Power BI Report: Survey Insights on Productivity & Job Trends

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Introduction

This report presents an in-depth analysis of a survey conducted among 500 respondents across three countries: the UK, USA, and India. The objective of the survey was to understand perceptions regarding productivity improvement through software-based solutions in different domain areas.

The Power BI dashboard developed for this analysis consists of three pages, each providing unique insights into the survey results. The dashboards leverage interactive visuals and filters to enable dynamic data exploration. This document details the methodology, dashboard components, and key insights derived from the data.

Data Overview

The dataset consists of survey responses covering multiple attributes, including:

- **Demographics**: Country, Job Type, Job Specialization, Monthly Salary.
- **Daily Activities**: Percentage of time spent on various activities such as office work, music/painting/dancing, sleep, sports, etc.
- **Domain Areas for Productivity Improvement**: Respondents rated their familiarity and significance of different domain areas on a scale of 1-5.

The analysis focuses on:

1. The percentage of respondents who rated domain areas as significant (4 or 5 on the scale).
2. The Net Significance Score, which highlights areas with higher positive impact.
3. A comparative analysis of significance scores across job types and countries.
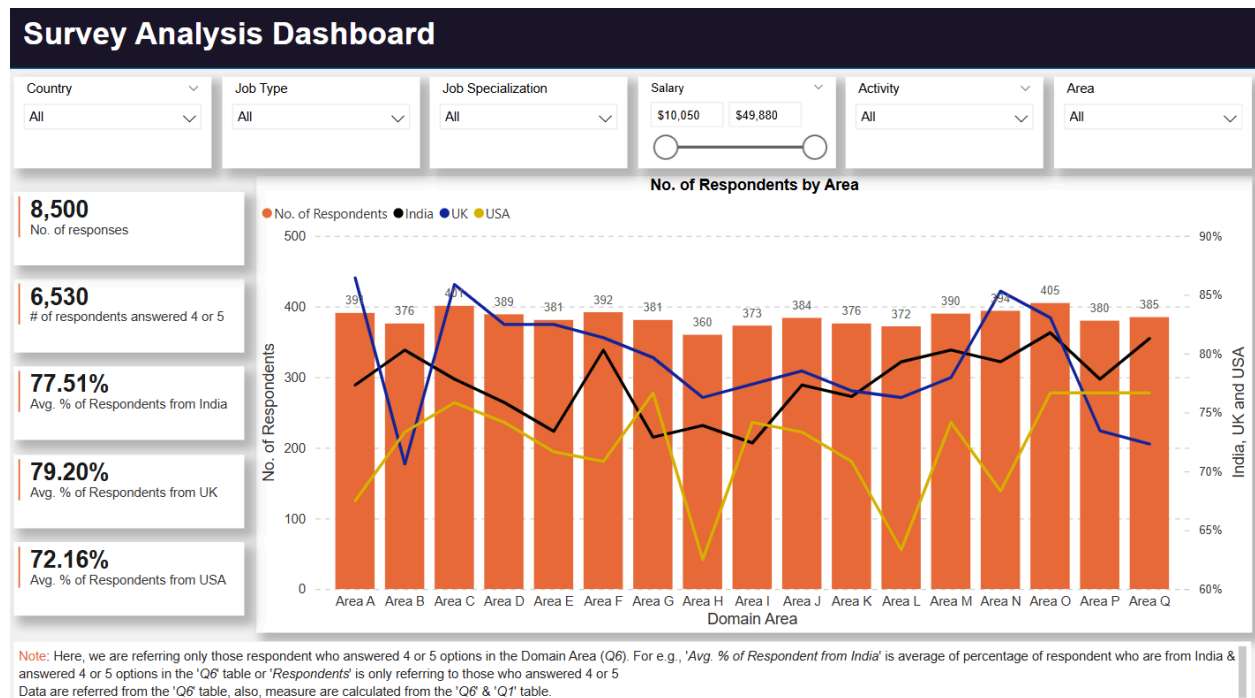

Dashboard Overview

The Power BI dashboard consists of three pages:

Page 1: Dual-Axis Analysis (Domain Area Ratings by Country)

Objective: Identify the percentage of respondents who rated different domain areas as significant (4 or 5) and compare country-wise trends.

Visuals & Features:

- **Bar Chart (Primary Axis):** Displays the percentage of respondents who selected 4 or 5 for each domain area.
- **Line Chart (Secondary Axis):** Overlays country-wise data trends for comparison.
- **Interactive Tooltips:** Provides additional details such as the number of respondents and breakdown by country.
- **Filters Available:**
  - Country (UK, USA, India)
  - Job Type (IT/Software, Analytics, Core, Education)
  - Job Specialization (Electrical/Electronics, Mechanical, Civil, Industrial, Infrastructure)
  - Monthly Salary (Slider for dynamic selection)
  - Activity Type (Office work, Sports, Others, etc.)
  - Domain Area (A-Q)

Note: Here, we are referring only those respondent who answered 4 or 5 options in the Domain Area (Q6). For e.g., 'Avg. % of Respondent from India' is average of percentage of respondent who are from India & answered 4 or 5 options in the 'Q6' table or 'Respondents' is only referring to those who answered 4 or 5
Data are referred from the 'Q6' table, also, measure are calculated from the 'Q6' & 'Q1' table.

Key Insights:

- The percentage of respondents rating domain areas as significant varies significantly by country.
- Certain domain areas show a consistent trend across all three countries, indicating universal challenges.
- The visualization helps identify priority areas where software-based solutions can be implemented to improve productivity.

Page 2: Stacked Bar Chart & Net Significance Score

Objective: Provide a detailed breakdown of responses in each domain area and compute a Net Significance Score.

Visuals & Features:

- **100% Stacked Bar Chart:** Represents the proportion of responses (1 to 5) for each domain area.
- **Data Table:** Displays the **Net Significance Score**, calculated as: • (Count of 4,5 – Count of 1,2) / (Relevant responses)
- **Filters Available:** (Same as Page 1)
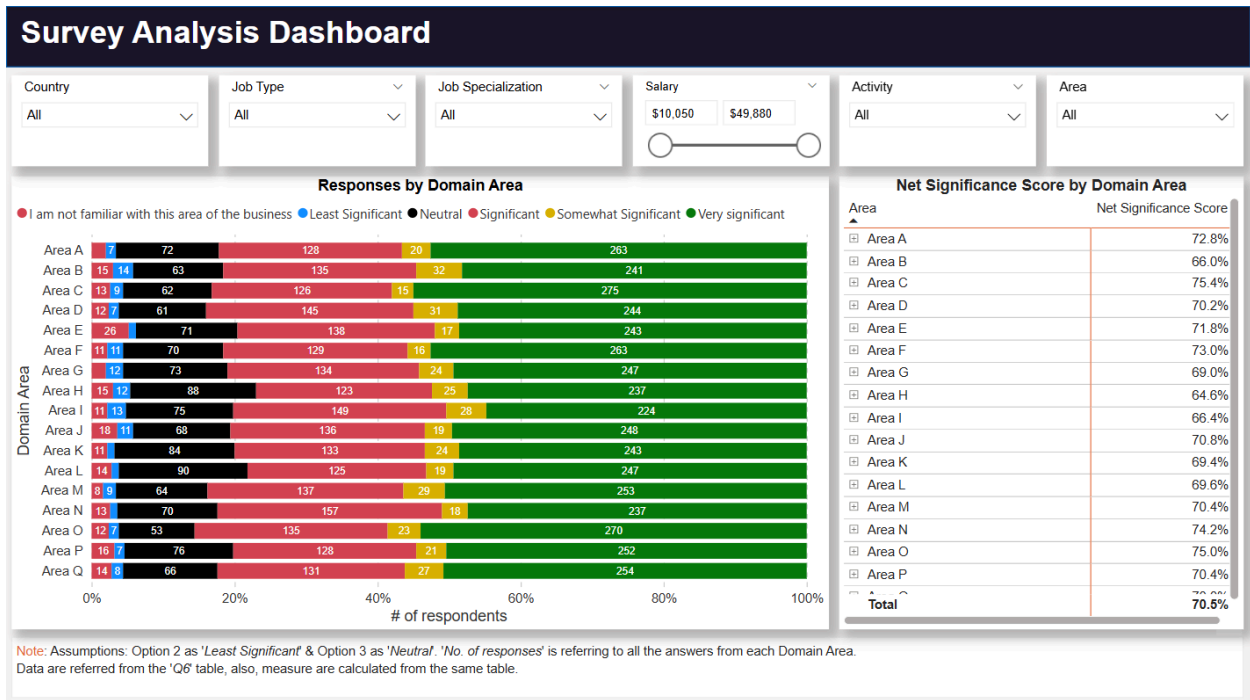
Key Insights:

- The Net Significance Score highlights areas with the highest positive impact, providing a clear ranking of focus areas.
- The stacked bar chart allows for easy comparison of response distribution.
- Differences in perception across industries and job specializations can be analyzed dynamically using filters.

Page 3: Average Significance Score Comparison

Objective: Compare significance scores of domain areas across job types and countries.
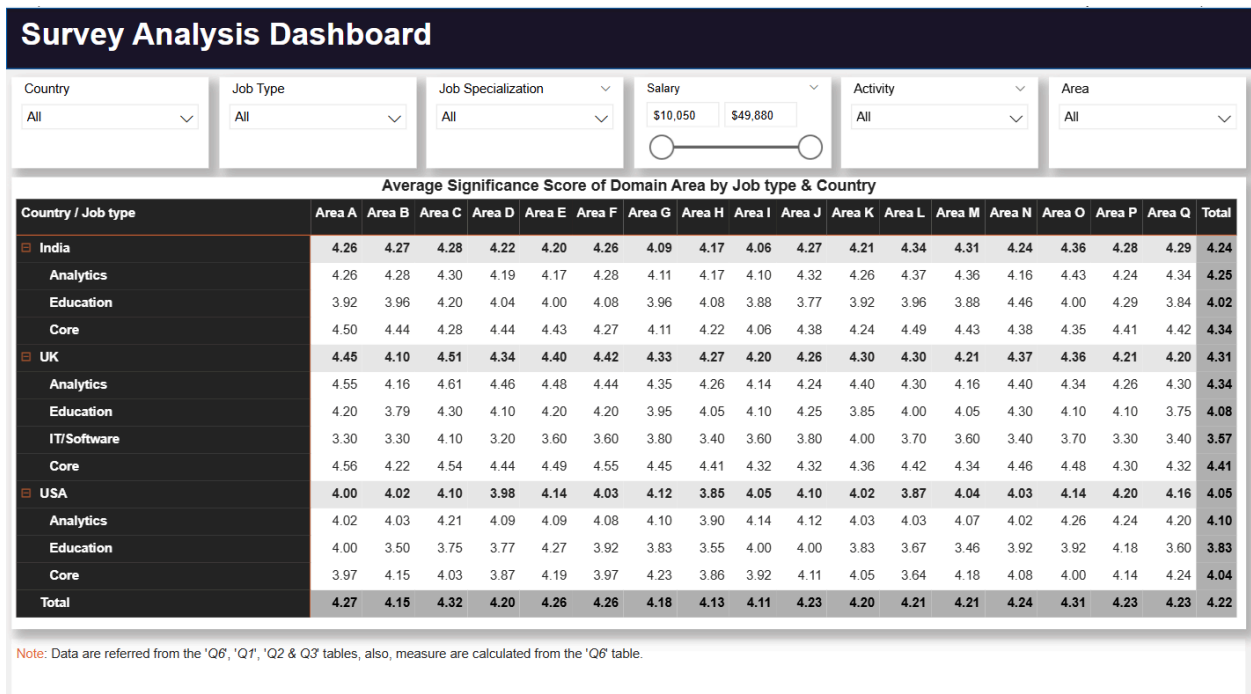
Visuals & Features:

- **Custom Visualization:** A comparative representation of **average significance scores** based on:
    - Country
    - Job Type
    - Domain Area
- **Formula Used: Avg. significance score =** *Average score of respondents (exclude value 6 "I am unfamiliar with this business area")*

Survey Analysis Dashboard

Country	Job Type	Job Specialization	Salary	Activity	Area
All	All	All	$10,050 — $49,880	All	All

Average Significance Score of Domain Area by Job type & Country

Country / Job type	Area A	Area B	Area C	Area D	Area E	Area F	Area G	Area H	Area I	Area J	Area K	Area L	Area M	Area N	Area O	Area P	Area Q	Total
India	4.26	4.27	4.28	4.22	4.20	4.26	4.09	4.17	4.06	4.27	4.21	4.34	4.31	4.24	4.36	4.28	4.29	**4.24**
Analytics	4.26	4.28	4.30	4.19	4.17	4.28	4.11	4.17	4.10	4.32	4.26	4.37	4.36	4.16	4.43	4.24	4.34	**4.25**
Education	3.92	3.96	4.20	4.04	4.00	4.08	3.96	4.08	3.88	3.77	3.92	3.96	3.88	4.46	4.00	4.29	3.84	**4.02**
Core	4.50	4.44	4.28	4.44	4.43	4.27	4.11	4.22	4.06	4.38	4.24	4.49	4.43	4.38	4.35	4.41	4.42	**4.34**
UK	4.45	4.10	4.51	4.34	4.40	4.42	4.33	4.27	4.20	4.26	4.30	4.30	4.21	4.37	4.36	4.21	4.20	**4.31**
Analytics	4.55	4.16	4.61	4.46	4.48	4.44	4.35	4.26	4.14	4.24	4.40	4.30	4.16	4.40	4.34	4.26	4.30	**4.34**
Education	4.20	3.79	4.30	4.10	4.20	4.20	3.95	4.05	4.10	4.25	3.85	4.00	4.05	4.30	4.10	4.10	3.75	**4.08**
IT/Software	3.30	3.30	4.10	3.20	3.60	3.60	3.80	3.40	3.60	3.80	4.00	3.70	3.60	3.40	3.70	3.30	3.40	**3.57**
Core	4.56	4.22	4.54	4.44	4.49	4.55	4.45	4.41	4.32	4.32	4.36	4.42	4.34	4.46	4.48	4.30	4.32	**4.41**
USA	4.00	4.02	4.10	3.98	4.14	4.03	4.12	3.85	4.05	4.10	4.02	3.87	4.04	4.03	4.14	4.20	4.16	**4.05**
Analytics	4.02	4.03	4.21	4.09	4.09	4.08	4.10	3.90	4.14	4.12	4.03	4.03	4.07	4.02	4.26	4.24	4.20	**4.10**
Education	4.00	3.50	3.75	3.77	4.27	3.92	3.83	3.55	4.00	4.00	3.83	3.67	3.46	3.92	3.92	4.18	3.60	**3.83**
Core	3.97	4.15	4.03	3.87	4.19	3.97	4.23	3.86	3.92	4.11	4.05	3.64	4.18	4.08	4.00	4.14	4.24	**4.04**
Total	**4.27**	**4.15**	**4.32**	**4.20**	**4.26**	**4.26**	**4.18**	**4.13**	**4.11**	**4.23**	**4.20**	**4.21**	**4.21**	**4.24**	**4.31**	**4.23**	**4.23**	**4.22**

Note: Data are referred from the 'Q6', 'Q1', 'Q2 & Q3' tables, also, measure are calculated from the 'Q6' table.

Key Insights:

- This view provides a comprehensive understanding of how different industries and countries perceive domain areas.
- By focusing on the average scores, companies can prioritize investments in productivity-enhancing solutions.
- The interactive nature allows stakeholders to drill down into specific job roles and regions.

Difficulties Faced & Solutions Implemented

1. Data Cleaning Challenges

Issue: The raw survey data had inconsistencies, missing values, and some responses marked as "NA." **Solution:** Used Power Query to clean the data, remove null values, and transform categorical variables for better usability in Power BI.

2. Complex Filtering Requirements

Issue: Ensuring that filters (like job type and specialization) functioned correctly, especially for "Core" job types where specializations should be shown. **Solution:** Applied conditional filtering logic using DAX and Power BI's filter panel to ensure accurate data representation.

3. Visual Representation of Multi-Dimensional Data

Issue: Displaying significance scores by country, job type, and domain area in a single view while maintaining readability. **Solution:** Experimented with different visualization techniques and selected a heatmap-style chart to highlight trends effectively.

4. Calculating Net Significance Score Correctly

Issue: Defining and implementing the Net Significance Score in Power BI to reflect the required formula. **Solution:** Used DAX calculations to subtract lower-rated responses (1 & 2) from higher-rated responses (4 & 5) and divided by the relevant responses.

5. Optimizing Dashboard Performance

Issue: The dataset contained multiple calculated columns, leading to performance issues in Power BI. **Solution:** Optimized queries, reduced unnecessary calculated columns, and leveraged aggregations to improve responsiveness.

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Conclusion & Recommendations

Findings & Key Performance Indicators (KPIs):

Key Performance Indicators (KPIs):

1. **Percentage of Respondents Rating Areas as Significant:** Measures the proportion of respondents who rated domain areas as 4 or 5.
2. **Net Significance Score:** Identifies the difference between high and low ratings to assess domain importance.
3. **Average Significance Score:** Compares the perceived importance of domain areas across job types and countries.
4. **Country-Wise Domain Area Comparison:** Highlights productivity improvement areas specific to each country.
5. **Job Role-Specific Insights:** Determines how different industries prioritize software-based productivity improvements.

Findings:

- Certain domain areas are consistently rated high across all countries, indicating common opportunities for improvement.
- The Net Significance Score provides a structured approach to prioritize focus areas for software-based interventions.
- Country and industry-level differences highlight the need for customized solutions tailored to regional and professional requirements.

Recommendations:

1. **Targeted Software Solutions:**
   - Prioritize areas with high significance scores to implement software-driven improvements.
2. **Country-Specific Strategies:**
   - Adapt solutions based on regional preferences and challenges.
3. **Job Role-Specific Insights:**
   - Develop industry-specific tools addressing the pain points identified in the survey.

Appendix: Filters & Methodology

Appendix (Annexure 1 of 2)

Survey Questionnaire

1. In which country are you located?

    1) UK

    2) USA

    3) India

2. Which best describes the job you work for?

    1) Software Developer [TAG: IT/Software]

    2) DBA [TAG: IT/Software]

    3) Data Scientist [TAG: Analytics]

    4) Data Analyst [TAG: Analytics]

    5) Faculty/Teacher [TAG: Education]

    6) Core Engineering Job [TAG: Core]

[Q3 logic: Show only if "Core Engineering Job" is selected in previous question]

3. Which of the following best describes your job specialization?

    1) Electrical/Electronics

    2) Mechanical

    3) Civil

    4) Industrial

    5) Infrastructure

4. What is your monthly salary? *Input number*

5. Approximately what is your split of your time in your day to day life in %?

     1) Office work

     2) Music/Painting/Dancing

     3) School/College

     4) Home work

     5) Sports

     6) Others

6. In which area there is an opportunity to improve the productivity in your job, through the adoption of software-based solutions? Please rank each business area you are familiar with.

     1) Least significant

     2) Somewhat Significant

     3) Neutral

     4) Significant

     5) Very significant

     6) I am not familiar with this area of the business

Appendix (Annexure 2 of 2)

Data Dictionary (For case study 1)

Question	Code	Value
Q1: In which country are you located?	1	UK
	2	USA
	3	India
Q2: Which best describes the job you work for?	1	Software Developer (Job type: IT/Software)
	2	DBA (Job type: IT/Software)
	3	Data Scientist (Job type: Analytics)
	4	Data Analyst (Job type: Analytics)
	5	Faculty/Teacher (Job type: Education)
	6	Core Engineering Job (Job type: Core)
Q3: Which of the following best describes your job specialization? (Only if Q2=6)	1	Electrical/Electronics
	2	Mechanical
	3	Civil
	4	Industrial
	5	Infrastructure
Q4: What is your monthly salary?		Number input from user
Q5: Approximately what is your split of your time in your day to day life in %?	1	Office work
	2	Music/Painting/Dancing
	3	Sleep
For each respondent percentage sums up to 100%	4	School/College

	5	Home work	
	6	Sports	
	7	Others	
Q6: In which area there is an opportunity to improve the productivity in your job, through the adoption of software-based solutions? Each respondent gives answer for Area A-Q	1	Least significant	
	2	2	
	3	3	
	4	Significant	
	5	Very significant	
	6	I am not familiar with this area of the business	

---THE END---