LAPLACE CRITERION:

IN THIS IT IS ARGUED THAT SINCE $P(\theta_i)$ IS NOT KNOWN, ONE SHOULD CONSIDER $P(\theta_i) = P(\theta_j)$. IN EFFECT, IF $i = 1, \ldots N$, $P(\theta_1) = P(\theta_2) \ldots = \frac{1}{N}$.

[SINCE THERE IS NO INFORMATION, HENCE THE DISTRIBUTION IS UNIFORM IS NOT A VERY SOOND CONCEPT].

ONCE $P(\theta_i)$ IS ASSUMED, ONE CAN DETERNINE THE EXPECTED OUTCOME GIVEN A PARTICULAR ACTION.

LET'S LOOK AT AN EXAMPLE:

A TRANSPORT PLANNER IS PLANNING FOR A CITY'S TRANSPORT FACILITIES KEEPING IN MIND THE GRONTH OF THE CITY. IT IS EXPECTED THAT TRANSPORT DEMAND WILL END UP BEING EITHER LOW (θ_1), MODERATE (θ_2), HIGH (θ_3) OR VERY HIGH (θ_4). ACTIONS WHICH THE PLANNER CAN TAKE ARE: NO CHANGE, JOST MAINT. (a_1), IMPROVE ROADS (a_2), IMPROVE ROADS + TRANSIT SYSTEM (a_3), IMPROVE ROADS + RAPID TRANSIT SYSTEM (a_4). THE DECISION SCENARIO IS DESCRIBED IN TERMS OF COST DUE TO: (i) CONST. (ii) WASTED FACILITIES, AND (iii) CONGESTION. THESE ARE SUMMARIZED AS FOLLOWS:

	θ_1	θ_2	θ_3	θ_4
a_1	2	10	18	25
a_2	8	7	8	23
a_3	21	18	12	21
a_4	30	22	19	15

IN THIS EXAMPLE:

$E\{\text{COST}|a_1\} = 2\times\frac{1}{4} + 10\times\frac{1}{4} + 18\times\frac{1}{4} + 25\times\frac{1}{4} = 13.75$

$E\{\text{COST}|a_2\} = 11.5$; $E\{\text{COST}|a_3\} = 18$; $E\{\text{COST}|a_4\} = 21.5$

HENCE DO a_2.