MODERNIZATION IN DATA COLLECTION OF PRICES USING TABLET PC FOR IMPROVING PRICES COLLECTION IN DOSM,SELANGOR .

BY : AMIRUL SYAKIRIN AHMAD JAMIL

DOSM SELANGOR

PRESENTATION OUTLINE

- INTRODUCTION

- LITERATURE REVIEW

- METHODOLOGY

- ANALYSIS

- CONCLUSION

INTRODUCTION

- HAND MANUALLY FORM WAS USED BY DEPARTMENT OF STATISTICS MALAYSIA IN COLLECTING THE PRICES TO ESTABLISH THE CONSUMER PRICE INDEX (CPI) FOR MALAYSIA

- DOSM SELANGOR IS THE FIRST STATE TRANSFORMING THE TRADITIONAL WAY OF COLLECTING THE PRICES INTO A MODERN WAY BY USING THE TABLET (ONE TYPE OF HANDHELD COMPUTERS).

- PREVIOUS RESEARCHES HAVE SHOWN THAT HANDHELD COMPUTERS GIVE MANY BENEFIT TO THE DATA COLLECTION BUT IT ALSO HAVE SOME RISK TO BE CONCERN AND OVERCOME. HENCE, THE AIMS OF THIS STUDY IS TO COMPARE THE EFFECTIVENESS OF USING SAMSUNG GALAXY TAB 3 AND HAND MANUALLY FORM IN COLLECTING PRICES.

- THIS STUDY INVESTIGATES MANY ASPECTS SUCH AS TIME, QUALITY OF DATA, COST AND COMPATIBILITY OF THE TABLET

LITERATURE REVIEW

Researchers	Findings
1. Galliher JM (2008)	Handheld computers produced more complete data than the paper method for the returned forms however they were not superior because of the large amount of missing data due to technical difficulties with the hand-held computers or loss .
2. Seebregts CJ (2009)	Handheld computers can minimizes survey response error, and allow for easy storage of data. It helped to skip the data entry process which normally takes longer time and uses lots of resources.
3. Caban-Martinez AJ (2011),	Data entry with handheld computers was immediate and simplified
4. Zhang S (2012),	Noticed that the risk of data loss by using tablet in data collection of infant feeding practices in rural China

METHODOLOGY

- STUDY DESIGN
  - DESIGNED ACCORDING TO THE RANDOM SAMPLING TECHNIQUES AND USING THE SIMPLE COMPARATIVE EXPERIMENTS

- STUDY AREA
  - THE SELECTED *OUTLETS* FROM THE SAMPLING FRAME IN CONSUMERS PRICES COLLECTION OUTLETS

- STUDY DURATION
  - STARTED SINCE 2009 WITH THE USE OF PERSONAL DEVICE ASSISTANCE (PDA)
  - AFTER 4 YEARS ITS USAGE, PDA SEEMS NOT LONGER COMPATIBLE AND HAS BEEN REPLACED WITH NEW GADGET WHICH IS SAMSUNG GALAXY TAB 3.
  - THIS STUDY CONTINUED WITH ITS NEW GADGET IN JANUARY 2014 BY DEVELOPING THE SYSTEM IN THE TABLET AND RETESTS THE SYSTEM STABILITY FOR 6 MONTH.

METHODOLOGY

- SAMPLE SIZE
  - TEN SELECTED FIELD ENUMERATORS

- STUDY VARIABLE
  - TIME OF DATA COLLECTION ON THE FIELD.
  - THE NUMBERS OF HUMAN ERRORS OCCURS DURING IN THE FIELD.
  - COST OF DATA COLLECTION WHICH INCLUDE THE PAPER USAGE, PRINTING COST.

- STUDY INSTRUMENT
  - SAMSUNG GALAXY TAB 3 AS HANDHELD COMPUTERS TOOLS
  - *BORANG PUNGUTAN HARGA PENGGUNA BULANAN* IS USED AS THE HAND MANUALLY FORM TOOLS
  - STOPWATCH IS USED TO RECORD THE TIME OF THE FIELD ENUMERATORS COLLECTING THE PRICES IN THE OUTLETS

- DATA MANAGEMENT & ANALYSIS
  - STATISTICAL PACKAGE FOR SOCIAL SCIENCES (SPSS)
  - MINITAB WAS USED AS A TOOL IN ANALYZING THE DATA.

ANALYSIS

a) **COMPARING THE TIME OF DATA COLLECTION USING BORANG PUNGUTAN HARGA PENGGUNA AND USING SAMSUNG GALAXY TAB 3**

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Two-Sample T-Test and CI: Time Taken Tablet, Time Taken Form

Two-sample T for Time Taken Tablet vs Time Taken Form

                       N      Mean   StDev   SE Mean
Time Taken Tablet     10    12.283   0.131     0.041
Time Taken Form       10     9.196   0.136     0.043


Difference = mu (Time Taken Tablet) - mu (Time Taken Form)
Estimate for difference:   3.0870
95% lower bound for difference:   2.9832
T-Test of difference = 0 (vs >): T-Value = 51.73   P-Value = 0.000   DF = 17
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The result from Minitab shows that **there are significant difference** between **time taken** while conducting the survey **using tablet** and **Borang Pungutan Harga Pengguna.**

Besides that, it also shows that by using tablet, the time used in collecting the data is longer compare to Borang Pungutan Harga Pengguna.

b) COMPARING THE NUMBER OF ERROR OCCURS USING BORANG PUNGUTAN HARGA PENGGUNA AND USING SAMSUNG GALAXY TAB 3

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Two-Sample T-Test and CI: Number Error Tablet, Number Error Form

Two-sample T for Number Error Tablet vs Number Error Form

                     N    Mean   StDev   SE Mean
Number Error Tablet  10   0.300  0.483   0.15
Number Error Form    10   0.900  0.568   0.18


Difference = mu (Number Error Tablet) - mu (Number Error Form)
Estimate for difference:  -0.600
95% upper bound for difference:  -0.190
T-Test of difference = 0 (vs <): T-Value = -2.55  P-Value = 0.010  DF = 17
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From the results, the two sample t-test shows that **there are significant difference** between **number of error occurs using tablet** and **number of errors using Borang Pungutan Harga Pengguna**.

It shows that **tablet** has **less number of errors occurs** during the **field work compared to Borang Pungutan Harga Pengguna**

c) COMPARING THE COST OF DATA COLLECTION USING BORANG PUNGUTAN HARGA PENGGUNA AND USING SAMSUNG GALAXY TAB 3

No	Process	Borang Pungutan Harga Pengguna	Samsung Tab 3
1	Cost of Paper	60 rim (192 Batch) x RM8.50 x 2 (twice a year) = RM 1,020	5 rim (192 Batch) x RM 8.50 x 2 (twice a year) = RM 85
2	Cost of Printing	15 toner x RM 463 x 2(twice a year) = RM 13,890	2 toner x RM 463 x 2 (twice a year) = RM 1,852
3	Cost of Overtime	RM 36(4 hours) x 18 staff x 5 days x 2 (twice a year) = RM 6,480	None.
4	Total Cost	RM 1,020 + RM 13,890 + RM 6,480 = RM 21,390	RM 85 + RM 1,852 = RM 1,937

Total Saving Cost = RM 19,453 + GO GREEN

CONCLUSION

- TABLET PC PRODUCED LESS COST IN CONDUCTING THE SURVEY COMPARE TO HAND MANUALLY FORM BECAUSE IT USE LESS PAPER AND PRINTING COST.

- THE NUMBER OF ERROR OCCURS BY USING TABLET PC IN FIELD IS STATISTICALLY LESS COMPARED TO BORANG PUNGUTAN HARGA PENGGUNA.

- THE TIME COLLECTING THE DATA IN FIELD, IT SHOWS THAT BORANG PUNGUTAN HARGA PENGGUNA IS STATISTICALLY FASTER COMPARED TO TABLET PC.

- BY USING THE TABLET PC, THE TIME OF CAPTURING THE DATA IS SAVED FROM TWO DAYS INTO ONE DAYS ONLY.

- FOR DEPARTMENT OF STATISTICS SELANGOR, THE IMPLEMENTATION OF THIS TABLET PC IN PRICE COLLECTION HAVE BEEN APPLIED SINCE IT GIVE A LOT OF BENEFIT IN COST, TIME AND HUMAN WORKFORCE.

THANK YOU & HAVE A NICE DAY