

Substainable Development

There is 3 SDG to achieve : - Economic (Player profitability) - Ecologic (Player environmental impact) - Social (On évite les grèves)

Ecologic

The grade is out of 100 points. - 40 points are awarded for the environmental impact of the machines. - 40 points are awarded for the environmental impact of the suppliers. - 20 points are awarded if the machines were purchased second-hand.

As the last level of machines cannot be bought second hand, the score is balanced to make 60 points for machines and 40 on suppliers.

$$ecologic = machines + suppliers + second - hand$$

Machines

$$\frac{5x^4}{24} - 1.25x^3 + \frac{55x^2}{24} + 1.25x$$

the variable x being the level of each machine.

To generate the curve through the desired points, we used the Lagrangian Interpolation technique.

Suppliers

$$2.5x$$

the variable x being the level of each supplier.

Second-hand

5 points per machines if it's second-handed.

Economic

Définition : Turnover is the difference between income and expenses

$$economic = \max \left(\frac{turnover}{income} \times 100, 0 \right)$$

Social

$$social = \left(\frac{ingénieurs}{total} + \frac{superviseur}{total} + \frac{maintenance}{total} + \frac{ménage}{total} \right) \times 100$$