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ENSEIGNEMENT SUPÉRIEUR PRIVÉ D'INTÉRÊT GÉNÉRAL

Management Control

Management Control of Sales
Method based on Annual Data

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4 Methods of Sales Forecasting

1. **Annual Data Method:**
   All calculations are first made using **the total sales for each year**. Then sales forecasts are given detail using calculations for the month or week depending on the company's needs

2. **Non-annual data method:**
   With this method, we start first using **monthly or weekly data** to find the sales forecast

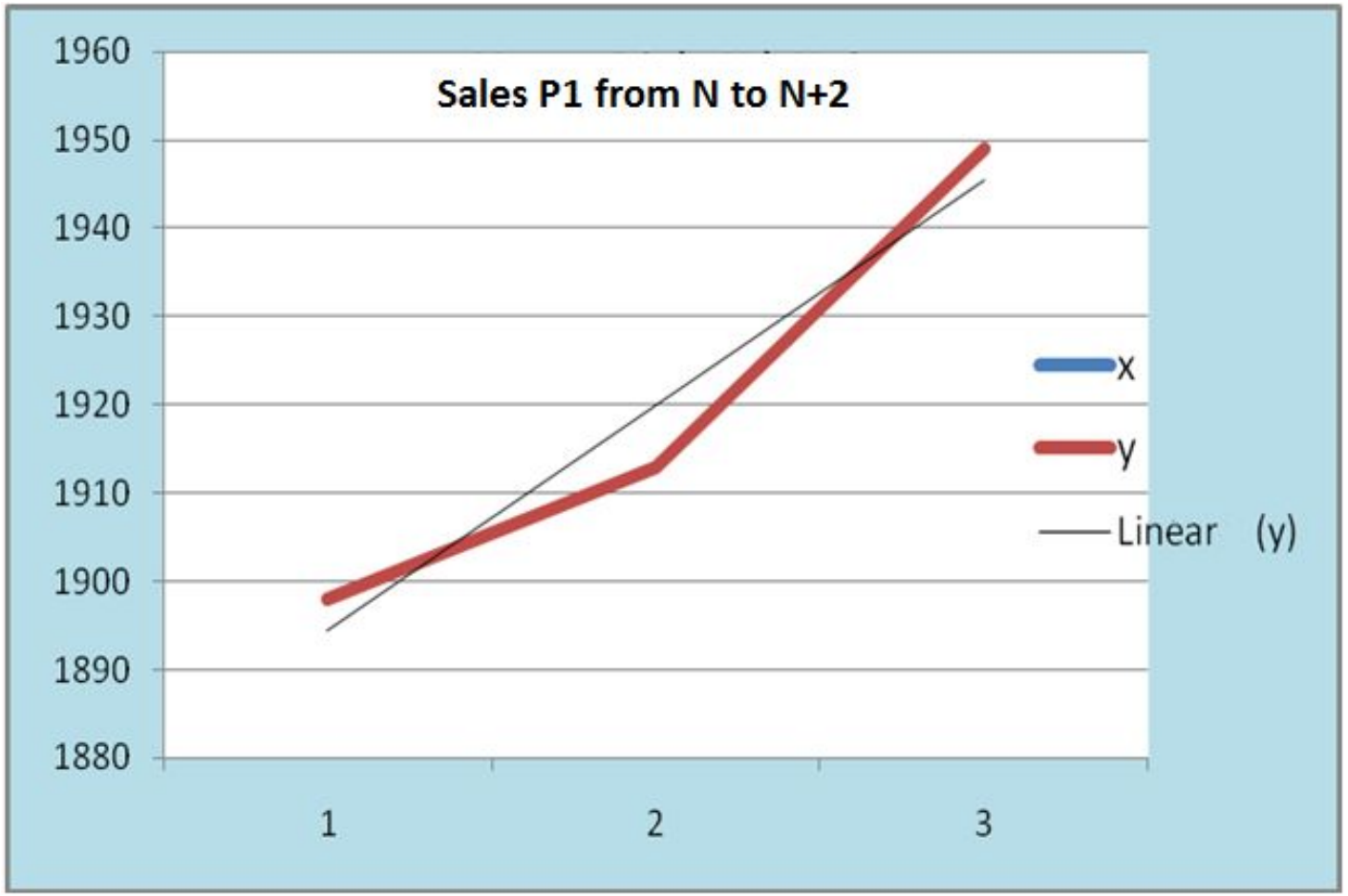
3. **Rolling total method:**
   We take the historical data and create a new rolling set that adds a new month and drops the oldest month to obtain a new total. The forecast for the next year is made from these groups of **sliding data**

4. **Causal or correlation method**
   We look for an external variable that could explain our sales and on which we have reliable data. If we find a **strong link or relationship** using a calculation, we then calculate the forecast based on the external variable to forecast our sales

1st method : Sales forecasted based on ANNUAL DATA

- We use total annual historical sales data to calculate the sales forecast for the next year.

1st Method : Sales Forecasting based on Annual Data



1st Method : Sales Forecasting based on Annual Data

The following unit sales quantities were observed over the last 12 quarters.

Assuming that you use the linear adjustment method based on annual values,
what will be the sales forecast by quarter for Year 4?

	Q1	Q2	Q3	Q4	Annual Total
Year 1	43	28	62	77	210
Year 2	41	29	56	74	200
Year 3	50	38	70	72	230
Quarter Total	134	95	188	223	640

Sales Forecasting based on Annual Data - Linear Adjustment

1. **Calculation of the equation of the line:** $y = ax + b$

where **x = number of the year** and **y = Annual units sold**

$$a = \sum XY / \sum X^2 \text{ and } b = \text{average } y - (a * \text{average } x)$$

2. **To find the forecasted units for year 4,** **x = number of the year 4**

3. **Calculation of a monthly /quarterly/weekly seasonal factor:**

sum or average for the month (quarter, week...) / sum or average for the year

4. **Month sales forecast (quarter, week...) =.**

Forecast for the year X monthly seasonal factor (quarterly, weekly...)

Assuming that you use the linear adjustment method based on annual values, what will be the sales forecast by quarter for Year 4?

YEAR	x	y	X	Y	X * Y	X^2

$a = \sum XY / \sum X^2$	b = average y - a * average x
a = 20 / 2 = 10	b = 213.33 - (10 * 2) = 193.33
y = (a*x) + b	If x = 4, (10*4) + 193.33 = 233.33

Quarter	Sales	Seasonal Factor		Quarter Forecast
1	134	20.94%	* 233.33 =	48.85
2	95	14.84%	* 233.33 =	34.63
3	188	29.38%	* 233.33 =	68.54
4	223	34.84%	* 233.33 =	81.30
Total	640	100%		233.33

If you use the linear adjustment method based on annual values, what will be the sales forecast by quarter for Year 4?

SOLUTION

Year	x = # of year	y = Annual units sold	X = (x - average x)	Y = (y - average y)	X*Y	X^2
1	1	210	-1	-3.33	3.333333	1
2	2	200	0	-13.33	0	0
3	3	230	1	16.67	16.66667	1
Total	**6**	**640**	**0**	-	**20**	**2**
Average	2	213.3333333				
	x	y				

$a = \sum XY / \sum X^2$	b = average y - a * average x
a = 20 / 2 = 10	b = 213.33 - (10 * 2) = 193.33

$y = (a*x) + b$ If x = 4, (10*4) + 193.33 = 233.33

Units Forecasted for Year 4

134 units / 640 Total Units = 20.94%

Quarter	Sales	Seasonal Factor		Quarter Forecast
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