$$Q_i = \frac{max_j(|f_j^* - f_{ij}|)}{|f_j^* - f_j^-|} \quad (7)$$

$$R_i = v\frac{s_i - s^*}{s^- - s^*} + (1 - v)\frac{Q_i - Q^*}{Q^- - Q^*} \quad (8)$$

Where $S^* = S^{aspire} = 0$, $Q^* = Q^{aspire} = 0$ and 0 indicates the desired level of gap, $S^- = S^{worst} = 1$, $Q^- = Q^{worst} = 1$ and 1 indicates the level of undesirable gap, and value v = 0.5.

4. Result and Discussion

4.1 The Result of Weight Calculation and Unit Selection

The results of weight calculation using the DANP method can be seen in Table 2. This weight is obtained from the results of the limit super matrix calculation.

Table 2 Global Weight of Factors

Dimension	Factor	Weight	Dimension	Factor	Weight	Dimension	Factor	Weight
D1	C1	0,0184	D2	C11	0,0362	D4	C20	0,0287
	C2	0,0196		C12	0,0332		C21	0,0281
	C3	0,0202		C13	0,0317		C22	0,0257
	C4	0,0199		C14	0,0329		C23	0,0279
	C5	0,0204		C15	0,0338		C24	0,0260
	C6	0,0196		C16	0,0334		C25	0,0313
	C7	0,0194	D3	C17	0,0644		C26	0,0312
	C8	0,0199		C18	0,0604	D5	C27	0,0708
	C9	0,0195		C19	0,0647		C28	0,0722
	C10	0,0197					C29	0,0710

In Table 2, the weights in the Cost Dimension (D5) have the highest weight values which are all ranked in the top three largest. Costs are very important to be considered in the selection of implementing IoT technology in hospitals. We can see in Figure 1 that the cost dimension tends to be influenced by other dimensions, so the hospital must also consider other aspects.

From the results of calculations using VIKORRUG, we can calculate the value of S_i, Q_i, and R_i that can show which unit that has the smallest gap. The unit with the smallest gap will be the first priority to be implemented with IoT technology. The results of calculation of S_i, Q_i, and R_i can be seen in Table 3.

Table 3 S_i, Q_i, and R_i Value for 9 Units

	UR1	UR2	UR3	UR4	UR5	UR6	UR7	UR8	UR9
S_i	0,416	0,450	0,265	0,372	0,269	0,398	0,369	0,425	0,270
Q_i	0,035	0,036	0,021	0,042	0,026	0,036	0,026	0,036	0,021
R_i	0,226	0,243	0,143	0,207	0,148	0,217	0,197	0,230	0,146

Based on the results of calculations in Table 3, the Emergency Room (UR3) unit is ranked first on S_i, Q_i, and R_i, where this unit has a compromise value of 0.143.

4.2 Analyses of Scenarios

This research calculates the priority results of unit selection with four scenarios of extreme circumstances. In the first scenario, there is a global spread of viruses but those viruses have not attacked this hospital yet. The importance of security dimension is increased to 100%. The result shows that the priority change from the Emergency Room unit to the One-Day-Care unit as we can see in Table 4.

Table 4 Priority Change in First Scenario

	Before						After					
	S_i	Rank	Q_i	Rank	R_i	Rank	S_i	Rank	Q_i	Rank	R_i	Rank
UR1 (Pharmacy)	0,416	7	0,035	5	0,226	7	0,425	8	0,034	8	0,229	8
UR2 (Drugstore)	0,450	9	0,036	6	0,243	9	0,461	9	0,034	9	0,247	9
UR3 (Emergency Room)	0,265	1*	0,021	1*	0,143	1*	0,267	2	0,023	2	0,145	2
UR4 (Polyclinic)	0,372	5	0,042	9	0,207	5	0,380	4	0,032	7	0,206	5
UR5 (Babies Room)	0,269	2	0,026	3	0,148	3	0,289	3	0,025	3	0,157	3
UR6 (Mothers Room)	0,398	6	0,036	7	0,217	6	0,396	6	0,031	5	0,214	6
UR7 (Surgery Room)	0,369	4	0,026	4	0,197	4	0,378	5	0,031	6	0,205	4
UR8 (Delivery Room)	0,425	8	0,036	8	0,230	8	0,405	7	0,027	4	0,216	7
UR9 (One-Day-Care)	0,270	3	0,021	2	0,146	2	0,265	1*	0,019	1*	0,142	1*

In the second scenario, we examine the priority results of unit selection if the viruses had already attacked the hospital. IT capability, organizational readiness, and good technical knowledge are needed in the organization to recover lost data. The importance of the organizational dimension is increased to 100%. It was found that there was no change in priority and the Emergency Room was still the first choice.

In the third scenario, we examine the priority results of unit selection if the internet network or system are shut down globally. Technology possessed by each unit must be ready to be used and the organization must be prepared to deal with this situation. The importance of the technology and organizational dimensions are increased to 75%. It was found that there was a change in priority from the Emergency Room to the nursery.

In the final scenario, we examine the results of unit selection priorities if the hospital wants to obtain an accreditation regarding technological innovation. A high level of competitiveness and superior technology are needed. The importance of the environmental and technological dimensions are increased by 50%. It was found that there was a change of priority from the Emergency Room to One Day Care. Summary of priority results before and after the scenario can be seen in Table 5.

Table 5 Summary of Changes in Priority

	Before	After
1st Scenario	Emergency Room	One-Day-Care
2nd Scenario		Emergency Room
3rd Scenario		Babies Room
4th Scenario		One-Day-Care

5. Conclusion

This research found 29 factors with 5 dimensions that can influence the implementation of IoT in hospitals. The dimensions that have been used in this research are Technology, Organization, Environment, Security, and Cost. We found that Environment, Technology, and Security dimensions have big influence on other dimensions. Hospitals should focus on three units that had the smallest gap because these units had performance values that are close to the

level of aspiration. These units include Emergency Room (UR3), One-Day-Care (UR9), and Babies Room (UR6). After doing scenarios of extreme circumstances, it was found that the One-Day-Care unit was the first priority unit for IoT implementation.

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