**Analysis Report:**

AI development and its effects on societal development.

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**Research question:**

As AI and automated sciences are developed further, and AI becomes capable of higher order thinking and information gathering, could these improvements present moral and ethical implications, such as job loss of both skilled and unskilled jobs, and the implications present within using AI to complete learning tasks within schools, etc. And could any developments in machines capable of automating work further this loss of skill within society?

Requirements and constraints of the digital solution

**Functional requirements:**

* It will represent qualitative and quantitative data through a variety of charts and formats.
* The solution will contain several data visualisations of varying types.
* The solution will contain a mix of data types such as text, number, images, and graphics.
* Solution will reach a supported conclusion about the research question, both in terms of public opinion and in terms of found secondary data.
* Complex, opinionated and biased qualitative data will be used as a basis of any analysis to gain the general opinion of society in regard to the moral implications of AI.
* Data is presented in a simplified and a meaningful manner and is educational.
* Will contain at least one dynamic data visualisation. And at least two static visualisations.

**Non-functional Requirements:**

* The data displayed will be meaningful, easy to understand and will follow typical chart conventions.
* Data collected will be within the last 5 years and is current.
* The data visualisations will follow a colour scheme that allows for easy comprehension.
* The solution will be easy to use, read, understand, and visually appeasing.
* The solution will be easily accessible and available.
* Solution will include notes and text explaining anything to allow for entire understanding of the topic and research.

**Data requirements:**

* All of the secondary data collected will have been released within the last 5 years, and any primary data will be free from error, and of quality.
* Any primary data and secondary data collected will be relevant and any qualitative and/or opinionated data will be collected from people with interest in the topic.
* Examples of AI being used within industry already and the increase that is occurring in AI capabilities.
* Reasons as to why people think AI might be helpful or otherwise, within schooling systems.
* Reasons as to why people think AI might be of assistance in industries and the effects, they expect AI might have on said industries.
* Benchmarks of different LLM AI models. Both previous models and current/new models.
* Examples of automative machinery being used within industries, and examples of machines controlled by people.

**Constraints:**

**Economic:**

* The SAT solution will be completed before the end of august.
* A substantial amount of time will be spent obtaining both primary and secondary data.
* The data collected will be sourced from free websites.

**Legal:**

* Any primary data collected will be de-identified and will follow all relevant legislation.
* All secondary data sets will be referenced.

**Technical:**

* The solution will be completed on the provided school laptop.
* Datasets will be processed in either Microsoft Excel or Airtable.
* Incapable of making dynamic solutions that update as new data is collected.
* Will have to learn how to make Infographic on a new platform.

**Usability:**

* Solution will be easily interpretable.

**Social:**

* Secondary sources will be obtained from reliable and trustworthy locations.
* Will have to obtain opinions from individuals in a variety of industries about AI services.

**Scope statement.**

The digital solution will present relevant data to the research question and topic through a variety of forms within an infographic by using a range of formats, including but not exclusive to, text, number, images, charts, and graphics. The infographic will incorporate some dynamic factors and will contain interactive features. The data presented will be meaningful and easy to understand, and present both qualitative and quantitative data through both charts and worded analysis. The solution will use data that is current and preferably still relevant to the topic. All secondary data sourced will also have been sourced from trustworthy free sources as there is no available budget for the SAT. The solution will furthermore incorporate primary data that will require some time to collect that will undergo scrutiny and checked for correctness and will comprise opinions from industry experts in regard to their opinions on AI. The solution will incorporate a pleasing colour scheme and allows for easy comprehension.

All data within the solution will also be easy to understand and interpret and will be easily accessible and readily available and will include notes allowing for the entire interpretation of the topic without requiring outside knowledge or sources. Any primary data collected will follow any relevant legal requirements, such as deidentification and referencing secondary data sources. And a new skill must be learnt for the production of the infographic using online services. And all dataset manipulation will be completed on Microsoft Excel and Airtable, alongside being completed on a school machine. The solution will be completed before end of august. And due to this time limit some things in regard to AI influences may not be explored in this infographic.

Critical and Creative Thinking.

**Functional requirements:**

* It will represent qualitative and quantitative data through a variety of charts and formats.
  + Does the solution comprise of a variety of charts that represent both qualitative and quantitative data?
    - Is there a variety of chart types?
    - Do they display qualitative and quantitative data?
* The solution will contain several data visualisations of varying types.
  + Does the solution comprise of of several data visualisations?
  + Are they of varying types?
    - Create a checklist of different data visualisations that will need to be completed.
    - Check them off as they were completed.
* The solution will contain a mix of data types such as text, number, images, and graphics.
  + Does the solution include a variety of data types?
    - Check if the solution contains images, text, and numbers.
* Solution will reach a supported conclusion about the research question, both in terms of public opinion and in terms of found secondary data.
  + How will this be measured?
    - The conclusion answers the research question and any relevant questions using data collected.
    - Ask 3 others if the conclusion reached makes sense based on the supported data.
  + Are the sources used for the conclusion enough, and/or of quality?
    - Use at least 3 sources for each point within the conclusion to ensure each statement is supported by several sources.
    - Do conclusions made use trustworthy sources.
* Complex, opinionated and biased qualitative data will be used as a basis of any analysis to gain the general opinion of society in regard to the moral implications of AI.
  + Does the qualitative data typically align between different data values?
    - Is there a large number of outliers within the data.
    - Is the average opinion close to the furthest quartiles. That is, is the interquartile range small.
    - Analyse what different demographics tend to have different values.
  + Does this opinion align with secondary data?
    - Check average opinion and thoughts with secondary sources.
* Data is presented in a simplified and a meaningful manner and is educational.
  + Can the audience understand and able to interpret the presented information in a meaningful manner?
    - Ask for reviews on the digital solution and record any problems found.
    - Use text to explain what charts mean and use text to further explain any qualitative data visualisations.
  + Are the charts, text, and graphics clear and interpretable?
    - Text used for charts and any paragraphs is of clear font, sizing, and colour to allow for easy understanding.
    - Charts are of adequate size to allow easy interpretation.
* Will contain at least one dynamic data visualisation. And at least two static visualisations.
  + Does the solution contain at least one dynamic data visualisation and at least two static visualisations?
    - Create a checklist to ensure dynamic and static are included.
    - Check off completed charts.

**Non-functional Requirements:**

* The data displayed will be meaningful, easy to understand and will follow typical chart conventions.
  + Do the charts follow typical chart conventions?
  + Can the charts be used to reach a meaningful conclusion about AI development?
    - And future development extrapolations?
      1. Ask peers to review charts and whether they can make a conclusion on AI development.
* Data collected will be within the last 5 years and is current.
  + How will date of data be ensured?
    - Secondary data sources are checked for dates of collection, and date of publication.
* The data visualisations will follow a colour scheme that allows for easy comprehension.
  + Does the solution follow a colour scheme?
    - Create an adequate colour scheme.
    - Check that all colours used fit within this colour scheme.
    - Colour scheme is visually pleasing and doesn’t disturb comprehension of the solution.
* The solution will be easy to use, read, understand, and visually appeasing.
  + Is the solution easy to used, read and understand?
    - The solution uses comprehendible font, and apt sizing.
  + Is the solution visually appeasing?
    - The colours and fonts used are visually appeasing and don’t disrupt the interpretation of the solution.
    - Ask for peers to review the solution and state any problems they find with interpreting the solution.
* The solution will be easily accessible and available.
  + How will the solution be easily accessible?
    - The solution will be uploaded digitally and can be shared with a link to other users.
* Solution will include notes and text explaining anything to allow for entire understanding of the topic and research.
  + Does the included notes and text help for the user to comprehend the entire topic without external sources?
    - Ask 3 peers with little to no knowledge on the topic to read the solution and supply any shortcomings in their comprehension due to lack of information.

1. Create additions for necessary information.

**Data requirements:**

* All of the secondary data collected will have been released within the last 5 years, and any primary data will be free from error, and of quality.
  + How will date of collection be confirmed?
    - Only secondary sources that include date of data collection and publication will be used.
  + How will primary data be free from error and of quality?
    - Any primary data collected will undergo scrutiny to ensure reasonableness.
    - Any known errors within the data will be accounted for and either removed or fixed.
* Any primary data and secondary data collected will be relevant and any qualitative and/or opinionated data will be collected from people with interest in the topic.
  + How will secondary data be confirmed as relevant?
    - Secondary data sources will be read over and interpreted to ensure any data collected is relevant to the solution.
    - Any secondary data that is not relevant from sources will not be included.
  + How will it be ensured that qualitative data is collected from people with interest in the topic?
    - Participants in primary data collection will be asked either through survey or interview what their personal opinions and investments in the topic are before continuing.
* Examples of AI being used within industry already and the increase that is occurring in AI capabilities.
  + Where will this data be collected from?
    - This data will be collected from secondary sources and will use further sources to support any extrapolation, or models shown within AI development.
* Reasons as to why people think AI might be helpful or otherwise, within schooling systems.
  + Who will I collect this data from?
    - This data will be collected from school staff, such as teachers.
    - This data will also be collected from students within the school of varying ages.

1. Years 10 through 12.

* Reasons as to why people think AI might be of assistance in industries and the effects, they expect AI might have on said industries.
  + Where will these opinions come from?
    - These opinions will come from both publications/secondary sources and primary data.

1. Primary data will be collected through interview or survey and will typically be qualitative.
2. Secondary data will only be used to support such thoughts and will be obtained from survey results on the internet or from AI development based company reports.
   * How will potential effects on industry be determined?
     + By analysis and extrapolation of current effects on industries that automative sciences and development are having.

* Benchmarks of different LLM AI models. Both previous models and current/new models.
  + Where will this data be sourced from?
    - This data will be sourced from trustworthy secondary sources, such as OpenAI and other AI development companies.
* Examples of automative machinery being used within industries, and examples of machines controlled by people.
  + Where will these examples come from?
    - These examples will come from secondary source examples.

1. Such as technology available for purchase or used within Australian society or already.
2. Alongside technology that is in production currently.