**OPERATIONAL FEASIBILITY**

1. **FREQUENCY MEAN (FM) AND WEIGHTED MEAN (WM)**

**Frequency Table for the Existing System**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Criteria** | **Existing System** | | | | |
| **5** | **4** | **3** | **2** | **1** |
| Performance | 4 | 24 | 38 | 31 | 3 |
| Information | 3 | 26 | 50 | 19 | 2 |
| Economy | 11 | 18 | 37 | 27 | 7 |
| Control | 7 | 27 | 37 | 22 | 7 |
| Efficiency | 12 | 25 | 25 | 32 | 6 |
| Services | 11 | 18 | 47 | 17 | 7 |

**Frequency Mean (FME):**

*Formula:*

**FME = ∑ (x1 + x2 + x3 + … xn) / N**

*Where:* ***xi***is the product of frequency and numerical rating

***N***is sample size represented by the total number of respondents.

**Performance** = [(5\*4) + (4\*24) + (3\*38) + (2\*31) + (1\*3)] / 100

= (20 + 96 +114 + 62 +3) / 100

= 295/ 100

= **2.95**

**Information** = [(5\*3) + (4\*26) + (3\*50) + (2\*19) + (1\*2)] / 100

= (15 + 104 + 150 + 38 + 2) /30

= 309/ 100

= **3.09**

**Economy** = [(5\*11) + (4\*018) + (3\*37) + (2\*27) + (1\*7)] /100

= (15+ 72+ 111+ 54+ 7) / 30

= 299/ 100

= **2.99**

**Control** = [(5\*7) + (4\*27) + (3\*37) + (2\*22) + (1\*7)] / 100

= (35+ 108+ 111+ 44 + 7) / 30

= 305/ 100

= **3.05**

**Efficiency** = [(5\*12) + (4\*25) + (3\*25) + (2\*32) + (1\*6)] / 100

= (60+ 100+ 75+ 64 + 6) / 100

= 305/ 100

= **3.05**

**Services** = [(5\*11) + (4\*18) + (3\*47) + (2\*17) + (1\*7)] / 30

= (55 + 72+ 141 + 34 +7) / 100

= 309/ 100

= **3.09**

Weighted Mean (**WME**):

*Formula*:

**WME = ∑ FME / n**

*Where:* ***FME*** is the frequency mean of each criterion

***n*** is the number of criteria

**WME** = (2.95 + 3.09 + 2.99 + 3.05 + 3.05 + 3.09) / 6

=18.22/6

= **3.037**

**Frequency Table for the Proposed System**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Criteria** | **Proposed System** | | | | |
| **5** | **4** | **3** | **2** | **1** |
| Performance | 17 | 51 | 24 | 8 | 0 |
| Information | 37 | 38 | 15 | 10 | 0 |
| Economy | 33 | 28 | 36 | 3 | 0 |
| Control | 28 | 45 | 21 | 6 | 0 |
| Efficiency | 31 | 42 | 15 | 9 | 0 |
| Services | 32 | 29 | 33 | 6 | 0 |

**Frequency Mean (FMP):**

*Formula:*

**FMP = ∑ (x1 + x2 + x3 + … xn) / N**

*Where:* ***xi***is the product of frequency and numerical rating

***N***is sample size represented by the total number of respondents.

**Performance** = [(5\*17) + (4\*51) + (3\*24) + (2\*8) + (1\*0)] / 100

= (85 + 204 + 72 + 16 +0) / 100

= 377/ 100

= **3.77**

**Information** = [(5\*37) + (4\*38) + (3\*15) + (2\*10) + (1\*0)] / 100

= (185+ 152 + 45 + 20 + 0) /100

= 402 / 100

= **4.02**

**Economy** = [(5\*33) + (4\*28) + (3\*36) + (2\*3) + (1\*0)] /100 = (165 + 112 + 108 + 6 + 0) / 100

= 391 / 100

= **3.91**

**Control** = [(5\*28) + (4\*45) + (3\*21) + (2\*6) + (1\*0)] / 100

= (140 +180 + 63 + 12 + 0) / 100

=395 / 100

= **3.95**

**Efficiency** = [(5\*31) + (4\*42) + (3\*15) + (2\*9) + (1\*0)] / 100

= (155+ 168 + 45 + 18 + 0) / 100

= 386 / 100

= **3.86**

**Services** = [(5\*32) + (4\*29) + (3\*33) + (2\*6) + (1\*0)] / 100

= (160 + 116 + 99+ 12 +0) / 100

= 387 / 100

= **3.87**

Weighted Mean (**WMP**):

*Formula*:

**WMP = ∑ FMP / n**

*Where:* ***FMP*** is the frequency mean of each criterion

***n*** is the number of criteria

**WMP** = (3.77+ 4.02 + 3.91+ 3.95 + 3.86+ 3.87) / 6

= 23.38 / 6

= **3.896**

**Frequency Mean (FM) Table for the Existing and Proposed Systems**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Criteria** | **Existing System** | | | | | | **Proposed System** | | | | | |
| **5** | **4** | **3** | **2** | **1** | **FME** | **5** | **4** | **3** | **2** | **1** | **FMP** |
| Performance | 4 | 24 | 38 | 31 | 3 | 2.95 | 17 | 51 | 24 | 8 | 0 | 3.77 |
| Information | 3 | 26 | 50 | 19 | 2 | 3.09 | 37 | 38 | 15 | 10 | 0 | 4.02 |
| Economy | 11 | 18 | 37 | 27 | 7 | 2.99 | 33 | 28 | 36 | 3 | 0 | 3.91 |
| Control | 7 | 27 | 37 | 22 | 7 | 3.05 | 28 | 45 | 21 | 6 | 0 | 3.95 |
| Efficiency | 12 | 25 | 25 | 32 | 6 | 3.05 | 31 | 42 | 15 | 9 | 0 | 3.86 |
| Services | 11 | 18 | 47 | 17 | 7 | 3.09 | 32 | 29 | 33 | 6 | 0 | 3.87 |
|  | **WME** | | | | | **3.037** | **WMP** | | | | | **3.896** |

The table above shows the frequencies of each rating as evaluated by thirty (100) respondents. It also shows the computed Frequency Mean (FM) for the existing and proposed systems, respectively.

The proposed system had a Weighted Mean (WM) of **3.896** while the existing system had a Weighted Mean (WM) of **3.037**.

1. **T-TEST COMPUTATION**

**Hypothesis Testing**

**Null Hypothesis (Ho)**: There is no significant difference between the existing system and the proposed system in terms of its user’s evaluation result.

**Alternative Hypothesis (Ha)**: There is a significant difference between the existing system and the proposed system in terms of its user’s evaluation result.

*Formula*:

Tcomputed  = WMP – WME

∑ FMP2 + FME2

n (n – 1)

*Where*: **WMP** or **WME** is the weighted mean for the proposed and existing systems

**∑ FMP2** or **∑ FME2** is the summation of the frequency mean square of

the proposed and existing systems

**n – 1** is the degree of freedom

**n** is the total number of respondents

**FME2 Computation:**

Performance = (2.95)2 = 8.702

Information = (3.09)2 = 9.548

Economy = (2.99)2 = 8.940

Control = (3.05)2 = 9.302

Efficiency = (3.05)2 = 9.302

Services = (3.09)2 = 9.548

∑ **FME2 = 55.342**

**FMP2 Computation:**

Performance = (3.77)2 = 14.213

Information = (4.02)2 = 16.160

Economy = (3.91)2 = 15.129

Control = (3.95)2 = 15.602

Efficiency = (3.86)2 = 14.911

Services = (3.87)2 = 14.976

∑ **FMP2 = 90.911**

Tcomputed  = WMP – WME

∑ FMP2 + FME2

n (n – 1)

= 3.896– 3.037

90.911+ 55.342

100 (100 – 1)

**Tcomputed = 4.382**

**Ttabulated = 1.699 at 0.05 Level of Significance 9900**

Since **Tcomputed** > **Ttabulated** at 0.05 level of significance, the proponent rejected Null Hypothesis (Ho) and accepted Alternative Hypothesis (Ha). Thereafter, there is a significant difference between the existing system and proposed system.