



KSK COLLEGE OF ENGINEERING AND TECHNOLOGY DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

**OPTIMIZING USER, GROUP, AND ROLE MANAGEMENT WITH
ACCESS CONTROL AND WORKFLOW**

Team ID : NM2025TMID07768

Team Size : 4

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Problem statement:

In a small project management team consisting of a Project Manager (Alice) and a Team Member (Bob), there is a need to efficiently manage project tasks and ensure accountability throughout the project lifecycle. The current system lacks clear role definitions, access controls, and a structured workflow, leading to confusion regarding task assignments and progress tracking.

Objective:

- Implement Role-Based Access Control (RBAC) for efficient access management
- Automate user provisioning and deprovisioning processes
- Streamline approval workflows and enhance transparency
- Regularly review and update user access rights and permissions
- Ensure compliance with regulatory requirements and security policies

Skills:

- ServiceNow Catalog Item Creation
- UI Policies & UI Actions
- Update Set Management
- Testing & Deployment
- Team Collaboration

Task initiation:

1. **Conduct Current State Assessment:** Review existing user, group, and access management processes.
2. **Define Requirements and Objectives:** Identify business needs and regulatory compliance requirements.
3. **Design Target State Architecture:** Plan RBAC implementation and workflow automation.
4. **Develop Implementation Plan:** Create timeline, milestones, and resource allocation plan.
5. **Configure and Test Solution:** Implement RBAC, automate workflows, and test thoroughly.

Features:

- 1. Centralized User Management:** Single platform for user provisioning, management, and deprovisioning.
- 2. Role-Based Access Control (RBAC):** Assign permissions based on job functions or roles.
- 3. Attribute-Based Access Control (ABAC):** Dynamic access control based on user attributes and environment.
- 4. Automated Workflows:** Streamline approval processes, requests, and escalations.
- 5. Group Management:** Create and manage groups based on departments, roles, or projects.
- 6. Access Reviews and Audits:** Regularly review and update access permissions and roles.
- 7. Self-Service Portal:** Allow users to request access, manage profiles, and reset passwords.
- 8. Integration with Existing Systems:** Integrate with HR systems, directories, apps, and identity providers.
- 9. Multi-Factor Authentication (MFA):** Enhance security with additional authentication factors.
- 10. Audit Logging and Compliance:** Track user activity, access changes, and ensure regulatory compliance.
- 11. Delegated Administration:** Assign administrative tasks to specific users or groups.
- 12. Customizable Access Policies:** Define and enforce access policies based on business needs.

Modules implemented:

The modules implemented for optimizing user, group, management with access control and workflow include User Management, Group Management, and Role-Based Access Control (RBAC). The Access Control module ensures secure access to resources, while the Workflow Management module streamlines business processes. The Audit and Compliance module tracks user activity and ensures regulatory compliance. Additionally, the Self-Service Portal module empowers users to manage their profiles and request access. Integration with existing systems is facilitated through the Integration module. The Authentication module enables Single Sign-On (SSO) and Multi-Factor Authentication (MFA). The Authorization module manages permissions and access rights. Other modules include User Provisioning, Access Review, and Workflow Automation. These modules work together to optimize user, group, and access management. They enhance security, productivity, and compliance. The modules are designed to be flexible and scalable. They can be customized to meet specific business needs. The implementation of these modules has improved overall efficiency.

1.user creation:

1. Open service now
- 2.Click on All >> search for users
- 3.Select Users under system security
- 4.Click on new
- 5.Fill the following details to create a new user

6.Click on submit

Create one more user:

7.Create another user with the following details

8.Click on submit

2.group creation:

1. Open service now.

2.Click on All >> search for groups

3.Select groups under system security

4.Click on new

5.Fill the following details to create a new group

6.Click on submit

3. Role management:

1.Open service now

2.Click on All >> search for roles

3.Select roles under system security

4.Click on new

5.Fill the following details to create a new role

6.Click on submit

4.Assign users to group:

Assign roles to alice user:

1.Open service now.

2.Click on All >> search for roles

3.Select roles under system security

4.Click on new

5.Fill the following details to create a new role

6.Click on submit

Assign roles to bob user:

1. Open servicenow.Click on All >> search for user

2. Select tables under system definition

3. Select the bob p user

4. Under team member

5. Click on edit

6. Select team member and give table role and save
7. Click on profile icon Impersonate user to bob
8. We can see the task table2.

5.Application access:

Assign table access to application:

1. while creating a table it automatically create a application and module for that table
2. Go to application navigator search for search project table application
3. Click on edit module
4. Give project member roles to that application
5. Search for task table2 and click on edit application.
6. Give the project member and team member role for task table 2 application

6.Access Control List:

Create ACL:

1. Open service now.
2. Click on All >> search for ACL
3. Select Access Control(ACL) under system security
4. Click on elevate role
5. Click on new
6. Fill the following details to create a new ACL

7.Flow:

Create a Flow to Assign operations ticket to group:

1. Open service now.
2. Click on All >> search for Flow Designer
3. Click on Flow Designer under Process Automation.
4. After opening Flow Designer Click on new and select Flow.
5. Under Flow properties Give Flow Name as “ task table”.
6. Application should be Global.
7. Click build flow.

Implementation steps:

1.create users:

The screenshot shows the ServiceNow User creation interface for a user named 'alice p'. The 'User ID' field is set to 'alice'. Other fields include 'First name' (alice), 'Last name' (p), 'Title' (empty), 'Department' (empty), 'Password needs reset' (unchecked), 'Locked out' (unchecked), 'Active' (checked), and 'Internal Integration User' (unchecked). On the right side, there are additional fields: 'Email' (alice@gmail.com), 'Identity type' (Human), 'Language' (None), 'Calendar integration' (Outlook), 'Time zone' (System (America/Los_Angeles)), 'Date format' (System (yyyy-MM-dd)), 'Business phone' (empty), 'Mobile phone' (empty), and a 'Photo' placeholder with a link to add it. Below the main form, there are 'Related Links' for 'View linked accounts', 'View Subscriptions', and 'Reset a password'. At the bottom, there are tabs for 'Entitled Custom Tables', 'Roles', 'Groups', 'Delegates', 'Subscriptions', and 'User Client Certificates'. A search bar at the bottom allows filtering by 'Table' or 'Search'.

The screenshot shows the ServiceNow User creation interface for a user named 'bob p'. The 'User ID' field is set to 'bob'. Other fields include 'First name' (bob), 'Last name' (p), 'Title' (empty), 'Department' (empty), 'Password needs reset' (unchecked), 'Locked out' (unchecked), 'Active' (checked), and 'Internal Integration User' (unchecked). On the right side, there are additional fields: 'Email' (bob@gmail.com), 'Identity type' (Human), 'Language' (None), 'Calendar integration' (Outlook), 'Time zone' (System (America/Los_Angeles)), 'Date format' (System (yyyy-MM-dd)), 'Business phone' (empty), 'Mobile phone' (empty), and a 'Photo' placeholder with a link to add it. Below the main form, there are 'Related Links' for 'View linked accounts', 'View Subscriptions', and 'Reset a password'. At the bottom, there are tabs for 'Entitled Custom Tables', 'Roles', 'Groups', 'Delegates', 'Subscriptions', and 'User Client Certificates'. A search bar at the bottom allows filtering by 'Table' or 'Search'.

2.create groups:

The screenshot shows the ServiceNow Group creation interface for a group named 'project team'. The 'Name' field is set to 'project team'. Other fields include 'Manager' (empty) and 'Description' (empty). On the right side, there are fields for 'Group email' (empty) and 'Parent' (empty). Below the main form, there are tabs for 'Roles', 'Group Members', and 'Groups'. A search bar at the bottom allows filtering by 'Created' or 'Search'. At the bottom right, there is an 'Edit...' button. A note at the bottom states 'No records to display'.

3.create roles:

The screenshot shows the ServiceNow interface for creating a new role. The left sidebar is titled 'servicenow' and contains a 'groups' section with various system categories like 'System Definition', 'Text Index Groups', 'System Mailboxes', 'Administration', 'Email Account Groups', 'System Security', 'Users and Groups', 'Reports', 'Groups Membership', 'User Administration', and 'Workspace Experience'. The main panel shows a role named 'Role - project member' with the 'Name' field set to 'project member'. The 'Application' dropdown is set to 'Global'. There is a checkbox for 'Elevated privilege' which is unchecked. A 'Description' field is present but empty. Below the main form, there is a 'Related Links' section with tabs for 'Contains Roles', 'Applications with Role (2)', 'Modules with Role (2)', and 'Custom Tables'. The 'Contains Roles' tab is selected, showing a search bar and a result table with one entry: 'Role = project member' under the 'Contains' column, with a small icon and the message 'No records to display'.

4.Assign users to groups:

Assign role to alice user:

The screenshot shows the ServiceNow user profile for 'User alice p'. The top navigation bar includes 'Favorites', 'History', 'Workspaces', 'Admin', and a search bar. The user's name 'User alice p' is displayed with an 'Active' checkbox checked. Below the profile information are buttons for 'Update', 'Set Password', and 'Delete'. The 'Mobile phone' field is empty. The 'Internal Integration User' checkbox is unchecked. The 'Photo' field has a placeholder 'Click to add...'. Under the 'Related Links' section, there are links for 'View linked accounts', 'View Subscriptions', and 'Set a password'. The 'Entitled Custom Tables' section shows tabs for 'Roles (4)', 'Groups (2)', 'Delegates', 'Subscriptions', and 'User Client Certificates'. The 'Roles (4)' tab is selected, displaying a table with four rows. The columns are 'Role', 'State', 'Inherited', and 'Inheritance Count'. The rows are: 'u_project_table_user' (Active, false), 'project member' (Active, false), 'snc_required_script_writer_permission' (Active, true), and 'u_task_table_user' (Active, false). At the bottom of the table, there is a page navigation bar with '1 to 4 of 4'.

Assign roles to bob user:

The screenshot shows the ServiceNow User Management interface for the user 'User - bob p'. The 'Roles' tab is selected, showing the following table of assigned roles:

Role	State	Inherited	Inheritance Count
u_task_table_user	Active	false	
snc_required_script_writer_permission	Active	true	
team member	Active	false	

5.Application access:

Assign table access to application:

The screenshot shows the ServiceNow Application Menu configuration for the application menu 'project table'. The configuration includes:

- Title: project table
- Application: Global
- Active: checked
- Restricts access to specified roles.
- Roles assigned: project member
- Category: Custom Applications
- Hint: (empty)
- Description: (empty)

servicenow All Favorites History Workspaces : Application Menu - task table ⭐

An application menu is a group of modules in the application navigator. Choose the roles that are required to access the application and add or remove modules in the related list below. [More Info](#)

* Title Application Active

Restricts access to the specified roles. Otherwise, all users can view the application menu when it is active.

Roles u_task_table_user, project member, team member

Specifies the [menu category](#), which defines the navigation menu style. The default value is Custom Applications.

Category

The text that appears in a tooltip when a user points to this application menu

Hint

Description

6. Access Control List:

Create ACL:

servicenow All Favorites History Workspaces Admin Access Controls ⭐

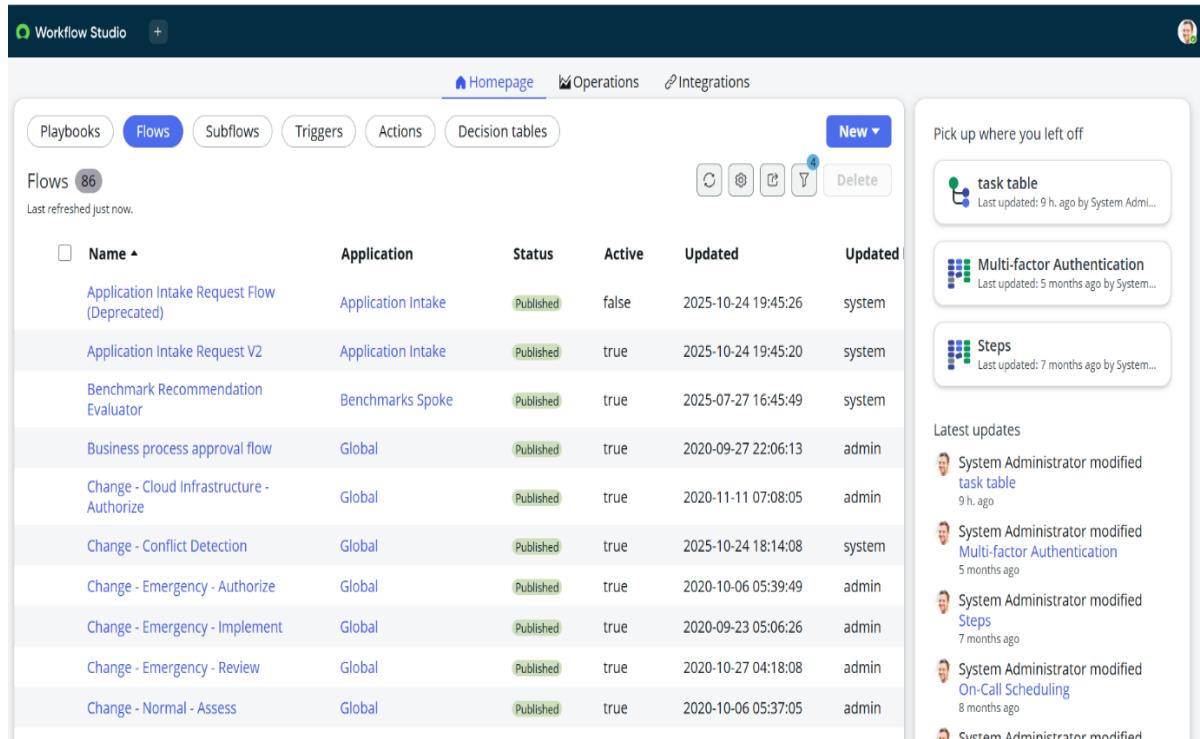
All

<input type="checkbox"/>	Name	Decision Type	Operation	Type	Active	Updated by	Updated
	Search	Search	Search	Search	Search	Search	Search
	u_project_table	Allow If	delete	record	true	admin	2025-10-29 21:38:01
	u_project_table	Allow If	read	record	true	admin	2025-10-29 21:38:01
	u_project_table	Allow If	write	record	true	admin	2025-10-29 21:38:01
	u_project_table	Allow If	create	record	true	admin	2025-10-29 21:38:01
	u_task_table	Allow If	delete	record	true	admin	2025-10-29 21:37:35
	u_task_table	Allow If	write	record	true	admin	2025-10-29 21:37:35
	u_task_table	Allow If	read	record	true	admin	2025-10-29 21:37:35
	u_task_table	Allow If	create	record	true	admin	2025-10-29 21:37:34
	sn_try_build_agent_knowledge_source	Deny Unless	report_view	record	true	system	2025-10-24 20:15:32
	sn_try_build_agent_freemium_usage_log	Allow If	write	record	true	system	2025-10-24 20:15:32
	sn_try_build_agent_task_telemetry	Deny Unless	report_view	record	true	system	2025-10-24 20:15:32
	sn_try_build_agent_conversation	Allow If	read	record	true	system	2025-10-24 20:15:32
	sn_try_build_agent_knowledge_source	Allow If	delete	record	true	system	2025-10-24 20:15:32
	sn_try_build_agent_message	Deny Unless	report_view	record	true	system	2025-10-24 20:15:32
	sn_try_build_agent_conversation	Allow If	report_view	record	true	system	2025-10-24 20:15:32
	sn_try_build_agent_conversation	Allow If	delete	record	true	system	2025-10-24 20:15:32

1 to 20 of 44,605

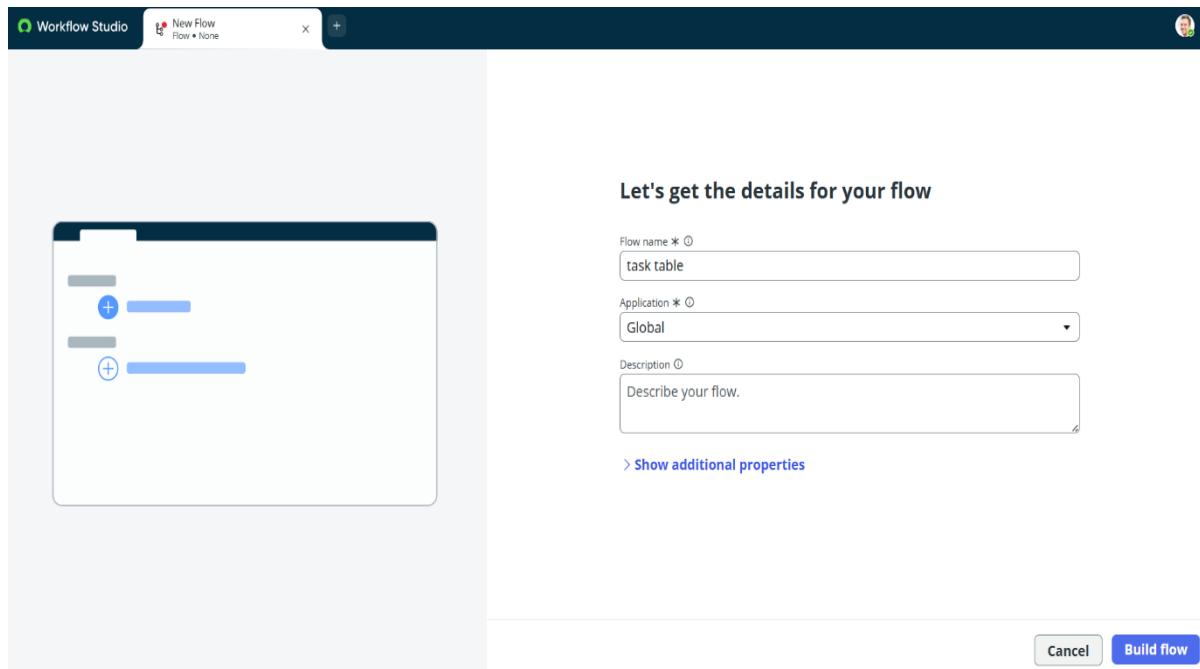
7.Flow:

Create a Flow to Assign operations ticket to group:



The screenshot shows the Workflow Studio homepage. At the top, there are tabs for 'Homepage', 'Operations', and 'Integrations'. Below the tabs, there are buttons for 'Playbooks', 'Flows' (which is selected), 'Subflows', 'Triggers', 'Actions', and 'Decision tables'. A 'New' button is located in the top right corner. The main area displays a table of flows with columns: Name, Application, Status, Active, Updated, and Updated. The table contains ten entries, each with a preview icon and a 'Delete' button. To the right of the table, there are two sections: 'Pick up where you left off' and 'Latest updates', both listing recent modifications made by a System Administrator.

Name	Application	Status	Active	Updated	Updated
Application Intake Request Flow (Deprecated)	Application Intake	Published	false	2025-10-24 19:45:26	system
Application Intake Request V2	Application Intake	Published	true	2025-10-24 19:45:20	system
Benchmark Recommendation Evaluator	Benchmarks Spoke	Published	true	2025-07-27 16:45:49	system
Business process approval flow	Global	Published	true	2020-09-27 22:06:13	admin
Change - Cloud Infrastructure - Authorize	Global	Published	true	2020-11-11 07:08:05	admin
Change - Conflict Detection	Global	Published	true	2025-10-24 18:14:08	system
Change - Emergency - Authorize	Global	Published	true	2020-10-06 05:39:49	admin
Change - Emergency - Implement	Global	Published	true	2020-09-23 05:06:26	admin
Change - Emergency - Review	Global	Published	true	2020-10-27 04:18:08	admin
Change - Normal - Assess	Global	Published	true	2020-10-06 05:37:05	admin



The screenshot shows the 'New Flow' dialog. On the left, there is a preview area showing a simple flow diagram with two parallel steps. On the right, there is a form with fields for 'Flow name *' (set to 'task table'), 'Application *' (set to 'Global'), and 'Description' (with the placeholder 'Describe your flow.'). Below the form, there is a link to 'Show additional properties'. At the bottom right, there are 'Cancel' and 'Build flow' buttons.

Let's get the details for your flow

Flow name *

Application *

Description

> Show additional properties

Cancel Build flow

Workflow Studio

task table Row Operations

task table Active

Trigger: Created

* Table: task table 2 [u_task_table_2]

Condition: All of these conditions must be met

- status is in progress
- comments is feedback
- assigned to is bob

Advanced Options

Delete Cancel Done

Data

- Trigger - Record Created
- task table 2 Record
- task table 2 Table
- Run Start Time UTC
- Run Start Date/Time
- 1 - Update Record
- u_task_table_2 Record
- u_task_table_2 Table
- Action Status
- 2 - Ask For Approval
- Approval State
- Action Status Windows

Status: Modified | Application: Global

Workflow Studio

task table Row Operations

task table Active

1 Update u_task_table_2 Record

Action: Update Record

* Record: Trigger - Record Created

* Table: task table 2 [u_task_table_2]

* Fields: status completed

2 Ask For Approval

Add an Action, Flow Logic, or Subflow

Data

- Trigger - Record Created
- task table 2 Record
- task table 2 Table
- Run Start Time UTC
- Run Start Date/Time
- 1 - Update Record
- u_task_table_2 Record
- u_task_table_2 Table
- Action Status
- 2 - Ask For Approval
- Approval State
- Action Status Windows

Status: Published | Application: Global

Workflow Studio

task table

Operations

Test Deactivate Activate Save

task table Active

1 Update u_task_table_2 Record

2 Ask For Approval

Action: Ask For Approval

* Record: 1 - Update u_task_table_2 Record

Table: task table 2 [u_task_table_2]

Approval Field: status

Journal Field: Select a field

* Rules:

- Approve When: All users approve (alice p X)
- OR
- Approve When: bob p X

Add another OR rule set Remove rule set

Data

Trigger - Record Created

- task table 2 Record
- task table 2 Table
- Run Start Time UTC
- Run Start Date/Time

1 - Update Record

- u_task_table_2 Record
- u_task_table_2 Table
- Action Status

2 - Ask For Approval

- Approval State
- Action Status
- Activate Windows

servicenow All Favorites History : task table 2 - Created 2024-10-22 2...

Search

task table 2
Created 2024-10-22 22:25:18

Update Delete

task id		assigned to	bob
task name		comments	
status	completed	due date	

Update Delete

The screenshot shows the ServiceNow Approvals list view. The top navigation bar includes 'servicenow', 'All', 'Favorites', 'History', 'Workspaces', 'Approvals', 'Search' (with a dropdown), and 'Actions on selected rows...'. The main area displays a table with the following columns: State, Approver, Comments, Approval for, and Created. The table contains 664 rows, with the first few rows shown below:

State	Approver	Comments	Approval for	Created
Approved	alice p	(empty)		2024-10-22 22:26:19
Rejected	Fred Luddy	(empty)		2024-09-01 12:19:33
Requested	Fred Luddy	(empty)		2024-09-01 12:17:03
Requested	Fred Luddy	(empty)		2024-09-01 12:15:44
Requested	Howard Johnson	CHG0000096		2024-09-01 06:15:29
Requested	Ron Kettering	CHG0000096		2024-09-01 06:15:29
Requested	Luke Wilson	CHG0000096		2024-09-01 06:15:29
Requested	Christen Mitchell	CHG0000096		2024-09-01 06:15:29
Requested	Bernard Laboy	CHG0000096		2024-09-01 06:15:29
Requested	Howard Johnson	CHG0000095		2024-09-01 06:15:25
Requested	Ron Kettering	CHG0000095		2024-09-01 06:15:25
Requested	Luke Wilson	CHG0000095		2024-09-01 06:15:25
Requested	Christen Mitchell	CHG0000095		2024-09-01 06:15:25
Requested	Bernard Laboy	CHG0000095		2024-09-01 06:15:25

At the bottom, there are navigation buttons for '1 to 20 of 664' and a link to 'Go to Settings to activate Windows.'

8.Output:

The screenshot shows the ServiceNow Workflow Studio interface. The top bar includes 'Workflow Studio', 'task table' (Flow • Global), and a user icon. The main area displays a flow named 'task table'.

- TRIGGER:** 'task table Created where (status is , and comments is feedback, and assigned to is bob)'
- ACTIONS:** '+ Add an Action, Flow Logic, or Subflow'
- ERROR HANDLER:** A toggle switch is turned off. Below it, the text says: 'If an error occurs in your flow, the actions you add here will run.'
- Data:** A sidebar on the right lists available variables and triggers:
 - Flow Variables
 - Trigger - Record Created
 - task table Record (Record)
 - task table Table (Table)
 - Run Start Time UTC (Date/Time)
 - Run Start Date/Time (Date/Time)

At the bottom, status information is shown: 'Read-only' (blue), 'Status: Draft', 'Application: Global', and a small icon.

Outcome:

Optimizing user, group, and role management with access control and workflow improves security, efficiency, and compliance. It streamlines processes, reduces risk, and enhances collaboration. Automated workflows increase productivity and reduce manual errors. Access control ensures data integrity and confidentiality. Overall, it leads to better decision-making and improved business outcomes.

Conclusion :

This scenario highlights a structured approach to project management, showcasing the roles of Alice and Bob within a defined workflow. With Alice's oversight and Bob's execution, the team effectively collaborates to ensure project success. The use of tables organizes key information, facilitating easy tracking of projects, tasks, and progress updates. Overall, this system promotes accountability, enhances communication, and leads to the successful completion of projects.