



Figure-19. Project Cost Estimates

| 1.0 Project Initiation           |              |                 |
|----------------------------------|--------------|-----------------|
| Summary Sub Task                 | Days         | Sub Task Amount |
| 1.1. Schedule Initiation Meeting |              | 360,000         |
| 1.2. Select Project Manager      |              | 350,000         |
| 1.3. Create Project Team         |              | 1,400,000       |
| 1.4. Identify Key Stakeholders   |              | 500,000         |
| 1.5. Business Analysis           |              | 650,000         |
| 1.6. Create Project Proposal     |              | 800,000         |
| 1.7. Create Project Charter      |              | 840,000         |
|                                  | <b>Total</b> | 4,900,000       |
| % of Total Project Cost          |              | 1.25%           |

| 2.0 Project Planning            |              |                 |
|---------------------------------|--------------|-----------------|
| Summary Sub Task                | Days         | Sub Task Amount |
| 2.1. Create Project SCOPE       |              | 7,000,000       |
| 2.2. Develop Project Activities |              | 9,000,000       |
| 2.3. Estimate Time Duration     |              | 10,000,000      |
| 2.4. Analyze Current Systems    |              | 50,000,000      |
| 2.5. Determine New System       |              | 38,000,000      |
| 2.6. Project Sign-off           |              | 5,000,000       |
| 2.7. Review Final Project Plan  |              | 6,000,000       |
|                                 | <b>Total</b> | 125,000,000     |
| % of Total Project Cost         |              | 31.77%          |

| 3.0 Project Execution          |              |                 |
|--------------------------------|--------------|-----------------|
| Summary Sub Task               | Days         | Sub Task Amount |
| 3.1 Survey Users               |              | \$100,000       |
| 3.2 User Inputs                |              | \$600,000       |
| 3.3 Design Software & Hardware |              | \$120,000,000   |
| 3.4 Develop Training Program   |              | \$60,300,000    |
| 3.5 Implementation             |              | \$50,000,000    |
| 3.6 Deployment                 |              | \$26,000,000    |
|                                | <b>Total</b> | 257,000,000     |
| % of Total Project Cost        |              | 65.31%          |



| 4.0 Project Controlling          |              |                 |
|----------------------------------|--------------|-----------------|
| Summary Sub Task                 | Days         | Sub Task Amount |
| 4.1 Continue On-Going Support    |              | \$1,200,000     |
| 4.2 Ensure Software Is Updated   |              | \$600,000       |
| 4.3 Systems Maintenance          |              | \$1,300,000     |
| 4.4 Systems Maintenance          |              | \$1,500,000     |
| 4.5 Project Benchmarking         |              | \$100,000       |
| 4.6 Receive Stakeholder Feedback |              | \$400,000       |
|                                  |              |                 |
|                                  | <b>Total</b> | 5,100,000       |
| <b>% of Total Project Cost</b>   |              | 1.30%           |

| 5.0 Project Closing                         |              |                 |
|---------------------------------------------|--------------|-----------------|
| Summary Sub Task                            | Days         | Sub Task Amount |
| 5.1 Receive Organization Feedback           |              | \$65,000        |
| 5.2 Continue Maintenance on Hardware        |              | \$500,000       |
| 5.3 Review Project                          |              | \$55,000        |
| 5.4 Ensure Project Deliverables are Current |              | \$230,000       |
| 5.5 Present Deliverables and Project        |              | \$650,000       |
|                                             |              |                 |
|                                             |              |                 |
|                                             | <b>Total</b> | 1,500,000       |
| <b>% of Total Project Cost</b>              |              | 0.38%           |

|                              |                         |
|------------------------------|-------------------------|
| <b>Total Cost of Project</b> | <b>\$393,500,000.00</b> |
|                              | 100.00%                 |

### Project Cost Analysis

The total cost estimate of the project is \$393,500,000. The project initiation phase cost estimates amount for 1.25% of the total project costs. Project planning amounts for 31.77% of total costs. The biggest costs of the project are derived from Project Execution, which amounts to 65.31% of the total project cost.



### Trane Cash Flow Analysis

GQVM performed a cash flow analysis to get a better perspective of how much Trane, Inc. can benefit from this project. This analysis shows the benefits in terms of cash flow it can bring to Trane, Inc. In using a CRM, Trane's employees would be able to analyze consumer trends in terms of their spending habits or even their travel patterns to offer them deals. Thus, Trane, Inc. will also benefit by increasing customer loyalty and market to them based on their needs. This will bring Trane savings and increase their bottom line. As you can see in the Cash flow statement Trane will see a positive cash flow in year 4 and will continue to reap profits with no more costs. The CRM will continue to benefit Trane greatly and increase Trane's bottom line year over year. All Trane needs to do is to maintain and modify their ERP as technological advances are available.



Figure-20. Project Cash Flow Analysis

| Project Cash Flow Analysis     |              |              |              |              |
|--------------------------------|--------------|--------------|--------------|--------------|
| Cash Flow:                     | Year 1       | Year 2       | Year 3       | Year 4       |
| Initiation                     | -1,750,000   | -1,700,000   | -1,000,000   | -450,000     |
| Planning                       | -45,000,000  | -35,000,000  | -23,000,000  | -22,000,000  |
| Execution                      | -202,000,000 | -40,050,000  | -8,500,000   | -6,450,000   |
| Controlling                    | -500,000     | -2,500,000   | -1,500,000   | -600,000     |
| Closing                        | -750,000     | -750,000     |              |              |
| Discount Factor 8%             | 0.926        | 0.857        | 0.794        | 0.735        |
| Present Value of Annual Costs: | -231,500,000 | -68,560,000  | -26,996,000  | -21,682,500  |
| Cumulative Cost:               | -231,500,000 | -300,060,000 | -327,056,000 | -348,738,500 |

| Cash Flow:                  | Year 1     | Year 2      | Year 3      | Year 4      |
|-----------------------------|------------|-------------|-------------|-------------|
| Benefits of Operations:     | 70,000,000 | 95,000,000  | 115,000,000 | 150,000,000 |
| IS/IT Support Cost Savings: | 24,000,000 | 34,000,000  | 34,900,000  | 47,000,000  |
| Total Benefits Saved:       | 94,000,000 | 129,000,000 | 149,900,000 | 197,000,000 |
| Discount Factors for 8%     | 0.926      | 0.857       | 0.794       | 0.735       |
| PV of Annual Benefits:      | 87,044,000 | 110,553,000 | 119,020,600 | 144,795,000 |
| Cumulative Benefits:        | 87,044,000 | 197,597,000 | 316,617,600 | 461,412,600 |

| Cash Flow:                               | Year 1       | Year 2       | Year 3      | Year 4      |
|------------------------------------------|--------------|--------------|-------------|-------------|
| Cumulative Time-Adjusted Cost + Benefits | -144,456,000 | -102,463,000 | -10,438,400 | 112,674,100 |

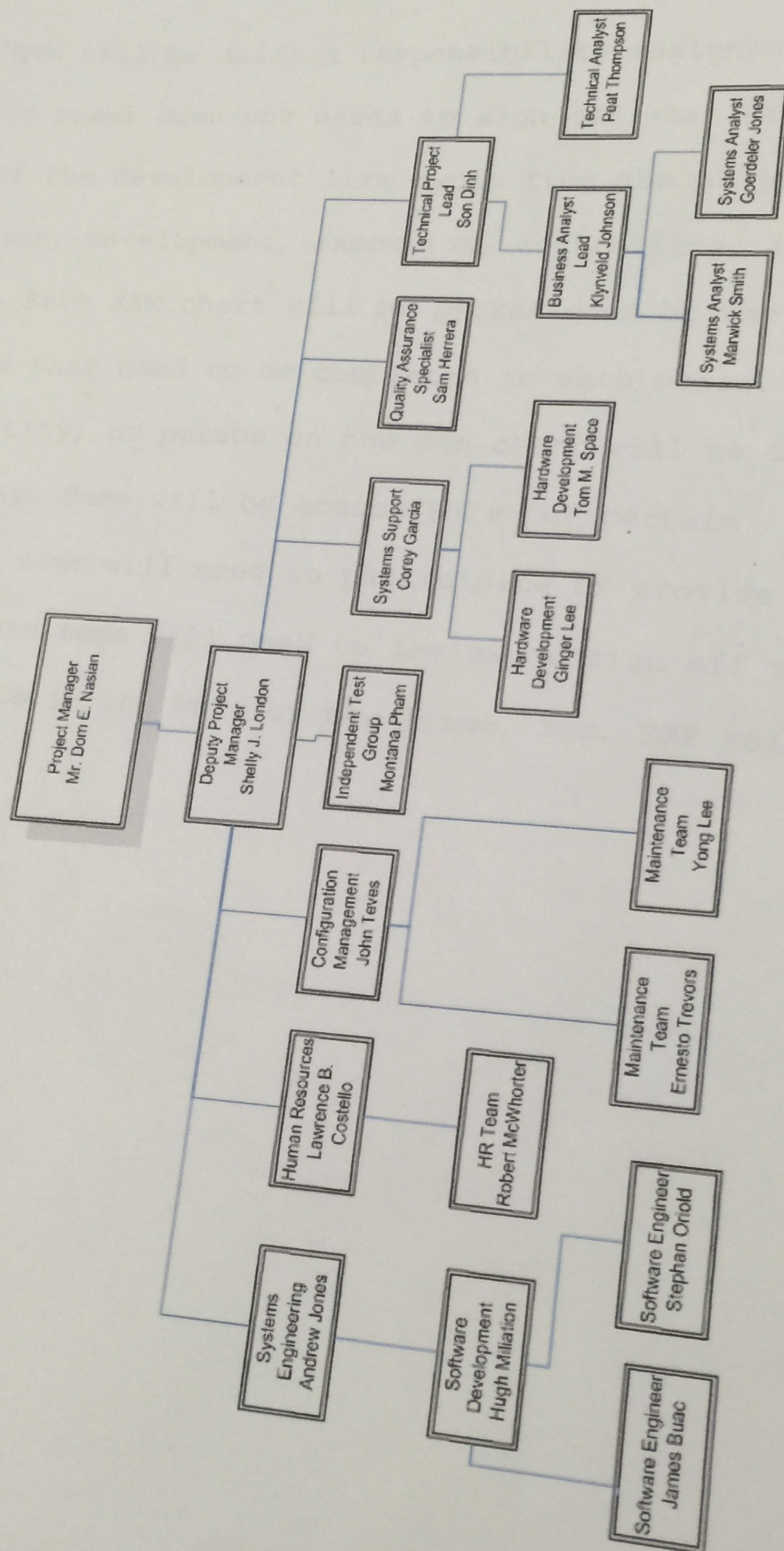


## Project Human Resources

### Project Organizational Chart

The project organizational chart shows the breakdown of the project managers and their subordinates. This project organizational chart will allow for better communication between each specific depart and the hierarchy for chain of command, refer to Figure 21. Mr. Dom E. Nashian is the official project manager for the ERP rollout at Trane, Inc.

Figure-21. Project Organizational Chart





### Responsibility Assignment Matrix

GQVM will be using a responsibility assignment matrix (RAM) to break down who needs to sign off what in each phase of the development life cycle from the project initiation, development, execution, controlling, and closing. Each RAM chart will be broken down by the processes that need to be completed in each phase. Each group, entity, or person on the RAM chart will be involved in some way. Some will be accountable for certain processes, some will need to participate or provide feedback, and some will need to review or sign off on certain steps in the WBS for the Trane, Inc. ERP rollout of the CRM.



Figure-22. Responsibility Assignment Matrix

| <b>Responsibility Assignment Matrix</b><br><b>Project Initiation</b>                                     |            |      |          |                 |                 |                          |                        |                        |                        |                  |                       |                      |                            |
|----------------------------------------------------------------------------------------------------------|------------|------|----------|-----------------|-----------------|--------------------------|------------------------|------------------------|------------------------|------------------|-----------------------|----------------------|----------------------------|
|                                                                                                          | CEO        | CFO  | CCO & VP | Project Manager | GQVM Associates | Systems Engineering Team | Configuration Mgt Team | Independent Test Group | Technical Project Lead | Maintenance Team | Business Analyst Team | Systems Support Team | Software Development Dept. |
| 1.1. Schedule Initiation Meeting                                                                         | S, I, R    | P    | P        |                 | A               |                          |                        |                        |                        |                  |                       |                      |                            |
| 1.2. Select Project Manager                                                                              | R, S, I, A |      |          | S               | P               | P                        | P                      | P                      | P                      | P                |                       | P                    | P                          |
| 1.3. Create Project Team                                                                                 | P, I       |      | P, I     | A               | S               |                          |                        |                        | P                      |                  | P                     |                      |                            |
| 1.4. Identify Key Stakeholders                                                                           | P, I       | P    |          | A, R, S         | P               |                          |                        |                        |                        |                  |                       | P                    |                            |
| 1.5. Business Analysis                                                                                   | I, R       | I, R | P        | P               | P               |                          |                        |                        |                        |                  | S, I, R, A            |                      |                            |
| 1.6. Create Project Proposal                                                                             | I          |      |          | A               | S, R            | P                        | P                      | P                      | P                      | P                |                       | P                    |                            |
| 1.7. Create Project Charter                                                                              | I, R       |      |          | A               | S, R, P         |                          |                        |                        |                        |                  |                       |                      |                            |
| A = Accountable<br>R = Review Required<br>S = Sign-Off Required<br>P = Participant<br>I = Input Required |            |      |          |                 |                 |                          |                        |                        |                        |                  |                       |                      |                            |



## Responsibility Assignment Matrix Project Planning

|                                 | CEO  | CFO | CCO & VP | Project Manager | GQVM Associates | Systems Engineering Team | Configuration Management | Independent Test Group | Technical Project Lead | Maintenance Team | Business Analyst Team | Systems Support Team | Software Development Dept. |
|---------------------------------|------|-----|----------|-----------------|-----------------|--------------------------|--------------------------|------------------------|------------------------|------------------|-----------------------|----------------------|----------------------------|
| 2.1. Create Project SCOPE       | I    |     |          | A               | S, R, P         |                          |                          |                        |                        |                  |                       |                      |                            |
| 2.2. Develop Project Activities |      |     |          | A               | S, R, P         | P                        | P                        | P                      | P                      | P                | P                     | P                    | P                          |
| 2.3. Estimate Time Duration     | I    |     |          | A               | S, R, P         | P                        | P                        | P                      | P                      | P                | P                     | P                    | P                          |
| 2.4. Analyze Current Systems    | I    | P   | P        | I, P            | S               | P                        | R                        |                        | P                      | P                | A                     | P                    | P                          |
| 2.5. Determine New System       | I, S | P   | P        | A               | R               | P                        | P                        | P                      | P                      | P                | P                     | P                    | P                          |
| 2.6. Project Sign-off           | A    | A   | A        | A               | A               |                          |                          |                        |                        |                  |                       |                      |                            |
| 2.7. Review Final Project Plan  | A    | R   | R        | I               | R, I            |                          |                          |                        |                        |                  |                       |                      |                            |

## Responsibility Assignment Matrix Project Execution

|                                | CEO | CFO | CCO & VP | Project Manager | GQVM Associates | Systems Engineering Team | Configuration Management | Independent Test Group | Technical Project Lead | Maintenance Team | Business Analyst Team | Systems Support Team | Software Development Dept. |
|--------------------------------|-----|-----|----------|-----------------|-----------------|--------------------------|--------------------------|------------------------|------------------------|------------------|-----------------------|----------------------|----------------------------|
| 3.1 Survey Users               | P   | P   | P        | R, A            | S               | P                        | P                        | P                      | P                      | P                | P                     | P                    | P                          |
| 3.2 User Inputs                | I   |     |          | R, S, A         |                 | P                        | P                        | P                      | P                      | P                | P                     | P                    | P                          |
| 3.3 Design Software & Hardware |     |     |          | S               |                 | A, S                     | P                        | P                      | R                      | P                | I                     |                      | A                          |
| 3.4 Develop Training Program   | I   | P   | P        | R               | S               | P                        | P                        | P                      | P                      | P                | P                     | A                    | P                          |
| 3.5 Implementation             | P   | P   | P        | R, P            | S               | P                        | P                        | P                      | P                      | P                | P                     | P                    | P                          |
| 3.6 Deployment                 | P   | P   | P        | A, P            | R               | P                        | P                        | P                      | I                      | I                | I                     | I                    | I                          |

GQ Garrison Quoc  
VM Vincent Mark



## Responsibility Assignment Matrix Project Controlling

|                                  | CEO  | CFO | CCO & VP | Project Manager | GQVM Associates | Systems Engineering Team | Configuration Management | Independent Test Group | Technical Project Lead | Maintenance Team | Business Analyst Team | Systems Support Team | Software Development Dept. |
|----------------------------------|------|-----|----------|-----------------|-----------------|--------------------------|--------------------------|------------------------|------------------------|------------------|-----------------------|----------------------|----------------------------|
| 4.1 Continue On-Going Support    | P    | P   | P        | R, S            | I               |                          | P                        |                        |                        | P                |                       | A                    |                            |
| 4.2 Ensure Software Is Updated   | R, S | P   | P        |                 |                 |                          |                          |                        |                        | A                |                       |                      |                            |
| 4.3 Systems Maintenance          |      |     |          | R               |                 |                          | I, P, S                  |                        |                        | A                |                       |                      |                            |
| 4.4 Project Benchmarking         | P    | P   | P        |                 | S               |                          |                          | A                      |                        |                  |                       |                      |                            |
| 4.5 Receive Stakeholder Feedback | I    | I   | I        |                 | A, S            |                          |                          |                        |                        | P                | P                     |                      |                            |

## Responsibility Assignment Matrix Project Closing

|                                             | CEO  | CFO | CCO & VP | Project Manager | GQVM Associates | Systems Engineering Team | Configuration Management | Independent Test Group | Technical Project Lead | Maintenance Team | Business Analyst Team | Systems Support Team | Software Development Dept. |
|---------------------------------------------|------|-----|----------|-----------------|-----------------|--------------------------|--------------------------|------------------------|------------------------|------------------|-----------------------|----------------------|----------------------------|
| 5.1 Receive Organization Feedback           | R, S |     |          |                 | A               |                          |                          | P                      |                        |                  |                       |                      |                            |
| 5.2 Continue Maintenance on Hardware        | R, S | P   | P        |                 |                 |                          |                          |                        | I, P                   |                  |                       | P                    |                            |
| 5.3 Review Project                          | S    | I   | I        | A               | R               | P                        | P                        | P                      | A                      |                  |                       | P                    |                            |
| 5.4 Ensure Project Deliverables are Current | I    |     |          | A               | R               | P                        | P                        | P                      | P                      | P                | P                     | P                    | P                          |
| 5.5 Present Deliverables and Project        | R    |     |          | A               | A, S            | P                        | P                        | P                      | P                      | P                | P                     | P                    | P                          |

GQ Garrison Quoc  
VM Vincent Mark



### **Responsibility Assignment Matrix**

The responsibility assignment matrix is used to assign responsibilities of the entities and individuals that are part of the project. On figure 22, GQVM has broken down who needs to sign off on each step, as well as the participants within the project life cycle. Inputs are also required from the CEO during the Project Planning phase while periodical reviews by the GQVM associates and the project manager, Dom E. Nashian.