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$$r = \frac{\sum (X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum (X_i - \bar{X})^2 \sum (Y_i - \bar{Y})^2}} \quad (10.1)$$

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$$r^2 = \frac{(\sum (X_i - \bar{X})(Y_i - \bar{Y}))^2}{\sum (X_i - \bar{X})^2 \sum (Y_i - \bar{Y})^2} \quad (10.2)$$

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the following is a special case of the more general result in [10]. For  $\mathbf{V} = \mathbf{I}$ , the following result is known as the *matrix inversion lemma*.

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$$\text{inv}(\text{inv}(\mathbf{V}) + \mathbf{u}\mathbf{u}^H) = \mathbf{u}(\mathbf{u}^H\mathbf{u})^{-1}\mathbf{u}^H \quad (11.4)$$

With  $\mathbf{u} = \mathbf{u}^H\mathbf{V}\mathbf{u}$ , the  $\mathbf{V}$  in the general case of (11.4) can be written

$$\mathbf{V}(\mathbf{V}) = \mathbf{u}(\mathbf{u}^H\mathbf{u})^{-1}\mathbf{u}^H \quad (11.5)$$

$$\mathbf{V}(\mathbf{V}) = \mathbf{u}(\mathbf{u}^H\mathbf{u})^{-1}\mathbf{u}^H = \mathbf{V}(\mathbf{V})\mathbf{V}(\mathbf{V})\mathbf{u}(\mathbf{u}^H\mathbf{u})^{-1}\mathbf{u}^H$$

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$$\text{inv}(\text{inv}(\mathbf{V}) + \mathbf{u}\mathbf{u}^H) = \mathbf{u}(\mathbf{u}^H\mathbf{u})^{-1}\mathbf{u}^H \quad (11.6)$$

With  $\mathbf{u} = \mathbf{u}^H\mathbf{V}\mathbf{u}$ , the  $\mathbf{V}$  in the general case of (11.6) can be written

$$\text{inv}(\text{inv}(\mathbf{V}) + \mathbf{u}\mathbf{u}^H) = \mathbf{u}(\mathbf{u}^H\mathbf{u})^{-1}\mathbf{u}^H = \mathbf{u}(\mathbf{u}^H\mathbf{u})^{-1}\mathbf{u}^H \quad (11.7)$$

With  $\mathbf{u} = \mathbf{u}^H\mathbf{V}\mathbf{u}$ , the  $\mathbf{V}$  in the general case of (11.7) can be written

$$\text{inv}(\text{inv}(\mathbf{V}) + \mathbf{u}\mathbf{u}^H) = \mathbf{u}(\mathbf{u}^H\mathbf{u})^{-1}\mathbf{u}^H = \mathbf{u}(\mathbf{u}^H\mathbf{u})^{-1}\mathbf{u}^H \quad (11.8)$$

With  $\mathbf{u} = \mathbf{u}^H\mathbf{V}\mathbf{u}$ ,

$$\text{inv}(\text{inv}(\mathbf{V}) + \mathbf{u}\mathbf{u}^H) = \mathbf{u}(\mathbf{u}^H\mathbf{u})^{-1}\mathbf{u}^H = \mathbf{u}(\mathbf{u}^H\mathbf{u})^{-1}\mathbf{u}^H \quad (11.9)$$

With  $\mathbf{u} = \mathbf{u}^H\mathbf{V}\mathbf{u}$ , the  $\mathbf{V}$  in the general case of (11.9) can be written

With  $\mathbf{u} = \mathbf{u}^H\mathbf{V}\mathbf{u}$ , the  $\mathbf{V}$  in the general case of (11.10) can be written

$$\mathbf{V}(\mathbf{V}) = \mathbf{u}(\mathbf{u}^H\mathbf{u})^{-1}\mathbf{u}^H = \mathbf{V}(\mathbf{V})\mathbf{V}(\mathbf{V})\mathbf{u}(\mathbf{u}^H\mathbf{u})^{-1}\mathbf{u}^H$$

With  $\mathbf{u} = \mathbf{u}^H\mathbf{V}\mathbf{u}$ , the  $\mathbf{V}$  in the general case of (11.11) can be written

With  $\mathbf{u} = \mathbf{u}^H\mathbf{V}\mathbf{u}$ , the  $\mathbf{V}$  in the general case of (11.12) can be written

[illegible]

The report of the Committee on the subject of the proposed amendment to the Constitution of the United States, which was adopted by the House of Representatives on the 10th of March, 1860, is as follows:

**Figure 1**

a. The first step in the process is to identify the problem or issue that needs to be addressed. This involves gathering information and understanding the context of the problem.

11.11.11

[illegible]

WILLIAM H. HARRIS, JR., President

The first two steps are the most important. The first step is to identify the problem. The second step is to define the problem. The third step is to identify the causes of the problem. The fourth step is to identify the effects of the problem. The fifth step is to identify the stakeholders involved in the problem. The sixth step is to identify the resources available to solve the problem. The seventh step is to identify the constraints on the problem. The eighth step is to identify the risks associated with the problem. The ninth step is to identify the opportunities associated with the problem. The tenth step is to identify the solutions to the problem. The eleventh step is to implement the solutions. The twelfth step is to evaluate the results of the solutions. The thirteenth step is to monitor the results of the solutions. The fourteenth step is to report the results of the solutions. The fifteenth step is to communicate the results of the solutions. The sixteenth step is to document the results of the solutions. The seventeenth step is to archive the results of the solutions. The eighteenth step is to delete the results of the solutions. The nineteenth step is to restore the results of the solutions. The twentieth step is to backup the results of the solutions. The twenty-first step is to recover the results of the solutions. The twenty-second step is to restore the results of the solutions. The twenty-third step is to delete the results of the solutions. The twenty-fourth step is to archive the results of the solutions. The twenty-fifth step is to delete the results of the solutions. The twenty-sixth step is to archive the results of the solutions. The twenty-seventh step is to delete the results of the solutions. The twenty-eighth step is to archive the results of the solutions. The twenty-ninth step is to delete the results of the solutions. The thirtieth step is to archive the results of the solutions. The thirty-first step is to delete the results of the solutions. The thirty-second step is to archive the results of the solutions. The thirty-third step is to delete the results of the solutions. The thirty-fourth step is to archive the results of the solutions. The thirty-fifth step is to delete the results of the solutions. The thirty-sixth step is to archive the results of the solutions. The thirty-seventh step is to delete the results of the solutions. The thirty-eighth step is to archive the results of the solutions. The thirty-ninth step is to delete the results of the solutions. The fortieth step is to archive the results of the solutions. The forty-first step is to delete the results of the solutions. The forty-second step is to archive the results of the solutions. The forty-third step is to delete the results of the solutions. The forty-fourth step is to archive the results of the solutions. The forty-fifth step is to delete the results of the solutions. 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The ninety-first step is to delete the results of the solutions. The ninety-second step is to archive the results of the solutions. The ninety-third step is to delete the results of the solutions. The ninety-fourth step is to archive the results of the solutions. The ninety-fifth step is to delete the results of the solutions. The ninety-sixth step is to archive the results of the solutions. The ninety-seventh step is to delete the results of the solutions. The ninety-eighth step is to archive the results of the solutions. The ninety-ninth step is to delete the results of the solutions. The hundredth step is to archive the results of the solutions.

[illegible]

1

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(11.11)

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$$\begin{aligned} \alpha_0 &= \frac{\mathbf{1}'(\mathbf{I} - \mathbf{T}_0)\mathbf{1} + \mathbf{T}_0'\mathbf{1}(\mathbf{I} - \mathbf{T}_0)'}{\mathbf{1}'(\mathbf{I} - \mathbf{T}_0)\mathbf{1} + \mathbf{T}_0'\mathbf{1}(\mathbf{I} - \mathbf{T}_0)'} \\ &= \frac{\mathbf{1}'(\mathbf{I} - \mathbf{T}_0)\mathbf{1} + \mathbf{T}_0'\mathbf{1}(\mathbf{I} - \mathbf{T}_0)'}{\mathbf{1}'(\mathbf{I} - \mathbf{T}_0)\mathbf{1} + \mathbf{T}_0'\mathbf{1}(\mathbf{I} - \mathbf{T}_0)'} \end{aligned} \quad (11.11)$$

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$$\begin{aligned} \alpha_0 &= \frac{(\mathbf{I} - \mathbf{T}_0)\mathbf{1} + \mathbf{T}_0'\mathbf{1}(\mathbf{I} - \mathbf{T}_0)'}{(\mathbf{I} - \mathbf{T}_0)\mathbf{1} + \mathbf{T}_0'\mathbf{1}(\mathbf{I} - \mathbf{T}_0)'} \\ &= \frac{(\mathbf{I} - \mathbf{T}_0)\mathbf{1} + \mathbf{T}_0'\mathbf{1}(\mathbf{I} - \mathbf{T}_0)'}{(\mathbf{I} - \mathbf{T}_0)\mathbf{1} + \mathbf{T}_0'\mathbf{1}(\mathbf{I} - \mathbf{T}_0)'} \end{aligned} \quad (11.12)$$

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$$\alpha_0 = (\mathbf{I} - \mathbf{T}_0)\mathbf{1} + \mathbf{T}_0'\mathbf{1}(\mathbf{I} - \mathbf{T}_0)' = (\mathbf{I} - \mathbf{T}_0)\mathbf{1} + \mathbf{T}_0'\mathbf{1}(\mathbf{I} - \mathbf{T}_0)' \quad (11.13)$$

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$$\alpha_0 = \frac{\begin{bmatrix} \alpha_{01} & \alpha_{02} & \alpha_{03} \\ \alpha_{04} & \alpha_{05} & \alpha_{06} \\ \alpha_{07} & \alpha_{08} & \alpha_{09} \end{bmatrix}}{\begin{bmatrix} \alpha_{01} & \alpha_{02} & \alpha_{03} \\ \alpha_{04} & \alpha_{05} & \alpha_{06} \\ \alpha_{07} & \alpha_{08} & \alpha_{09} \end{bmatrix}} \quad (11.14)$$

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$$\alpha_0 = \alpha_0' + \mathbf{T}_0\alpha_0' + \alpha_0'\mathbf{T}_0' = \alpha_0' + \mathbf{T}_0\alpha_0' + \alpha_0'\mathbf{T}_0' \quad (11.15)$$

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$$\alpha_0 = \alpha_0' + \mathbf{T}_0\alpha_0' + \alpha_0'\mathbf{T}_0' = \alpha_0' + \mathbf{T}_0\alpha_0' + \alpha_0'\mathbf{T}_0' \quad (11.16)$$

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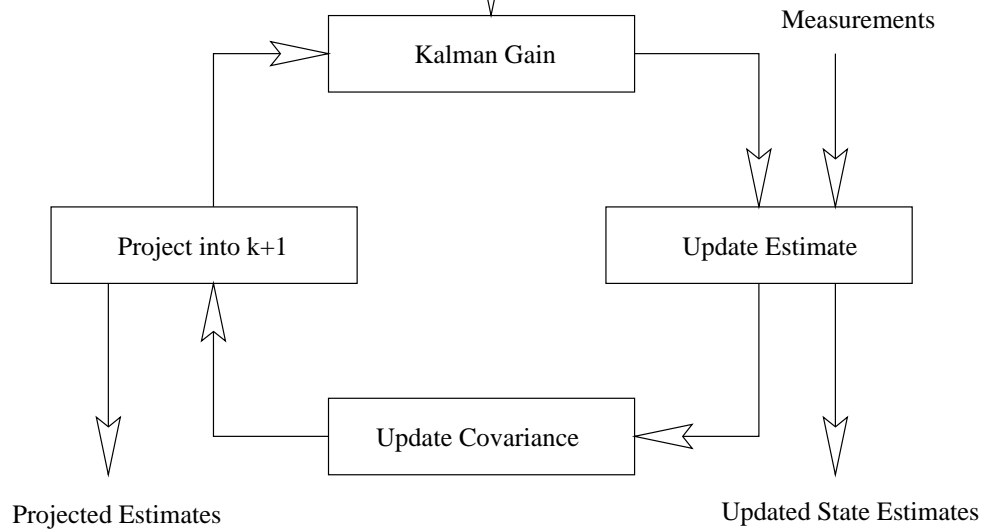
$$\frac{\alpha_0}{\mathbf{T}_0} = \frac{\alpha_0}{\mathbf{T}_0} = \frac{\alpha_0}{\mathbf{T}_0} = \frac{\alpha_0}{\mathbf{T}_0} \quad (11.17)$$

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Initial Estimates

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Projected Estimates	Updated State Estimates
$\hat{x}_{k+1 k} = A_k \hat{x}_k + B_k u_k$	$\hat{x}_k = \hat{x}_{k k-1} + K_k (y_k - H_k \hat{x}_{k k-1})$
$P_{k+1 k} = A_k P_k A_k^T + B_k R_k B_k^T$	$K_k = P_k H_k^T (H_k P_k H_k^T + R_k)^{-1}$
$P_{k+1 k+1} = (I - K_k H_k) P_{k+1 k}$	$P_k = (I - K_k H_k) P_{k k-1}$

Example 11.10: A 1D motion model with process noise

Given:  $\hat{x}_0 = 0$ ,  $P_0 = 1$ ,  $u_k = 1$ ,  $R_k = 1$ ,  $Q_k = 1$ ,  $A_k = 1$ ,  $B_k = 1$ ,  $H_k = 1$ ,  $C_k = 1$ ,  $D_k = 0$

→ The Kalman filter estimates the state  $x_k$  at each time step  $k$ . The state  $x_k$  is the position of the object at time  $k$ . The Kalman filter uses the initial estimates  $\hat{x}_0$  and  $P_0$  to start the estimation process. The Kalman filter uses the process model  $A_k$  and  $B_k$  to predict the state  $\hat{x}_{k+1|k}$  at time  $k+1$  based on the state  $\hat{x}_k$  at time  $k$  and the control input  $u_k$ . The Kalman filter uses the measurement model  $H_k$  and  $R_k$  to update the state estimate  $\hat{x}_k$  based on the measurement  $y_k$  at time  $k$ . The Kalman filter uses the Kalman gain  $K_k$  to determine how much weight to give to the measurement  $y_k$  when updating the state estimate  $\hat{x}_k$ . The Kalman filter uses the covariance matrix  $P_k$  to represent the uncertainty in the state estimate  $\hat{x}_k$ . The Kalman filter uses the covariance matrix  $P_{k+1|k}$  to represent the uncertainty in the predicted state  $\hat{x}_{k+1|k}$ .

→ The Kalman filter estimates the state  $x_k$  at each time step  $k$ .

$$\hat{x}_k = \hat{x}_{k|k-1} + K_k (y_k - H_k \hat{x}_{k|k-1}) \quad (11.21)$$

The Kalman filter estimates the state  $x_k$  at each time step  $k$ . The state  $x_k$  is the position of the object at time  $k$ . The Kalman filter uses the initial estimates  $\hat{x}_0$  and  $P_0$  to start the estimation process. The Kalman filter uses the process model  $A_k$  and  $B_k$  to predict the state  $\hat{x}_{k+1|k}$  at time  $k+1$  based on the state  $\hat{x}_k$  at time  $k$  and the control input  $u_k$ . The Kalman filter uses the measurement model  $H_k$  and  $R_k$  to update the state estimate  $\hat{x}_k$  based on the measurement  $y_k$  at time  $k$ . The Kalman filter uses the Kalman gain  $K_k$  to determine how much weight to give to the measurement  $y_k$  when updating the state estimate  $\hat{x}_k$ . The Kalman filter uses the covariance matrix  $P_k$  to represent the uncertainty in the state estimate  $\hat{x}_k$ . The Kalman filter uses the covariance matrix  $P_{k+1|k}$  to represent the uncertainty in the predicted state  $\hat{x}_{k+1|k}$ .

→ The Kalman filter estimates the state  $x_k$  at each time step  $k$ . The state  $x_k$  is the position of the object at time  $k$ . The Kalman filter uses the initial estimates  $\hat{x}_0$  and  $P_0$  to start the estimation process. The Kalman filter uses the process model  $A_k$  and  $B_k$  to predict the state  $\hat{x}_{k+1|k}$  at time  $k+1$  based on the state  $\hat{x}_k$  at time  $k$  and the control input  $u_k$ . The Kalman filter uses the measurement model  $H_k$  and  $R_k$  to update the state estimate  $\hat{x}_k$  based on the measurement  $y_k$  at time  $k$ . The Kalman filter uses the Kalman gain  $K_k$  to determine how much weight to give to the measurement  $y_k$  when updating the state estimate  $\hat{x}_k$ . The Kalman filter uses the covariance matrix  $P_k$  to represent the uncertainty in the state estimate  $\hat{x}_k$ . The Kalman filter uses the covariance matrix  $P_{k+1|k}$  to represent the uncertainty in the predicted state  $\hat{x}_{k+1|k}$ .

1. *What is the purpose of the study?*  
 2. *What are the research questions or hypotheses?*  
 3. *What is the study design?*  
 4. *What is the sample size and how was it selected?*  
 5. *What are the variables being studied?*  
 6. *What are the data collection methods?*  
 7. *What are the results of the study?*  
 8. *What are the conclusions of the study?*  
 9. *What are the limitations of the study?*  
 10. *What are the implications of the study?*



[illegible]

—  $\nabla \cdot \mathbf{u} = 0$  in  $\Omega$ ,  $\mathbf{u} = 0$  on  $\partial\Omega$ .

—The results of this study suggest that the use of a single, standardized, and validated instrument to assess the quality of life of patients with cancer is a feasible and reliable method of data collection. The use of such an instrument is recommended for future research in this area.

Второй этап – формирование и реализация стратегии развития. В этот период необходимо определить, какие ресурсы и возможности организации могут быть использованы для достижения поставленных целей. Это требует проведения тщательного анализа внутренней и внешней среды организации, а также разработки конкретных планов и программ действий.

We thank Dr. M. J. Griffin for his comments on this manuscript.

1. The first step in the process is to identify the problem or issue that needs to be addressed. This involves gathering information and understanding the context of the problem.

It is not clear whether the authors intended to suggest that the use of the term "cognitive" is a necessary condition for the use of the term "cognitive" in the title of a paper. The authors also state that the use of the term "cognitive" is not a necessary condition for the use of the term "cognitive" in the title of a paper.

*ii*

