# Global Utility Model
Tatu Bogdan - CTI-EN Gr.3.1

| | Graphics Tablet | C1 Performance MAX | C2 Price MIN | C3 Weight MIN |
|---|---|---|---|---|
| V1 | XP-PEN Artist 22E Pro | 4.4 | 370 | 6.8 |
| V2 | Wacom Cintiq 16 | 4 | 210 | 1.9 |
| V3 | XP-PEN Artist 12 Pro | 3.9 | 180 | 1.5 |

$$a_1^1 = 4.4, \quad a_1^0 = 3.9$$
$$a_2^1 = 180, \quad a_2^0 = 370$$
$$a_3^1 = 1.5, \quad a_3^0 = 6.8$$
$$u_{11} = 1, \quad u_{21} = \frac{4 - 3.9}{4.4 - 3.9} = \frac{0.1}{0.5} = 0.2, \quad u_{31} = 0$$
$$u_{21} = 0, \quad u_{22} = \frac{210 - 370}{180 - 370} = \frac{-160}{-190} = 0.84, \quad u_{32} = 1$$
$$u_{13} = 0, \quad u_{23} = \frac{1.9 - 6.8}{1.5 - 6.8} = \frac{-4.9}{-5.3} = 0.92, \quad u_{33} = 1$$

| | C1 Performance MAX | C2 Price MIN | C3 Weight MIN |
|---|---|---|---|
| V1 | 1 | 0 | 0 |
| V2 | 0.2 | 0.84 | 0.92 |
| V3 | 0 | 1 | 1 |

$$V_1 = 1 + 0 + 0 = 1$$
$$V_2 = 0.2 + 0.84 + 0.92 = 1.96$$
$$V_3 = 0 + 1 + 1 = 2$$

V3 > V2 >> V1

- Proposed coefficients of importance

| | C1 Performance MAX | C2 Price MIN | C3 Weight MIN | SUM |
|---|---|---|---|---|
| V1 | 1 | 0 | 0 | 0.55 |
| V2 | 0.2 | 0.84 | 0.92 | 0.11+0.294+0.092=0.496 |
| V3 | 0 | 1 | 1 | 0.35+0.1=0.45 |
| Kj | 0.55 | 0.35 | 0.1 | |

V3 > V2 > V1

By putting more importance on performance and price rather then on weight, the difference becomes smaller between V3 and V1, but V2 also moves further away from V3.

The best solution is still to buy the most performing one, V3.