.

Name: Humaira Ferdous Medha

ULAB ID: 201011055



Signature

Date: 14th December, 2025

Letter of Transmittal

December 14th, 2025

Abdul Baten, PhD.
Assistant Professor
School of Business
University of Liberal Arts Bangladesh

Subject: Submission of Internship Report

Dear Sir,

With due respect, I am pleased to submit my internship report as a partial fulfilment of our BUS4398 Internship of 6 credit requirements for my BBA degree from ULAB for completion of my internship at QUANTIGO AI in fall 2025.

This report is a summary of what I learnt and experienced during my internship at Quantigo AI, where I worked closely with the AI Annotation and Data Operations teams. It also touches on essential topics that have come into prominence concerning data quality challenges exhibited throughout the development of artificial intelligence. The data employed within the finding section of this document is informed not only by primary sources but also secondary sources, with the objective of ensuring that the data employed is accurate, relevant, and of analytic significance.

For completing this report, I have given my best effort with professional practice in every part as per the necessary guidelines. I hope this report meets your expectation. Working on the report was incredible eyes opening endeavour for me as I have not just got opportunity for gaining work experience, but also learned from the university and the company for preparing this report on a significant problem.

Working under your supervision is something I am grateful for and under the guidance of my supervisor and my colleagues, I really enjoyed my internship period. I am very fortunate to have their insights and support in completing this report. I am requesting you for approving this internship report and please allow me to qualify for the defence and to complete my internship and BBA degree.

Sincerely,
Humaira Ferdous Medha
01629656830
School of Business,
University of Liberal Arts Bangladesh

Table of Contents

Part- A

Chapter-1: Internship Preparation.....	1-3
1.1 Motivation to do Internship.....	1
1.2 Internship Search Process.....	1
1.3 Interview Experience.....	2
1.4 About QUANTIGO AI.....	2-3
Chapter-2: About the Internship.....	4-6
2.1 Roles and Work Description.....	4
2.2 Learnings, Skills Implemented, Skills Acquired and Contribution.....	5
2.3 Implementation and My Educational Learning.....	6
Chapter-3: Self-Reflection.....	7-8
3.1 Personal Internship Feedback.....	7
3.2 Internship Improvement Ways.....	8
3.3 Insights for Next Position & Recommendation for Company's Next Intern.....	8
Chapter-4: Personal Development Plan.....	9
4.1 Next Course of Action & Career Plan.....	9
4.2 Technical & Interpersonal skills I am willing to learn for future career.....	9

Part- B

Executive Summary.....	10
Chapter-1: Introduction.....	11-12
1.1 Research Title.....	11
1.2 Background of the Study.....	11
1.3 Problem Statement.....	11
1.4 Research Questions.....	12
1.5 Research Objectives.....	12
1.6 Significance of the study.....	12
Chapter-2: Methodology.....	13-14
2.1 Type of Research.....	13
2.2 Research Design.....	13
2.3 Sampling & Data Collection.....	13-14
Chapter-3: Findings and Discussion.....	15-19
Chapter-4: Recommendation.....	20-21
Chapter-5: Conclusion.....	22-23

Part- A (Internship Experience)

Chapter-1: Internship Preparation

1.1 Motivation to do Internship

At the end of university journey, all students have to do an internship at a company or they have to do a project on a topic to fulfil the last 6 credits for the BBA degree. As a positive learning mindset student, I know the necessity of hand-on experience, and for that I was motivated for internship because I would be able to apply my academic studies that I have learned during these years in a corporate environment. To be more precise, I wanted to get insights of how the academical applications that I have learned in my BBA courses and Marketing major courses actually align with a real organisation. The main reason behind doing this internship is to strengthen my capabilities for future job opportunities and also for my post-graduation. My target is to get a position at an organisation to build a network and lay the foundation for a good career. It is must to say that, my aim was to learn, understand and grow in a corporate atmosphere. I wanted to explore the ins and outs of the company, dive into its diversified operations and gain experience how it's like to work with different professionals.

1.2 Internship Search Process

Process for Application:

To pursue for an internship, I stated preparation before the final exam week of Summer 2025. I continuously updated my cv (resume) with my previous experiences and formatted with the current standard that companies prefer. As an “Intern Service Operations” intern, I desired to work in a leading company. Whether it's a Bank or other companies. I consulted with professionals within my networks who worked or are currently working in different organizations. In my resume, I used my faculty's references who knew me and my capabilities well enough. At first, I searched for internship posts on so many Facebook pages. I applied for around 20 internship positions that align with my background. I applied City Group, Pran-RFL-Group, United Group, bKash and so many more. I also applied for Mutual Trust Bank, Quantigo-AI with forwarding letter and CV.

1.3 Interview Experience

After few weeks, I was called for interviews. The first ever Interview I was called for was “**United Group**”. It was 2 phase interviews. First two seniors HR officers interviewed me and asked few questions regarding Sales Promotions. After qualifying, I was called for second phase, which was conducted by The Head of HR. I was a bit nervous as it was my first interview. The second company called for Interview was “**City Group**”. On the day of interview, first I had to pass a written exam. Then I was called in interview room for assessment. In the interview they asked me about my strengths and weakness. I was getting due to starting internship as Fall 2025 started on October 1st. Afterwards, “**Mutual Trust Bank’s**” HR called me and provided me offer letter without an interview as my qualifications met their requirements. While going to take offer letter at MTB Gulshan head office, I attended a formal interview at **QUANTIGO-AI** at Uttara. During the interview I was confident that time. I explained all my previous experiences, my volunteering works, workshops, annotations and trainings. The interview at **QUANTIGO-AI** went very well.

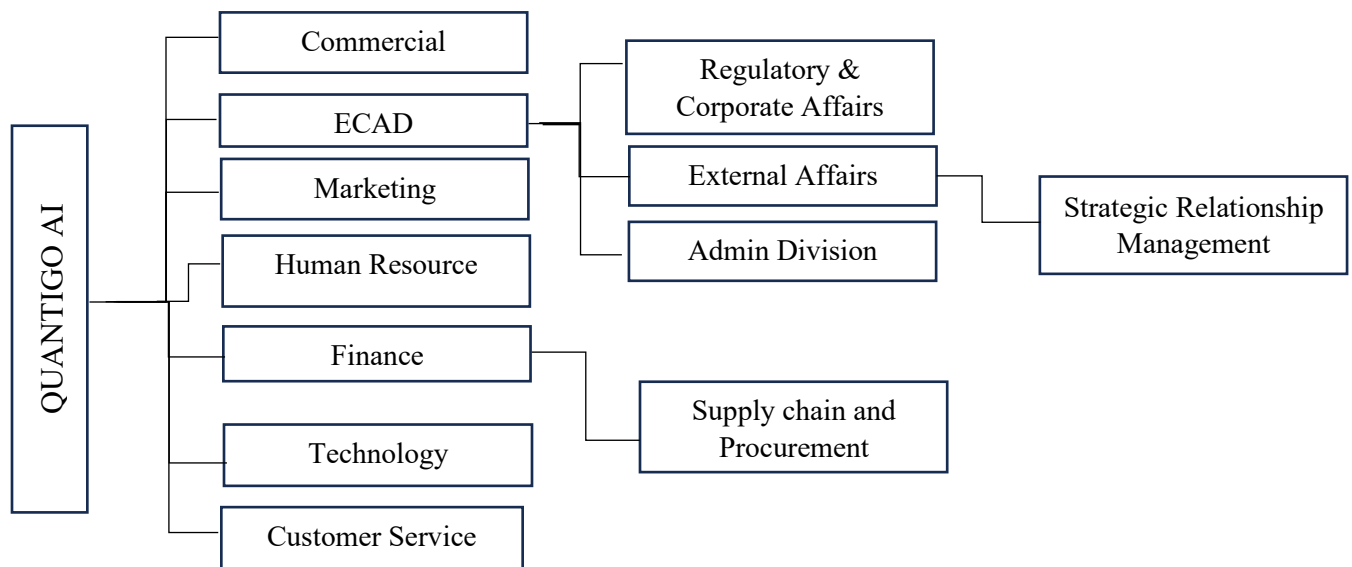
Selection of Organisation: I started my internship at MTB in Mohammadpur Branch as it was my only option at that time. I started working there and got familiar with the environment. I was getting to know the bank’s culture. I got to know about Debit and credit card registry, photocopies, scanning and other operational activities. On the end of the first week at MTB I suddenly got called from **QUANTIGO-AI** and offered me an opportunity for an internship. I was confused that moment. As **QUANTIGO-AI** had a brand value and is the leading empowers businesses by transforming human insights into machine intelligence through cutting-edge AI data solutions company, I switched to **QUANTIGO-AI** on the next week. I collected forwarding letter from CD for **QUANTIGO-AI** and on the same day I submitted an apology letter to the MTB Mohammadpur Branch Manager. With the procedures and documentation, I officially joined **QUANTIGO-AI** as intern.

1.4 About QUANTIGO-AI

- ❖ **History & Investors:** Quantigo AI provides annotation services and training data for machine learning and artificial intelligence systems. Their primary offering consists of human-powered data solutions, including data collection, assessment, quality assurance, and annotation. It is especially for processes involving computer vision, natural language processing, and associated AI. Quantigo AI was founded in 2017. It is a corporation based in Canada, and on May 27, 2019, "Quantigo AI Incorporated" was officially registered in Toronto under the Canada Business Corporations Act. Nasib Ahmed is the CEO and the founder of the company. Quantigo AI is a globally recognized data annotation and AI training data provider, with a strong operational presence in Canada and Bangladesh. It has clients in over 18 countries. Around 300+ people are working at Quantigo AI Bangladesh.

- ❖ **Vision & Mission:** CEO Nasib Ahmed had the vision to be the best and most trusted company in the world for offering high-quality AI data services that put people first. And also provide a wide range of job services and create a convenient platform for the unemployed people of the country.
- ❖ **Product & Service:** Quantigo provides AI annotation services bounding box, polygon, key point annotation, segmentation in images, video, 3D, text/NLP, etc. They also handle **data collection, evaluation, and scaling of datasets, among other tasks.**
- ❖ **Some Achievements:** The company was also nominated for the "**Best in AI & Automation**" award at the CanadianSME National Business Awards in 2024. QUANTIGO is the first company to implement annotation technology in their system. Now, they have reached customer base of 7 crore. In 2024 QUANTIGO AI was named best brand of 2024.

Core Management Stricture of QUANTIGO-AI:



Chapter-2: About the Internship

2.1 Roles and Work Description

I was offered as an intern at Project delivery team department. It was a paid 3-month duration internship at UTTARA. There are also other teams like as Delivery Manager team, Community & Resource Specialist team, Associate Delivery Lead team. There were several inductions from every team so that I can understand how all teams operate. The system, procedures, regulations and compliances outlined very well in these notes and must be strictly maintained. I was given a official laptop and I work with the Project delivery team. I have to do compliance-related work.

- After rigorous trainings, I was assigned to do Personal Annotation verification. Reflecting on the Personal Annotation Labelling Quality Check guidelines. I have to verify and accept or reject accounts based on whether a customer is labelling correctly, providing all the required information. I verified around 10000 annotations in 3-4 weeks.
- I along with other interns in my team helped the senior officers and line manager to prepare daily report.
- All the Interns had to present on different interesting topics in front of my faculty member, **Abdul Baten** sir and the topics were selected by him. He provided positive & constructive feedback to every intern and guided for careers improvements.
- I got the opportunity to Data Annotation training seminar 2024, It was a very insightful 2 days seminar. On the second day Country Director MD. Ahmed Abudullah gave his valuable speech. As an Intern, I got the privilege and volunteered for photography of the seminar.

Office Environment

Annotation Project Delivery department where I was assigned was located in Uttara Sector-3. There is other four departments – Customer Service and External Affairs, Project Delivery Team, HR team, IT team. The whole building was not too much big and all the departments were divided with block like arrangements. The whole area is aligned with desks for employees and every desk of the employee reflects a personality of the employee as they can organise their own stuffs how they want. The desks are so close to each other so employees can communicate with each other whenever necessary. The employees at QUANTIGO-AI are very friendly and helpful. I always get support from my Project Delivery team whenever I have confusions. Everyone respects each other and the environment at QUANTIGO-AI is what many job seekers wants to be at.

2.2 Learnings, Skills Implemented, Skills Acquired and Contribution

➤ **Things I learned-** During my internship I got to learn a lot of great things. I learnt about:

- Appeared in formal interviews which is a lot different than university.
- To work, interact and productively communicate with seniors and colleagues.
- I got to establish networks with professionals, as an outcome, I've LinkedIn connections which is valuable.
- Appropriate dress-up and etiquettes for corporate environment.
- Proper time management and maintaining discipline.
- Learned about functions and operations of a fintech company, efficiently handling tasks.
- I also learned how they organize and manage big events like seminars, how they discuss, take notes and communicates collaboratively and constructively.

➤ **Skills employed in carrying out tasks-** The skills that I already had which came into play at my workings includes:

- Academic knowledge of Business Communication which includes one on one communication, through phone calls or emails, etiquettes for communicating professionally etc.
- Previously I did a course on MS Excel from Bright skills which was offered free through ULAB Digital Marketing Club's membership and that Excel skill came in handy when I started my internship at QUANTIGO-AI. My work is based on Excel's spreadsheets, Supervisely, and Encord.
- The groupwork that I used to do in courses helped me to do better in my teamwork capabilities. I had my own portion of works that I accomplished with discussion along with team members.

➤ **Skills Newly Acquired-** During working, through my internship I got the following skills:

- Presenting more professionally, making PowerPoint cleaner and simpler.
- Mailing professionally on Outlook to my reporting officer about my daily task.
- I along with other interns were trained day long on advance MS Excel so that we can use the tool more efficiently.

➤ **My Contributions to The Company-** During my time at QUANTIGO-AI, I made some contributions that benefitted the company such as:

- Helped in verification of the annotation project quality check. Since more than 200 people work as data labels in this company, it is necessary for the Project Delivery Team to verify their accounts. So that the employee cannot misuse the company's data in any way and the quality of QUANTIGO-AI's services is maintained.
- After the personal annotation level check, I was given the task of annotation, which was more complex because annotation is a very complex task, every detail of an image or video has to be labelled. I annotated 3,000 frames and helped verify nearly 10,000 annotations that will be included in my line manager's reports.

2.3 Implementations of My Educational Learning

From my university's BBA education's learning was highly relatable and their implications had a great impact during my internship without any doubt. The sessions of 'Skills for Career' from CSO and 'Career Vision' by Gholam Sumdany Don helped me grooming for creating CV, Interviews, corporate environment, how I can communicate better, my dress up, etiquettes and other aspects. Courses like BUS205 Business Communication helped to amplify my capabilities to communicate professionally through phone calls, messages and emails. From BUS209-Organizational Behaviour, I could relate to how personality, attitude, ethics can influence job satisfaction, also I can relate how teams work. I can relate how personality and values can ensure Person-Job Fit in an organization. I can also relate HoD and Line Manager's leadership traits and attributes that I had learned from my academic courses. Employee motivations is related from HRM courses. While working in the marketing department, I was responsible for market segmentation, while assisting with various social media marketing activities. How Marketing Managers managing this huge company that I can relate with my Marketing Management courses. I also observed other aspect as well. Company's Law is related to Business and Legal Environment.

Chapter-3: Self-Reflection

3.1 Personal Internship Feedback

The internship that I was doing was a wonderful lifetime experience. In my opinion QUANTIGO-AI has a great reputation and the branding it carries is very rare that not many other companies hold. Not just only to the customers but also to its hard-working employees. There is a belonging feeling to its employee. Everyone feels the company as big family. I was fully satisfied and with my duration and I got a strong foundation there.

Things I like about QUANTIGO-AI are:

- **Innovative Environment:** As all high talented people works in the company, everyone has a great contribution which drives innovation in every aspect.
- **Company Culture:** The culture of QUANTIGO-AI is unique. It is more similar to flat organization where everyone is more friendly and no one is ego centric.
- **Helpful:** Everyone in the office seems so helpful. They never refused to help in any way whenever I asked for something.
- **Networking:** I had the chance to connect with professionals which might help me in my future career opportunities.
- **Lunch and food system:** The food catering and coffee servings are very satisfying and having lunch facilities are very good. There are offices where lunch is not provided and have to search for food in the area. Whereas QUANTIGO-AI lunch facility is way better.
- **Collaboration:** Every team in the department works collaboratively where I have learned how professionals perform teamwork in such a dynamic workplace.

Dislikes: The things that I found difficult about the internship are:

- **Repetitive work:** The works and task I do in the office involves routine activities. Doing the same things sometimes get monotonous, though the works incorporates learning opportunities.
- **Challenging workloads:** I was able to improve my time management and stress-reduction skills by meeting daily goals and objectives. Even though there may be a lot of pressure, it is beneficial in a fast-paced setting.
- **Demanding hours:** Working in fintech industry's nature sometimes require extended working hours. Which has also taught me to be adaptable and to be resilient. A balance of work and personal time could enhance productivity, enhance engagement and satisfaction.
- **Limited decision-making opportunity:** As an intern, my responsibilities are limited which is understandable. However, providing interns some opportunities for creative contribution or share.

3.2 Internship Improvement Ways

- **How I Could do better:** I could do better from my position in several ways:
 - I could be more proactive in my learning like doing things beyond my assigned task. Explore trends and gaining in depth knowledge and asking deep questions.
 - I also could build strong relationships with officers better, rather than just doing conversation regarding tasks only. I also could ask for feedback regarding my performance which could help me to identify my area of improvement.
 - I could be assigned for solving complex problems which could add value in the team and could improve my critical thinking ability. If I could get to read various reports and other information that would help me to get deep insights. I could have been assigned for different tasks which could have help me gain more experience.
- **How QUANTIGO-AI could utilize me better:**
 - They could assign me more diversified and challenging task which would enhance my skills and interests. As a result, I would be more motivated and engaged in my work.
 - They could involve me in a project lead so that I could meaningfully contribute and gain experiences.
 - If I could get my recognition through my contribution that would boost my confidence, encourage continued effort.

3.3 Insights for next position & Recommendation for company's next intern

After completing my internship, I would like to work on several topics for the next stage of my career. I have mainly worked with the project delivery team and have had limited contact with other departments. Since marketing is my primary background after completing my BBA degree, I am considering job opportunities in the marketing department. In the future, I will focus on working in the marketing department, as I have good knowledge in this field. I also want to strengthen my communication skills so that I can present my findings concisely and clearly to different audiences. I would want to broad my Industry knowledge so that when I will be working in a company, I have the clear idea of that Industry and other functions. I want to develop marketing developing strategic, market research, consumer behaviour, and competitor analysis to gain knowledge on how to make campaigns more successful and increase brand recognition. I would want to working together with other departments, including sales and human resources, may help the whole business flourish. New ideas and creativity in storytelling and making content can also help bring in and keep consumers and also broad my Industry knowledge when I will be working in a company, I have the clear idea of that Industry and other functions. I want to develop leadership skills so that I can take initiatives for management of small projects and also, I can mentor my future team members. I would also like to enhance my technical expertise.

As for some recommendations how, QUANTIGO can improve its internship program, I would like to mention some aspects. There could be a structured onboarding program where details about roles and the department and hierarchy of the department and organisation will be mentioned. There could be one on one sessions for feedbacks for performance and improvements. Assigning interns to meaningful projects where they can directly contribute for the goal of the team. I only worked in Annotation Delivery Team and If I could get a chance for exposure or work with another team like, Associate Delivery Lead team, Training or other teams, that would enhance my knowledge and experience.

Chapter-4: Personal Development Plan

4.1 Next Course of Action & Career Plan

- **Short Term Goals:** Within 1-2 years I have several plans for myself. After my graduation I will be searching for a job that will be best fit with the skills and capabilities that I have. I want to enhance my soft skills. I want to have my own driving licence as it is necessary to have my own car so that I can go to my office with ease. If possible, within 6 months to 1 year, I might enrol for Master's Degree along with doing my jobs. I will attend career fair, workshops or seminar for expanding my connections with professionals. I want to be more disciplined and maintain a healthy work life balance. I will be doing regular workout and exercises to keep myself fit. I will also improve my habits for reading and I want to read at least one professional development book each month.
- **Long Term Goal:** I want to secure a position for Sales role in a good company and I want to be a Sales Executive within 5 years. In future I want to gain exposure in Global Sales practices through international marketing seminar. I want to advanced Marketing tools so that I can align myself with evolving tech requirements in Marketing.

4.2 Technical & Interpersonal skills I am willing to learn for future career

There are several skills that I am willing to learn for my future career:

Interpersonal skill: Enhance my soft skills like communication, public speaking, critical thinking. I want to improve my interaction with others so that I can perform better in a team. I want to understand the human psychology so that I have a better emotional intelligence as a result I will be able to build positive relationships with my colleagues and also in my personal life. I want to be a good negotiator so that I can set salary discussion, resolve conflicts in workplace, and manage expectation of stakeholders.

Technical Skills: I am developing skills in my Graphics design. I want to make it my passion and excel on it in the future. I want to be a freelancer through my graphics designing skill in the future. I want to learn Marketing tools which will help me in the future for employee assessment, Market analytics, workforce planning, training programs. I want to gain knowledge on compliance so that I have better understanding on labour laws, legal standards, and other aspects.

Part B (Research Segment)

Executive Summary (Abstract)

The research titled “The Impact of AI Annotation on Product Development” examines several important ways that AI-driven data annotation supports the quick development of contemporary product development. As more and more businesses use AI-powered systems, high-quality annotated data has become a top priority for enterprises that want to make accurate, efficient, and competitive goods.

This research aims to achieve two main objectives:

1. To identify the key factors that influence how AI annotation is impacting product development processes and how it will be useful in the future.
2. To Evaluating the efficacy of existing annotation techniques employed in the AI-driven product ecosystem.

As this is descriptive research but some elements of exploratory study also done in this research. A quantitative method was employed to collect data for this study among new product development teams and AI annotators using two distinct online structured surveys. The results obtained by the annotation experts indicate several critical factors that affect a product performance outcome to a great extent. Such factors include correctness of the annotations, level of competence among the annotators, complexity of tasks, quality of the guidelines, and quality control mechanisms.

This study indicates the importance of enhanced annotation tool chains, research and development in automatic annotation techniques, and collaborative work among annotators, developers, and AI engineers. This ensures that corporations employ AI-assisted systems for annotating along with training annotators to achieve maximum efficiency.

The observations made in this research have several practical implications for teams using AI for their product development as well as for any data-focused company. This presents a roadmap for future improvement in efficiency and better accuracy in developments using AI. Though this research has a few shortfalls, such as a small data sample and a general level of awareness regarding problems with annotations, this serves as a basis for other researches emphasizing the need for a proactive approach towards improvement in such annotations.

Chapter 1: Introduction

1.1 Research Title:

“The Impact of AI Annotation on Product Development”

1.2 Background of the Study

Nowadays, Artificial Intelligence has become a revolutionary technology in current product development. As more companies in diverse sectors begin to integrate Artificial Intelligence in their business operations, the need for quality annotating data has increased significantly. Additionally, Artificial Intelligence annotation, such as annotating images, texts, audio content, and/or videos for use in machine learning models, plays a critical role in enabling accurate and efficient machine intelligence. This ensures that Artificial Intelligence-based products such as automation software, recommendation systems, chatbots, and computer vision work properly and provide their intended use. Consequently, this has made this process a critical milestone in creating intelligent digital products.

As a result of the growth of companies who use AI, current product development teams have the ability to build better solutions based on the use of large data sets that have been created using annotations. The use of annotated data sets leads to enhanced prediction and lower errors. Despite this advantage brought about by the extensive use of data annotation for producing better data for AI use, several problems exist. Examples of such problems that may affect the quality of AI outputs negatively include label bias, human errors, a lack of expertise in a particular field being annotated, time constraints, and unbalanced data.

Most studies that explored this area prior to this research were more aligned with the technical side of AI. They included but were not limited to mistakes in machine learning algorithms, training discrepancies, and other technical issues. However, notwithstanding those technical approaches and methods for optimizing those techniques, little research had previously explored this particular aspect.

This study aims to address this gap by examining how AI annotation influences product development, specifically in relation to product quality, workflow efficiency, model accuracy, and overall project outcomes. By recognizing such elements, this study can help others understand how to properly annotate to ensure more effective and trustworthy AI-based products.

1.3 Problem Statement

The growing application of artificial intelligence in many fields has made AI annotation an essential element in the development of many products, especially those reliant on data and machine learning.

Problems such as: Errors in data annotation, inconsistencies in data annotation standards, lack of experts in data annotation, the cost of managing model performance can hinder the efficient functioning of AI models and ultimately product output.

The significance of this study is emphasized in the context of the issue associated with AI-based product development and the need to derive insights to improve the process of AI-based annotation and its effective application in product development.

1.4 Research Questions

For planning and designing my research, I have set the following question for investigation:

1. What factors influence the effectiveness and quality of AI annotation in product development processes?
2. How effective are the current AI annotation tools and strategies in enhancing product development outcomes?

1.5 Research Objectives

for my research the objectives of the study will be as follows:

1. To identify the key factors that influence how AI annotation is impacting product development processes and how it will be useful in the future.
2. To Evaluating the efficacy of existing annotation techniques employed in the AI-driven product ecosystem.

1.6 Significance of the study

The research will help to better understand the impacts of AI-driven annotation on the entire product development process and will fill in the existing gaps in the literature. The results of this project will be able to assist the company in enhancing the efficiency and effectiveness of the annotation process and will make it possible to create high-quality AI-software products. Moreover, the efficiency of the AI model will be enhanced due to the improved process of annotation. Moreover, this study will be able to help product managers, data teams, and AI developers design more effective strategies for annotating their data and proper alignment of the data annotated with the AI model and the product to be developed. The findings of this study will be able to guide policymakers and leaders in developing standards and ethics to ensure responsible AI development. The ultimate purpose of this study is to improve the dependability and efficiency of AI product development and assist the organization in developing an effective AI solution.

Chapter 2- Methodology

2.1 Type of Research

The nature of the study conducted is more **descriptive** in its approach since the primary aim of conducting the study is to clearly explain how AI annotation impacts the various processes involved in developing products, from data preparation to training and quality and user experience enhancement. The study depicts the elements that affect the processes of AI annotation and their effect on the output of the product.

Moreover, the study has an exploratory component because the application of AI-based annotation in product development is a relatively new phenomenon and has received scant attention in academic circles. Since a growing number of businesses will be adopting AI-based solutions in the coming years, the study presents a novel perspective regarding the manner in which annotated data enhances the efficiency of systems in product development. The study also highlights the shortcomings in the current process and the need to optimize the same in product development.

2.2 Research Design

This research is mainly based on **quantitative** data and structured surveys through predefined questions was conducted to collect quantifiable data.

Two different sets of survey instruments are developed to meet the objectives of the study

- ✓ The first set of the survey was conducted with the AI annotators and the data labelling to understand their experience and the efficiency and quality issues they face while annotating the data.
- ✓ The second set of the survey is targeted at the AI product managers and the machine learning engineers to understand how the annotated data impacts the development process.

The purpose of this study design is to offer a holistic view of the operational and strategic outlook of AI-based annotation. Through an insight-driven approach that incorporates the views of annotators and product teams, the significance of quality-based annotation in developing better AI models and products is emphasized.

2.3 Sampling & Data Collection

For Sampling, I have used **convenience sampling**. Using this convenience sampling, responses were collected from 35 data annotators. Purposeful sampling was applied to evaluate the strategic impact on product development. Feedback was collected from 20 AI product managers, ML engineers, and quality analysts who are directly involved in the use of annotated data. For collecting data in my research, I used the following sources:

➤ **Primary Data**

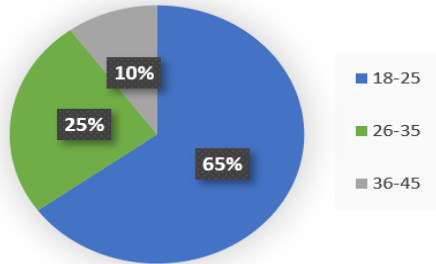
- The questionnaires were shared with the AI annotators via Google Forms to understand their levels of challenge, accuracy, and efficiency in their workflows.
- The teams to ensuring its impact on the model and product results. These teams were given structured questionnaires about the quality of the AI annotation process to AI engineers and product managers.

➤ **Secondary Data:** Industry reports, research papers, company documents, and various web sources regarding AI annotation, data quality, and product development were examined to complement the study and enhance the results.

Data Analysis: Google forms analytics and Spreadsheet Charts were used for analysing the data.

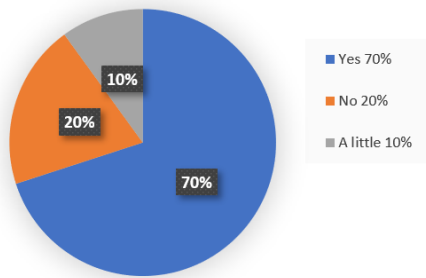
Chapter 3: Findings and Discussion:

Your age?



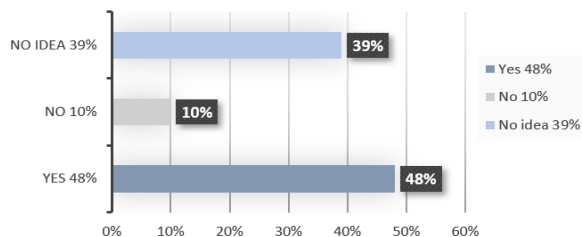
The people I surveyed mostly includes people who are young and aged between 18-25 (25) with a percentage of 65%. Others are 26-35 (8) with a percentage of 25%. One of them was middle aged and One of the user is above 45 years old. Here majority of the respondedts belong to the young aged . Majority, 65% of them are with undergraduate or at the stage of bachelor degree. 25.7% are with post graduate degree.

Are you familiar with the use of Artificial Intelligence (AI) in product development?



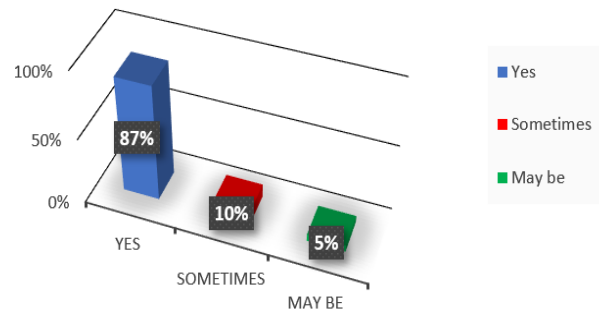
Most of the respondents (70%) showed that they are knowledgeable about the application of Artificial Intelligence (AI) in product development. At the same time, 20% of the respondents do not know about the application of AI in such matters, while 10% revealed that their current understanding is only limited or basic.

Is AI currently used in your organization's product development process?



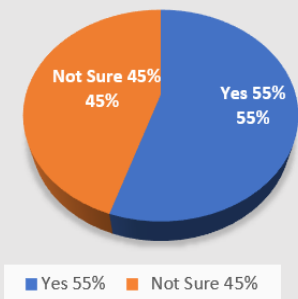
Almost half of the respondents (48%) believe that their organization employs AI in their current product development process. Only a small percentage of the respondents (10%) claimed that their organization does not employ AI, while a substantial percentage of the respondents (39%) do not know if their organization employs AI in their current product development process.

Does AI help reduce manual work in product development?



Majority of the respondents (87%) strongly agreed that Artificial Intelligence assists in minimizing manual work in product development. Moreover, 10% replied that sometimes it assists in minimizing manual work, while a small number of people (5%) were uncertain about it.

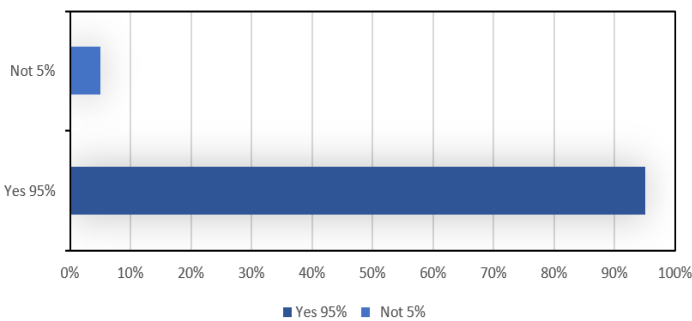
Does AI annotation help improve the quality of products developed in your organization?



A large number of participants (55%) feel that AI annotation contributes to improving the quality of products being developed in their organization. This could be attributed to the fact that AI annotation is effective in improving data accuracy, consistency, as well as precision levels of data annotation. However, some key observations came into the fore in this research, where a substantial number of participants (45%) were uncertain about its effectiveness. This could be attributed to minimal involvement of such research participants in the context of data annotation or the fact that AI annotation is still in its initial stages of implementation in their organization. This would mean that

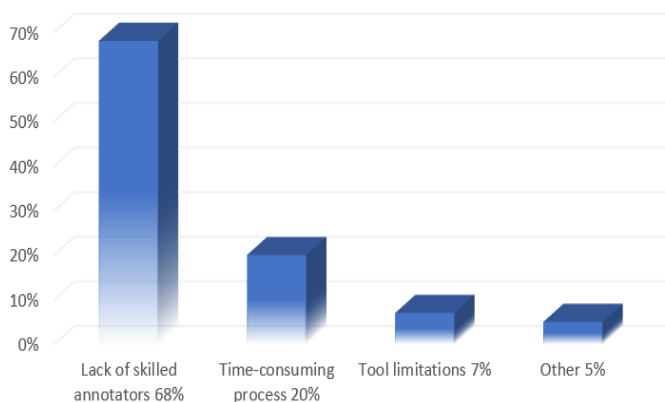
the effectiveness of AI annotation would not be clearly visible to all such research participants.

Do you face challenges while using AI annotation?



Results of the survey indicate that the issue of challenges in the use of AI annotation is universal among organizations. This is evident since 95 percent of the surveys face challenges using AI annotation services, while only 5 percent of the surveys do not face any challenges. Some of the challenges that can be encountered by organizations using AI annotation services could be related to the need to ensure that the annotations are accurate, dealing with vast data, among other factors.

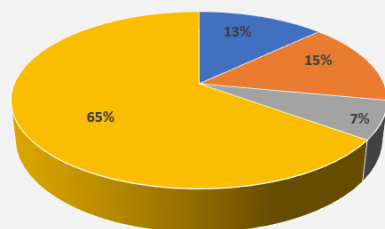
IF YES, WHAT IS THE MAIN CHALLENGE?



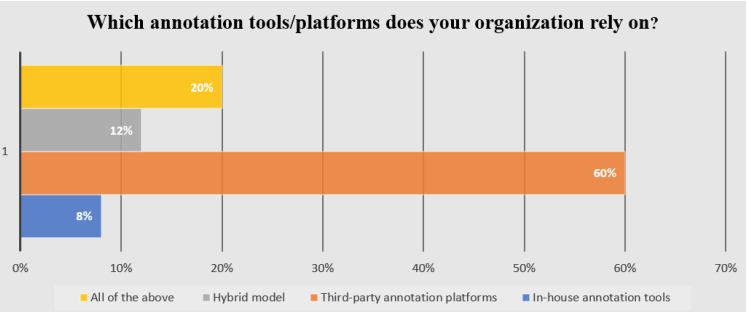
including privacy of data, vague instructions, budgets, or lack of communication between annotation teams and product developers.

Most of the respondents (65 %) cited unskilled annotators as the biggest challenge. The discovery highlights the importance of specific knowledge and skills, detailed focus, and knowledge of the field in which the AI annotation work is done level- all of which are often inadequate. Lack of training may give inconsistent or poor-quality labels, thus affecting the quality of the model and product. Another 20% of the respondents indicated that time-consuming annotation process was a serious challenge. The manual process of annotating large and complex databases is time-consuming and would require a lot of time especially when high accuracy is needed. A smaller percentage (7 % cited restrictions of tools available). Lastly, 5 per cent. composed other issues,

Which area benefits the most from AI annotation?

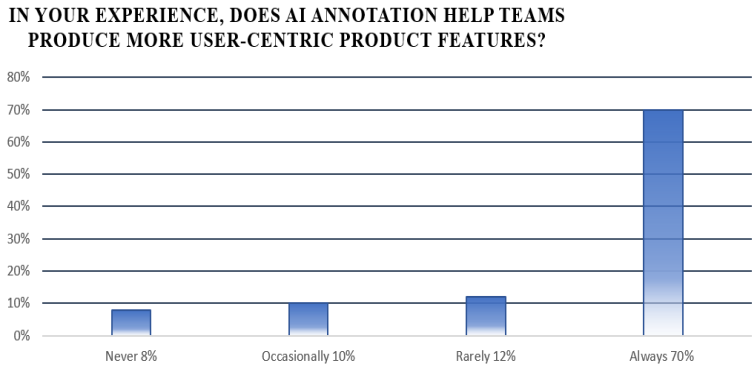


The vast majority (65 out of 100) of respondents chose the option of All of the above, meaning that AI annotation improves data quality, develops faster, and adds features to the products at the same time. This finding underscores the ubiquitous usefulness of AI annotation, where fine quality labelled data facilitates more precise models, faster iterations as well as more dependable product results. In isolation, 15% of respondents faster development growth as the key advantage, which is the ability of AI annotation to make workflows more efficient, reduce the number of re-work tasks, and allow more fast model training and testing. In the meantime, 13 % of them insisted on improved data quality. A minority (7 %) cited better product features, which could be due to better model learnings and less crude functionality with better-labelled data.



privacy standards. Most (60 %) reported using third-party annotation sites, implying that they prefer external solutions, probably because of their developed features, scalability and because in-house development and maintenance is not as necessary. Interestingly, 20% of the people who answered the question revealed they did not know what tools or platforms were being used, suggesting that some employees do not fully understand the AI annotation procedures within their organisation and there may be a communication or transparency gap between the technical staff and the general employees.

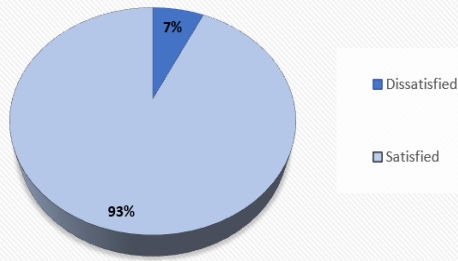
A small group (12 percent) uses a hybrid approach, which involves internal tools and third party solutions. This approach allows organisations to strike a balance between customisation and control and the efficiency and reliability of commercials. Only 8% were using in-house annotation tools exclusively. The organisations that create their own tools tend to seek to maintain the complete control over the annotation process, have it aligned with company AI models, or have strict data



development cycle, data is not balanced, and product features are not highly informed by user-centric feedback.

A large majority (70%) claimed AI annotation always helps the team to create more user-friendly product features. It implies that quality data annotated by experts will enable teams to comprehend user behavior, preferences, and needs in a better manner, which will inform product design and functionality. Smaller percentages of respondents indicated lower rates Rarely (12%), Occasionally (10%), and Never (8%). Such reactions can represent the examples where AI annotation is not embedded into the product

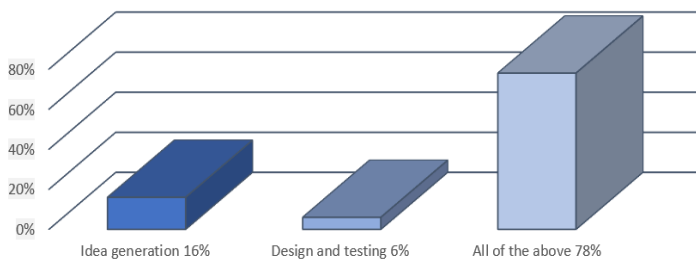
How satisfied are you with the current AI tools used for product development?



percentage is small, it indicates the presence of space to be improved to make sure that AI tools can be used to meet the needs of all teams.

The percentage of those who were pleased with the use of AI tools was enormous (93 %), which means that the tools are efficient in addressing product development tasks, such as data annotation, training a model, and improving features. This level of satisfaction is a sign that organisations have embraced tools that are fitting to their operations, enhance efficiency, and add to the quality of products. There was a small deficit in satisfaction (7 %), which can be explained by limited functionality, usability complications, integration issues, or the necessity to train more. Although this

WHICH STAGE OF PRODUCT DEVELOPMENT BENEFITS MOST FROM AI?



data and identifying trends that can generate new ideas. Only 6 % focused on design and testing, probably in the context of the role of AI in simulations of prototypes, testing functions, and the prediction of the results of performance

Most people (78%) chose All of the above implying that AI is used in all the phases of the product lifecycle, including idea creation, designing, testing, and refinement. This is an acknowledgement that AI can also help not only conceptualize new product ideas, but also optimize designs, forecast outcomes, find potential problems before they arise, and speed up iterative testing. In isolation, 16 per cent had pointed to idea generation as the most benefited stage. The AI can facilitate brainstorming, trend analysis, and innovation by examining massive amounts of

Chapter 4: Recommendation

Recommendations: The following recommendations are made based upon the results of my study "*The Impact of AI Annotation on Product Development*." Recommendations could be made to enhance the process of annotating and improve the efficiency of AI models in product development:

- **Improving the Awareness and Skill Levels of the Annotators:** The quality of the annotations performed directly impacts the quality of the AI model developed. It is essential to educate annotators regarding the standards and best practices in annotating, mistakes in labels, how to identify bias, and any domain-specific guidelines. This can be made simpler through the provision of proper instructional manuals and in-app reminders. Training programs in the form of workshops, sample-based learning, and videos should be organized to make the annotators aware of the task requirements. Moreover, the presence of real-time feedback tools, such as notification systems for changes in the pattern of labels and for mistakes, can direct annotators to maintain consistency and quality in their work. The provision of programs for digital literacy among new and remote annotators will assist the annotators in learning how to use the platforms in a safe and effective manner.
- **Improving AI-Based Quality Control Systems:** AI-assisted systems need to be employed to improve the quality of annotations. By incorporating quality control mechanisms based on machine learning, such as anomaly detection and auto-tagging for inconsistent tags, quality issues will be promptly detected. Semi-automatic tools for annotating, such as AI-suggested tags and pre-annotations, will go a long way in reducing the workload and keeping the quality high. Highly reliable access control mechanisms, such as two-factor login for annotators and safe project access, will provide end-to-end security against amendments and leakage.
- **Improving Communication and Support Systems:** To improve the annotation process, a support system should be implemented in the company where the annotator has the chance to report any issues or request a question to be clarified. The best way to ensure there are fewer delays is to implement a 24/7 communication system, be it through chatbots, a ticket system, or a hotline. The incorporation of an intuitive feedback system into the platform will enable the annotators to raise their issues, suggestions, and usability feedback regarding improvements to be made to the product through the platform.
- **Training and Adaptation to Employees:** Specialized training sessions need to be conducted for the team leads, quality controllers, and project managers to maintain proper adherence to the standards followed while annotating the data. The employees need to be properly trained regarding the significance of keeping the data confidential and reducing biases while annotating the data. Effective internal procedures will increase the credibility and reliability levels, especially while working with confidential data sources.

- **Industry Collaboration:** The involvement of organizations with regulators of technology and AI ethics groups will play a critical role in ensuring that the methods of annotating are globally standardized. Creating a centralized database regarding the best practices and trends in annotating, such as reducing the risks of bias and data security, will enable the organization to remain ahead in the changes taking place in the industry. Campaigns in favour of standardized annotative practices and proper AI ethics will minimize risks and increase the credibility of the products.
- **Gathering Regular Structured Feedbacks from Annotators:** Annotators are the users of the platforms, and they directly face the problems in the process. Knowing the annotators will make a proper team form to take a survey periodically to find out the problems associated with the platforms and new challenges in the process of annotations, and thus, bringing improvement in the product feature and quality of the datasets of annotators, resulting in a fast-developing product and improved performance by the AI model.

Additional Recommendation from my academic HRM knowledge: For the marketing side, vendors should improve their brand reputation by hiring knowledgeable annotators, data reviewers, and AI experts to produce quality and trustworthy results. By collaborating with the marketing, human resource, AI engineering, quality control, product management, and compliance departments, the difficulties with the annotators will be solved and the performance of the product will be in line with consumer expectations. The well-being of employees regarding stress and work efficiency will increase the efficiency of annotators and the uniqueness of the product in the marketplace.

Chapter 5: Conclusion

The main goal of this research is to analyse the effectiveness of AI-powered vaccines and the factors that will influence their process in product development. The annotators face difficulties in understanding ambiguous guidelines, the lack of domain-specific knowledge, and less familiarity with the incorrect annotations made, resulting in variation in model development. At the same time, organizations tend to disregard the significance of systematic annotating practices, thereby developing an imbalanced and incomplete dataset. Nevertheless, techniques such as the provision of coherent training to the annotators, the application of automated quality assessment, and the utilization of effective human-machine collaboration tools and solutions demonstrate moderate effectiveness in making the annotating process more precise, thereby enhancing the product development process. The AI development teams should be able to provide the necessary training programs based on the domain of the data. For instance, people tasked with annotating medical, financial, or legal data need domain-specific training, simplified instructions, and a constant flow of feedback. The training process should involve examples of mistakes made while annotating the data, how the mistakes influence the prediction outputs, and best practices the annotators should adhere to. The process of annotating data is one of the most crucial elements in determining the success of a product in a real-world setting. Tools and services for assistance in annotating and automated assessment of quality should be developed in a manner that closes any loops through which the quality of the annotated data will worsen the model quality. AI and machine learning approaches will be able to be implemented in the process of annotating to mark areas where a human has made a mistake and to establish the pattern of those mistakes based on the process of annotating the data. AI-assisted annotating tools will improve quality and save costs and time. Collaboration between annotators and the development teams comprising AI engineers and product managers is a critical factor in creating a trustworthy and safe AI environment. There should be a close collaboration between annotators and developers because any discrepancies in the data will be reflected in the end product quality. Product teams can also track and monitor the annotator actions and data trends and take necessary steps to correct any anomalies at an early stage. Associating risks and negative repercussions associated with the annotated data will be a powerful motivation factor for quality work by teams.

- **Limitations and Future Research:** There are a number of shortcomings in the current study. The study has been conducted with a particular type of AI product and cannot be generalized across all sectors. Since the current study involves interviews and observations of the annotation process, there might be an element of bias and inaccuracy in the study. The constraints in terms of time limit the investigation of the highly specialized tasks of annotation and the impacts of model performance in terms of time. The sample size in the current study might represent the entire population of the workforce in the sector of annotation and results in biased conclusions in the study. The current study tries to understand typical problems in the area of annotation but cannot identify the latest trends in the area of annotation, such as the annotation of synthetic data and multi-modal annotation. The current study involves a particular organization and cannot be generalized across the entire sector due to the comparison involved in the study across the entire sector. The current study involves access to internal proprietary data in the area of annotation and has a number of constraints due to the access to such data.

- **Future Research Recommendations:** Future studies should consider a more diverse set of industries and teams involved in the AI process. Another area of study will be the subsets of the annotation process, such as the basic process of annotating for sentiments, medical image annotation, and fine object detection, to name a few. More samples will provide a wider perspective and higher degrees of generalizability of results. Behaviour studies of the annotators, focusing on decision-making and uncertainty, and studying annotator mistakes should provide important results to increase the quality of the process and quality of the resulting products. Future studies should examine the effect of regulatory environments and global standards regarding the quality of the annotating process and final product design and development. Future studies should include the application of AI and active learning in annotating quality and automated scoring systems to improve the annotating process and quality of the final end product. Future studies should examine the effect of the annotator and their decision-making processes concerning the quality of the annotating process and quality of the resulting products. Future studies should examine the strategies.

References:

1. Thompson Brian, *“Unlocking Innovation: The Impact of AI and Intelligent Automation in Product Development”* 2024, October 31.
<https://www.ptc.com/en/blogs/cad/ai-intelligent-automation-product-development>
2. Quantigo AI, *“Consequences of Poor Data Annotation on AI Outputs”*, 2025, October 31.
https://www.quantigo.ai/blogs/Consequences_of_Poor_Data_Annotation_on_AI_Outputs
3. BasicAI *“The Influence of Artificial Intelligence in Education and the Impact of Data Annotation Services”*
<https://www.basic.ai/blog-post/education-in-ai-with-data-annotation>
4. Cloudfactory. *“Data Annotation Tools for Machine Learning: An Evolving Guide”*
<https://www.cloudfactory.com/data-annotation-tool-guide>
5. Uber AI Solutions, *“Why High-Quality Data Annotation is the Foundation of Enterprise AI Success”* 13 September, 2025.
<https://www.uber.com/bd/en/ai-solutions/resources/high-quality-data-annotation-enterprise-ai/>
6. Babina Tania, Fedyk Anastassia, He Alex, Hodson James, 2024 January, Journal of Financial Economics, *“Artificial intelligence, firm growth, and product innovation”*
<https://www.sciencedirect.com/science/article/pii/S0304405X2300185X>

Appendixes:



INTERNSHIP PROPOSAL FORM

Name:	Humaira Ferdous Medha.
ID:	201011055.
Department:	Bachelor of Business Administration
Supervisor's Name (Faculty):	Abdul Baten, PhD.
Organization Name:	Quantigo AI.
Internship Title:	The Impact of AI Annotation on Product Development

09-10-2025

Student's signature & date

Supervisor's signature & date

(Submit your Research Proposal to your Supervisor for approval)

Internship Organization: Quantigo AI Bangladesh.

Address: Address: House-4 Road-3, Sector-3, House-4, Dhaka 1230,

Phone: 01815-186455

Duration: Internship from 1st October, 2025 to 31st December, 2025

Organizational Supervisor:

Ahmed Abdullah

Country Director at Quantigo AI

Cell: +880 1705-483838, Email: abdullah@quantigo.ai

Description of Internship organization:

An Overview of Quantigo AI

History: Quantigo AI provides annotation services and training data for machine learning and artificial intelligence systems. Their primary offering consists of human-powered data solutions, including data collection, assessment, quality assurance, and annotation, especially for processes involving computer vision, natural language processing, and associated AI. Quantigo AI was founded in 2017. It is a corporation based in Canada, and on May 27, 2019, "Quantigo AI Incorporated" was officially registered in Toronto under the Canada Business Corporations Act. Nasib Ahmed is the CEO and the founder of the company.

Nature of Business: Quantigo provides AI annotation services bounding box, polygon, key point annotation, segmentation in images, video, 3D, text/NLP, etc. They also handle **data collection, evaluation, and scaling of datasets, among other tasks.**

Current Status: Quantigo AI is a globally recognized data annotation and AI training data provider, with a strong operational presence in Canada and Bangladesh. It has clients in over 18 countries. Around 300+ people are working at Quantigo AI Bangladesh.

Core Management Structure of Quantigo AI:

1. Nasib Ahmed is the CEO and the founder of the company.
2. Ahmed Abdullah is the Country Director for Bangladesh.
3. Razia Juthy is the HR of the company.
4. Hamim Akhter is the IT manager.
5. Emon Ahmed is the Annotation trainer.

CS003

CS003 (02) Page 1 of 1

Description of the Internship Study:

Description of the study: Artificial Intelligence (AI) plays a vital role in current product innovation. An essential process through which AI systems operate effectively is AI annotation, where data, such as text, images, and audio, are labeled to train machine learning models. AI systems cannot produce reliable results without proper annotation. High-quality annotation data makes automation easier, makes designs more accurate, and makes products work better when they are being developed. Even though it's important, many groups don't think about how the quality and techniques of annotation affect the success of development as a whole.

Problem Statement: AI annotation is crucial for intelligent product development. But it is still understudied from a direct product development perspective. Low-quality annotations can lead to poor models, delayed product development, and reduced innovation. Therefore, this work aims to establish the impact of AI annotation quality and efficiency on product development.

The Objectives of the study: The objectives of the study will be as follows:

- AI annotation contributes to innovation in product design.
- To what extent do human and automated (AI-assisted) annotations differ in terms of accuracy and impact on final products.

Expected Contribution and Gain: This study aims to create a comprehensive understanding of how AI-based annotation promotes the creativity, effectiveness, and dependability of product development processes.

Justification of the Study:. This topic was chosen because artificial intelligence (AI) annotation is becoming a more important tool in product development, enabling businesses to efficiently handle large datasets to get insights about consumer needs and improve product design.

Research Methodology:

- Sources and Methods of Collecting Primary Data: Surveys and interviews with employees in AI annotation and product development.
- Sources and Methods of Collecting Secondary Data: Company reports, academic journals, Research papers, internship reports, and case studies on the impact of AI annotation strategies on product development. Through a review of publicly available data.
- Sampling Technique and Sample Size: The sampling will involve experts working on the development of AI, data annotators, and product owners. Some 50-100 respondents will be targeted through purposive sampling.

Analysis and Interpretation of Data: The collected data will be analyzed using statistical tools (e.g., MS Excel, Google form) to interpret survey results. The analysis discusses the impact of AI annotation strategies on product development and how they are effective.

Reporting: A final report will be written at the end of the study with the findings. The academic supervisor and institutional supervisor will be regularly updated on the progress.

Timeline:

Serial	Activity	Weeks											
		1	2	3	4	5	6	7	8	9	10	11	12
1	Consultation with Supervisors	√	√	√	√	√	√	√	√	√	√	√	√
2	Secondary Data Collection		√	√	√								
3	Services Record Collection					√	√	√	√	√	√		
4	Primary Data Collection						√	√					
5	Data Analysis								√	√			
6	Draft Report Writing										√		
7	Final Report Writing											√	
8	Report Submission												√

Internship Offer Letter

Dear **Humaira Ferdous Medha**,

We are pleased to offer you an internship opportunity at **Quantigo AI** in the position of Intern, Service Operations within the **Service Operations**. You will be based in our Dhaka office. This internship will provide you with valuable professional experience and insight into the day-to-day operations of our organization.

The period of your Internship will be from **1st October** to **31st December**. You will be reporting to the **Delivery Manager**.

Your take home salary will be **BDT 7000** per month. Your working hours will be from **9:30 am to 6:30 pm** from **Monday to Friday**. You will be entitled to 1 casual leave each month.

We are excited to have you join us and look forward to supporting your learning and development during this internship.

Regards



Ahmed Abdullah Al Momin

Country Director

REVIEWED AND ACCEPTED

Employee Name

Date: