Introduction to Project Management for IAM Projects (v3)

By Graham Williamson, Corey Scholefield

Please visit our GitHub repository to submit an issue and comment on this article.

Table of Contents

Abstract

This article serves as an introduction to the practice of project management for an IAM project, describing basic project management terminology and practices. Given the number of systems an IAM project generally impacts, excellent project management is essential for the stakeholders involved.

Importance of Project Management

IAM practitioners may be familiar with the scenario of an IAM project proceeding under the control of an IT systems group without a formal project manager. While this method of deploying a new product or service may be considered an expedient way to get a system installed or updated, it is likely to cost the organization more money in the long term. An IAM service is connected to many critical systems within an organization. Making changes to that service without considering the possible impact on the various connected systems, managing the required resources, or keeping all stakeholders advised of the effort will almost certainly result in a substandard deployment.

Project management has a cost: typically between 5-10% of a project's total expenditure, but it represents the best return compared to any other investment an organization is likely to be afforded.

Terminology

- Project - a time-limited activity to achieve a defined outcome(s)
- Project Charter - documented authority for the project manager to proceed with a project; it will usually include a succinct statement of the project's purpose.
- Schedule -- a document that defines the activity and resources required to achieve the planned deliverable(s) and outcome(s)
- Gantt Chart - a popular schedule format that displays both activity and timeframes in a single chart
- Project Plan - a document that describes a project; it will usually include a scope statement, schedule, resource plan, communications plan, and quality plan
- Task - lowest-level of defined activity; multiple tasks will typically be grouped into stages or project phases
- Agile project management - a framework that uses a continuous, iterative process to deliver a defined piece of functionality, typically a component of a product or service. Scrum is a popular framework.[i]

Readers interested in pursuing information on project management should review the Project Management Institute (PMI) Framework and the PMI Body of Knowledge for further information.[ii]

Characteristics of a Project Manager

In the IT sector, a project manager often has little authority over staff or project stakeholders. They are expected to bring a project in on time and within budget with minimal assistance from upper management and minimal visibility within the organization. In reality, a project manager needs sufficient authority and resources to adequately monitor and manage the project. They also need regular communications with a steering committee consisting of representatives from upper management with the necessary authority to assign resources and remove roadblocks.

Two prime characteristics are essential to a project manager:

Predictability	Management doesn't like surprises. Therefore, a project manager should determine and report on a project's duration and related costs to a defined degree of confidence.
Flexibility	Gone are the days when a project manager slavishly follows an approved Gantt chart to the detriment of anyone who wants a change. These days, IT projects will typically undergo several baseline changes during execution to accommodate scope changes, dependencies on other projects, and changes in resource availability.

Project managers require competence in the five components of project management:

- Planning
- Organizing
- Resourcing
- Directing
- Controlling

PMI Framework

By definition, projects are time-bound; they must have a start and a finish. A major upgrade might be project work if it requires significant resources and coordination of stakeholders. Operational or regular maintenance work is never a project and does not require the skills of a project manager.

Projects are not unexpected; something will instigate the need for a project. Before a project starts, there will be some preparatory work to define the concept and scope for the project.

Between the commencement and completion of a project, there are discrete stages that comprise the project work. It is not until after project completion that the deliverable will enter an operational status and become business as usual.

Figure 1 - The Project Lifecycle

Concept

Projects come out of a need. In the IAM world, examples of such a need include reducing costs and improving security by using identity information more effectively for onboarding and offboarding staff or a need for an enterprise LDAP directory upgrade. Such projects are typically initiated by an IT resource rather than a business resource, though a line-of-business resource might also initiate a project (e.g., to move an application from an on-premises environment to the cloud to save capital expenditure budget). The project sponsor will communicate the requirement, set the project charter, and evaluate the required activity's cost and duration. The sponsor will typically fund this stage and then engage a project manager to complete the planning stage.

Planning Stage

Once the approval to proceed has been received, the project manager will engage with the stakeholders to define the project scope. Having a clear scope around an IAM project is critical to its success. Since IAM touches virtually every application in a company and is at the core of cybersecurity protection processes, the scope can quickly expand beyond the original intent and budget if not managed carefully. As participation by one or more representatives of each relevant application is required, the project scope will also define the stakeholders. For instance, if the Finance Administration application is to be integrated with the IAM system, a representative from the Finance Department must be engaged as a stakeholder in the project.

A project initially focused on deploying an identity management package to provision staff—for example, establishing Active Directory records and email accounts—might see a request for including provisioning into corporate applications. Or someone in Corporate Governance may request additional functionality such as periodic attestation reporting and re-certification. The project manager must ensure that the appropriate stakeholders are engaged and respond to requests for input. The project manager does not decide whether requested functionality should be included; that decision is made via a Steering Committee or project sponsor and reviewed when the full scope of the project is defined.

Once the scope has been determined, the project manager will engage subject matter experts to quantify the work required and construct the project budget and schedule. The planning stage will develop a project plan that will include:

Schedule	The schedule will define the timeframe and resources required for the project to calculate the cost. A schedule is typically expressed via a Gantt chart in classic project management. A high-level Gantt chart is also helpful for Agile project management.
Stakeholder Analysis	The project manager will construct a list of project stakeholders. This list will typically include the sponsor, finance manager, human resources (HR) manager, system owners, and representatives from the IT groups that will be engaged in the project.
Resource Plan	A basic tenet of project management is that the desired resources are never available; they are typically fully engaged in other activities. The project manager must negotiate with the appropriate stakeholders to get the desired resources assigned and alter the project schedule accordingly.
Communications Plan	The project communications plan defines the "who" and the "how" for a project manager to report on project progress. The project team will likely have a file folder, wiki, or SharePoint site for the project. The project manager will regularly email a project report to the Stakeholders and send meeting agendas and status summaries to the steering committee before the project review meetings. The project plan should include a communications register that logs all communications with the stakeholders and within the project team.
Quality Management	A mechanism to ensure adequate quality in project deliverables should be defined. This mechanism should include management reviews of project documentation and properly constructed test and release procedures.
Risk Management	A project manager constructs a risk register that identifies the anticipated risks, quantifies them in terms of probability and impact, and includes appropriate risk mitigation activities.

At the end of the planning stage, there should be a good understanding of the project activities, timeframe, and cost. Typically, the project cost and duration will be known within a 10% margin.

In terms of time and money, this understanding of project costs allows the organization to make an informed decision as to whether they want to dedicate the necessary resources to a project. A decision not to proceed with a project is as successful an outcome for a project manager as a decision to proceed. It means that the organization has been spared the expenditure of resourcing a project that might otherwise have proceeded, only to be prematurely terminated when the costs blow out, resulting in associated sunk costs.

Deployment Stage

The project deployment stage will vary depending on how the project is managed: via a classic (waterfall) mechanism or an Agile project management approach.

Classic

In classic project management, the project manager will manage all project activities according to a detailed schedule that shows all the individual tasks, assigned resources, and duration. They will also schedule a regular project team meeting to review the project's progress against the schedule and note any impediment to be escalated to the steering committee for resolution.

At the Steering Committee meeting, the committee will formally accept the project deliverables, approve the phases, and resolve any issues or roadblocks that the project manager identifies. Again, the project manager cannot extend the project scope, schedule, or budget without Steering Committee approval.

The components of a classically managed project are:

Team meetings	The project team should hold regular progress-review meetings (weekly or bi-weekly). These meetings allow everyone to mark progress against the Gantt chart and determine what issues, if any, must be escalated to the steering committee.
Steering committee	The project manager will periodically present to the steering committee to review progress on the project schedule and act on any issues the team has identified. The project status report should include the progress made since the last meeting, any issues to be resolved by the steering committee, and the planned activities for the next period.
Phase transitions	The project schedule (Gantt chart) will show the project's phases. At the end of each phase, the steering committee will review the deliverables for that phase and determine whether a phase transition can be approved.
Deliverable acceptance	Each project deliverable should be formally accepted. This acceptance will typically involve the appropriate stakeholder(s)

	who must agree that the deliverable has been produced to an adequate quality level.
Project closure	A project should always include a proper project closure procedure. This procedure will typically involve a formal project review that will document the activities that went well and any learnings from the project. "Those who don't learn from history are doomed to repeat it."

Agile

Many organizations have now adopted Agile project management for smaller projects that don't warrant the cost of a classic project management approach. These projects are typically an activity that exceeds the capacity of the normal operations staff. For instance, a significant upgrade, or migration to cloud services, will likely require a system outage or out-of-hours cutover activity. The execution of such project work must be managed. Agile project management ensures appropriate stakeholders are engaged and issues are addressed promptly, without waiting for steering committee approval.

Agile methodology divides a project into 'scrums' that are then further divided into 'sprints.' Each activity comprising a sprint will be put up in a tile on the project wall and will be moved from the "To Do" activity list to "In Progress" and then to "Done." A review meeting, sometimes called a "stand-up," will be held every few days to review current activity and document any issues or roadblocks.

Project wall	The essence of Agile project management is visibility. The Project Wall provides a physical or virtual place where the project team can view the completed, current, and waiting tasks and resource assignments.
Sprints & Scrum	These terms are used differently depending upon the context. Scrum is a framework that uses an iterative process to deliver a defined piece of functionality. It could be a product, service, or a new piece of functionality for an existing product (e.g., deploy a DBMS connector to the IAM environment). A sprint usually describes a scrum component, a time-limited activity that contributes to a scrum deliverable (e.g., 30 days for developing the reporting module).
Deliverable acceptance	One area that can suffer when using an Agile project management approach is reviewing and accepting deliverables. Acceptance testing will verify that the requirements established for a viable product have been achieved and are demonstrable. A sprint team sometimes advises on completing a piece of work and moves to the next without formal acceptance of the deliverable. A mechanism to record the acceptance of a module or deliverable is needed.

Project closure	A team meeting can be dedicated to the requisite project review in a classically managed project. It is sometimes difficult to manage the project closure in an Agile project, in which many participants have contributed to the outcome. In either project management model, a mechanism is required for all participants to agree that a project has been completed and that the resources used can be reassigned.

PMO Issues

In large organizations with a Project Management Office (PMO), an IAM project must follow corporate procedures. Typically, a PMO will have defined gating factors, or 'gates,' through which all projects must pass. For instance, there will normally be a project approval gate in which the appropriate managers will review the project plan and indicate their approval. There will usually be a gate in the form of a budget review to approve the assignment of resources. Similarly, there might be a gate in the form of an architecture review to approve the solution architecture. Finally, the governance outcomes should be reviewed as a necessary gate for the project. The PMO should orchestrate all these activities.

One of the benefits of a PMO is the visibility it gives to projects within an organization. This visibility is beneficial to the IAM team; it allows them to ensure any projects with an identity component are properly identified and accommodated in the appropriate work program. For instance, if an authentication gateway is being installed, any application undergoing development should be modified to use the gateway rather than maintaining LDAP lookups. Without a PMO, it is sometimes difficult for the IAM team to impact projects.

A PMO provides the opportunity to educate project managers on identity issues and to insert IAM requirements into IT projects within an organization. A project manager will use the PMO framework to:

1. manage the project through the project gates;
2. communicate the project's progress to the organization's management;
3. gain acceptance within the organization that the project goals were achieved within the approved budget and schedule.

IAM Projects

It's often said that a good project manager can keep a project on track regardless of the topic. While this may be true, if a project manager for an IAM project is not competent in the subject, they will be disadvantaged. It is recommended that they engage a project lead who is familiar with the components of an IAM environment and understands the competency of the skills-base within the organization. If an organization cannot

complete a project with in-house resources, the project manager will need to engage contractors to work on the project.

Example Project

Let's assume the project is commenced to replace the existing IAM processes used to onboard new staff members or contractors with a new system purchased from an IAM solution vendor. The sections below work through the different project management stages for such a project.

Planning

The single most important element to define for an IAM project is the project scope. The IAM environment touches so many operational components and processes within an organization; the PM's role means they must clearly communicate to all stakeholders the full scope of the project. To properly determine the scope of an IAM project requires the PM to understand the nature of the IAM solution and its impact on other systems in the organization. The Addendum suggests some questions that should be asked in the planning phase of an IAM project.

The PM is responsible for ensuring the scope of the project is clear. Too many IAM projects proceed with misunderstandings regarding the project scope. The IAM project lead, for example, might think the project is to implement a provisioning module, whereas the application owner might think the goal is to provide better authentication functionality. The auditor, in turn, might want improved governance. Reaching a common agreement on the scope will focus all stakeholders on the extent of the project.

The following items are often inside the scope of a project of this nature:

- configuring and deploying the IAM tool
- integrating with the email system
- integrating with the system(s) that provide enterprise resource planning (ERP) functions (i.e., the computer systems that support the organization's operations)

The HR and financial management systems, however, are out of scope of this example project. While tight integration with HR could improve both the HR and IAM systems—the HR system potentially able to increase its span of control, and the IAM system benefitting from tight integration with HR for better provisioning of staff entitlements (e.g., training status, project membership, and employment status of staff)—the HR department is often reticent to make any changes to their onboarding and offboarding procedures. Evidence of a well-managed project may alleviate this fear.

The Finance department also has challenges that discourage them from agreeing to anything that will impact their systems. They typically maintain a fine-grained authentication capability within the financial management system and often distrust any external entity's capability to do this. Externalizing access control to the IAM system

will typically be less expensive and improve security, but working with Finance will require its own focused effort.

In scope will be the applications that will rely on the IAM system. The PM must communicate with each system's owners and determine what data attributes are required for users accessing each system. For example, the email system will need to know a user's first and last names and, likely, middle initial, to construct their digital identifier correctly. It might also need to know their department or group memberships. Ideally, email systems should participate in a company's single-sign-on (SSO) solution, i.e., users will be authenticated as part of the SSO solution used in the organization.

The computer applications that provide operational functionality to users should also use the organization's SSO solution. In the real world, such applications might include a production machine, a process control system, an asset control system, a learning management system, a health monitoring facility, a vehicle registration application, and so on. Any computer system that must be protected via an access control mechanism that ensures users only get access to the facilities to which they are entitled should be integrated into the organization's SSO solution. The project manager for an IAM project must ensure the requirements for these applications are canvassed at the commencement of the project.

Organizing

The success of an IAM project depends on how well it is organized. This dependency relates to how well the PM utilizes the hierarchy within the organization. Often, the execution of an IAM project is left to the people in the IAM unit within the company. This is poor practice because the IAM unit has an operational role in maintaining the IAM environment; an IAM project, however, is a time-limited initiative that will stretch the ability of the IAM unit and divert resources from their task of managing the IAM environment. While personnel with IAM experience should be involved in the deployment project, if they are seconded from the IAM unit, they should be backfilled with other personnel while they are engaged in the IAM project.

The following activities are recommended for the successful 'organizing' of an IAM project:

- Establish a steering committee – this should include the project sponsor, appropriately high-level personnel in the IT department, HR, Finance, Manufacturing, Sales & Marketing, and any other business unit directly impacted by the project. A steering committee will periodically review the project's progress and resolve any issues raised by the PM.
- Hold appropriate committee reviews – the PM must be aware of all gating factors and committees that must review the project's progress. These will include the PMO's gating (phase exit) meetings, governance reviews to ensure audit compliance, enterprise architecture committees ensuring that IAM systems comply with supported technology platforms, and finance reviews ensuring budget support for the project.

- Document a communications register – this should list to whom and via what mechanism the PM will send their project progress reports. It should include the frequency (e.g., bi-weekly), the mechanism (e.g., email, website, or other notification tools), and the media (e.g., Word document, MS Project file, etc.).
- Verify the support of a Quality Assurance (QA) program – responsible for the quality of project deliverables (such as the documents, milestones, or other deliverables). This program is particularly important to establish the accuracy (both in format and content) of the data files supporting the test plan. Identity data should be suitably anonymized for test purposes and must be restorable for regression testing.
- Create a risk register - The project team should compile a risk register that identifies the risks to the project's ability to meet its schedule, cost, and quality constraints. Each risk should be assessed for probability and impact. An IAM project should not proceed with any risk evaluated as 'high.'

Resourcing

It's a project management maxim that the preferred resources are never available. Good staff are very busy and cannot be easily seconded to a project. In an IAM project, it is essential that personnel with detailed knowledge of the company's identity management systems and policies be involved. The PM must be able to negotiate the availability of critical personnel and modify the project schedule accordingly.

As noted above, the project's budget must accommodate backfilling personnel seconded to the project. If it is necessary to 'buy in' resources, the steering committee will typically decide on the final resourcing plan and may choose to use contractors for the maintenance activity and assign experienced IAM staff to the IAM deployment project. Since the PM of an IAM project typically has no functional authority within the organization, they must use the steering committee to get the right resources assigned to the project at the right time.

A perennial problem for an IAM project is how to build IAM staff competence in a new IAM tool being acquired. The options include:

- Send selected staff from the IAM unit for training prior to the deployment activities
  It is unrealistic to expect, even experienced, IAM staff to develop competence in the new package without hands-on experience.
- Engage the vendor to do the deployment with IAM staff observing.
  This engagement is the most realistic option because it puts some onus on the vendor to 'make it work' and ensure technology transfer to the IAM staff.
- Engage the vendor for a turn-key project with the IAM unit engaged to undertake acceptance testing on the transition to operational status.
  This engagement is not ideal since, without the IAM team's active involvement, the IAM solution's successful integration into the organization's operations will be difficult.

Directing

The Directing element of an IAM project will vary greatly depending on whether a classical or an Agile project management methodology is followed.

Classic

The Gannt chart becomes the main tool for directing the project. The PM will ensure tasks are commenced on time and progress to plan by conducting a weekly or biweekly review of the schedule in periodic team meetings. Team members will report on the progress to plan for each task to which they are assigned. For tasks behind schedule or expecting to encounter problems, the PM will attempt to put a contingency in place. If a slip occurs, the PM must go back to the steering committee with a recommended strategy and seek approval or additional direction (for example, the direction to accept the slip and modify the Gantt chart or the direction to invest the resources necessary to restore the original schedule). If the steering committee approves the change, the project schedule can be re-baselined.

Agile

The PM will establish regular 'stand-up' meetings, typically several times a week, at which each 'sprint' is reviewed and tasks moved on the Project Wall from 'waiting' to 'current' to 'completed.' Each scheduled task will be discussed, and any impediments to completing a 'sprint' will be noted by the PM and addressed with appropriate management. For instance, transition to production might occur during non-business hours requiring coordination with multiple business units. The PM must ensure agreement, and appropriate resourcing, from involved parties.

The PM will raise unresolved issues with the appropriate managers.

Controlling

Control is probably the PM function that is most often performed poorly in IAM projects.

Control is a function of project management that provides feedback to the PM regarding the likelihood that the project will meet its schedule and budget constraints. PMs will typically assume that if they have planned well, organized the communication and quality assurance, adequately resourced their project, and properly directed the project tasks, nothing can go wrong. But the stories are legion that IAM projects have overrun because they impact so many functions within an organization. Managing this impact is where control comes in. Given that you cannot manage something if you cannot measure it, monitoring progress to plan is at the core of the control function. A tried-and-true tool in the PM's toolkit is Earned Value Analysis (EVA). EVA involves calculating the budgeted cost of work scheduled (BCWS), the budgeted cost of work performed (BCWP), and the actual cost of work performed (ACWP). These calculations will compare the percent completion against the budget spent and quickly identify a project experiencing overspend or over-budget issues.

As an example, a project's progress might be depicted as follows:

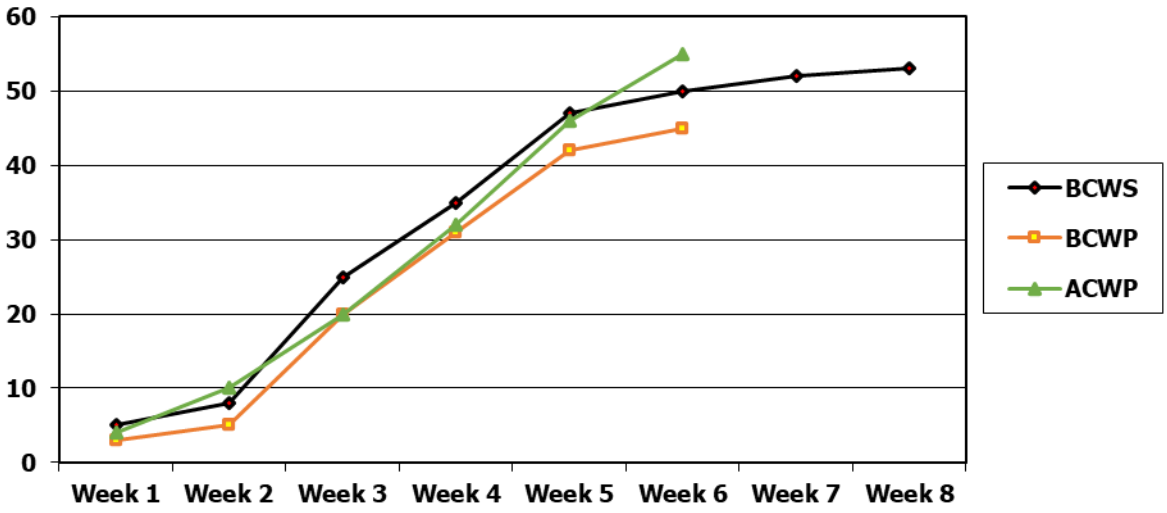

Figure 2 - Sample Budget Cost Schedule

The BCWS shows the project's schedule. It's a two-month project with a budget of $53,000 (Y axis in thousands of dollars). The current spend is $55,000 with two weeks to go. The budgeted cost of the work performed to date is $45,000. So the EVA clearly shows the project is behind on its deliverables and is currently $10,000 overspent on its budget.

Another tool is calculating a project's performance indices using quick ratios to gauge the probability of an on-time and in-budget project completion. Common indices are:

- Cost Variance: CV = BCWP - ACWP
- Scheduled Variance: SV = BCWP - BCWS
- Cost Performance Index: CPI = BCWP/ACWP
- Schedule Performance Index: SPI = BCWP/BCWS
- Critical Ratio: CR = CPI * SPI

A third useful tool is the S curve, which tracks the resource burn rate to ensure the project expenditure reduces appropriately, particularly at the end of a project. In the example above, the Actual Cost curve is not adhering to the 'S' shown in the scheduled work curve. Management of the resource burn rate is important for IAM projects since additional tasks, such as system documentation, are often not properly accommodated in the project schedule at project inception. These should not be added to the scope of the project. Instead, they should be completed as part of standard operations (i.e., outside the project).

Organizational Variances

When managing an identity project, it is worth understanding the type of organization for which the project is being undertaken.

Public Sector

When managing a project for a government department, there will often be organizational structures that make it difficult. In a project to deploy an enterprise-level solution for a large government agency with multiple departments, there were two major obstacles. Firstly, only five of the departments in the agency agreed to participate in the project; the two largest departments declined to be involved. Secondly, the agency engaged an internal technology unit to deploy all their IT projects, making it difficult to engage with the end-users directly.

The first obstacle resulted in a meeting at which the benefits of the solution were explained, and the department personnel in attendance agreed to take a 'watching brief' as to how the project developed. They agreed to proceed with the solution once they observed a successful deployment. The second obstacle was overcome by inserting a 'workshop' task in the schedule that required participation by knowledgeable persons from the involved departments. The workshop was very successful, with participants demanding ongoing involvement in the project.

Part of the stakeholder analysis for public sector projects is to understand the motivation of the sponsor and other involved public servants; their motivation it's not always to benefit the agency for which they work; it is sometimes to advance their career.

Private Sector

There is a danger to commercial projects that the scope will be too narrow. Because projects in the private sector are typically cost-constrained, there will be a reluctance to engage widely to build a comprehensive list of stakeholders that will ensure wide benefit across the company. When identifying items that will extend the scope, the project manager will often be told to place them in 'phase 2'.

While this might make commercial sense, the project manager should ensure the Steering Committee understands the ramifications of not extending the project to include the requirements of a wider stakeholder cohort. It is far better to include requirements in the scope of the initial project than to be forced to extend the project once work has started. The scope must be determined before the schedule is developed and before the execution of the project commences. Adding new requirements during the execution phase will require the project to be re-baselined, which will involve more work and should be avoided.

Academia

Managing an identity project in the academic sector can be quite complicated. The administrative staff are divided into two large cohorts: administrative officers who keep the university or school operating and academic staff with diverse identity management requirements. If the institution is involved in research, there will be a further requirement to participate in cross-institutional identity federations to access documents from remote locations.

Then there's the student cohort which consists of undergraduates, graduates, higher-degree by research students, and staff enrolled as students. Alumni comprise an additional cohort that may need to be considered.

When determining the scope, the project manager must agree on the user base to be accommodated. It is also noted that academics typically engage in a wide and diverse range of applications that might need to be accommodated by the IAM infrastructure.

Conclusion

Project management methodology should be applied to all IAM projects, even small ones. Project management ensures that a structured process is applied to the activity and that the impact of the activity on affected business units will be considered and, if necessary, included in the planning. Failure to manage an IAM activity as a project will raise the likelihood of mistakes being made and additional costs being incurred.[iii]

Author Bios

Graham Williamson

Graham Williamson is an IAM consultant working with commercial and government organizations for over 20 years with expertise in identity management and access control, enterprise architecture and service-oriented architecture, electronic commerce, and public key infrastructure, as well as ICT strategy development and project management. Graham has undertaken major projects for commercial organizations such as Cathay Pacific in Hong Kong and Sensis in Melbourne, academic institutions in Australia such as Monash University and Griffith University, and government agencies such as the Queensland Government CIO's office and the Northern Territory Government in Australia and the Ministry of Home Affairs in Singapore.

Corey Scholefield

 Corey is currently a Sr. Technical Product Manager with Workday, supporting operations engineering service delivery for Workday's cloud-ERP suite. Corey has a background in public-sector identity management, having spent over 15 years working in higher education, with positions at both University of Victoria and BCNET in British Columbia, Canada.

At BCNET, Corey led a federated-identity service bureau that supported regional adoption of eduroam and SAML capabilities under the umbrella of the Canadian Access Federation. At the University of Victoria, Corey's team established an identity-management program that supported campus-wide access-management needs. Corey has deployed many IDAM technologies, including OpenLDAP, CAS SSO, Sun IDM, Shibboleth IDP, and SailPoint IdentityIQ.

Change Log

Date	Change
2021-06-21	Editorial updates; substantive revisions to IAM Projects section
2022-09-30	Substantive revisions to Planning Stage, Agile; new section on Organizational Variances

Addendum: Questions for an IAM Project Manager to ask

Identity Management

- How are user accounts created when a new staff member joins the organization? Are employees and contract staff provisioned differently?
- How are user attributes collected/determined?
- What is the business process surrounding end-users being granted entitlements to access given applications? Is user self-service supported? Is there an approval workflow to gather authorization for establishing user entitlements?
- Is there a different process for privileged accounts (e.g., accounts with admin privileges)?
- What repositories of identity information exist in the organization (e.g., LDAP directories, Databases, Active Directory), and what interfaces to the identity management environment are needed (e.g., SCIM import, REST API, Webservices Gateway; CSV import)?
- What is the business process for disabling an account and eventually deleting it?

Access Control

- What authentication mechanisms are supported (e.g., local application database, corporate LDAP directory, Active Directory, RADIUS)?
- Are multiple assurance levels supported (e.g., assurance elevation for sensitive resources)?
- Is MFA supported (e.g., U2F, DUO, push authenticators)?
- Is SSO supported? Is it only for web apps, or are other applications supported as well?
- How are SaaS apps supported (e.g., periodic synchronization of identity data, SAML)?
- How are user entitlements within an application managed (e.g., internally within the app, via an attribute passed in an HTTP header message, SAML assertion, Active Directory group membership)?
- How are application administrator rights managed (e.g., manually, via approval workflow)?

Governance

- What governance processes (e.g., re-certification/attestation reporting) are required? What audit processes must be supported?
- What governance interfaces are required to collect user account information from corporate applications (e.g., REST API, SCIM, Webservice gateway, service-bus messaging, CSV export)?

[i] Scrum Alliance, “Your Quick Guide to All Things Scrum,” accessed 29 June 2021, https://www.scrumalliance.org/about-scrum/overview.

[ii] Project Management Institute website, https://www.pmi.org/, accessed 29 June 2021.

[iii] Project Management Institute, "PMBOK® Guide and Standards - Practice Standards & Framework," accessed 29 June 2021, https://www.pmi.org/pmbok-guide-standards/framework.