BUAN/OPRE 6398.003 Prescriptive Analytics

Homework 7

Team 6

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2.

(1) 1944

(2) RAND Corporation

(3) (i) structuring of information flow, (ii) feedback to the participants, (iii) anonymity for the participants

(4) (i) A low level reliability of judgments among experts and therefore dependency of forecasts on the particular judges selected, (ii) the sensitivity of results to ambiguity in the questionnaire that is used for data collection in each round, (iii) the difficulty in assessing the degree of expertise incorporated into the forecast.

3.

1. Naïve : F6 = A5 = 1,390,000 units
2. Three quarter simple moving average : F6 = (A5+A4+A3)/3 = (1390000+1168500+1198400)/3 = 1252300 units
3. Five quarter weighted moving average : F6 = 0.4\*A5 + 0.3\*A4 + 0.15\*A3 + 0.1\*A2 + 0.05\*A1 = 0.4\*1390000 + 0.3\*1168500+ 0.15\*1198400 + 0.1\*1545200 + 0.05\*1356800 = 1308670 units
4. Simple exponential smoothing with α =0.8 and F3=1146400 :

With formula Ft = Ft-1 + α (At-1 - Ft-1), we got F4= 1188000, F5=1172400, and F6 = 1346480

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Quarter | Period | Actual | Forecast |
| 2015 | 4 | 1 | 1,356,800.0000 |  |
| 2016 | 1 | 2 | 1,545,200.0000 |  |
|  | 2 | 3 | 1,198,400.0000 | 1,146,400.0000 |
|  | 3 | 4 | 1,168,500.0000 | 1,188,000.0000 |
|  | 4 | 5 | 1,390,000.0000 | 1,172,400.0000 |
| 2017 | 1 | 6 |  | 1,346,480.0000 |

4. (1)

It is trend projection because there is a trend moving gradual upward without fixed average

(2) Using the formula b = (n∑tA - ∑t ∑A)/(n∑t2 – (∑t)2) , a = (∑A – b\*∑t)/n we get b= 3.1783, a = 91.1750

(3) 118.2

(4) Very close. The difference = 118.2- 117.5333= 0.6667

(5) By using Slope(Ys, Xs) we got slope = 3.1783.

By using Intercept(Ys, Xs) we got intercept = 91.1750

1. Yes