# CAPEX Automation Best Practices

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# 1. Executive summary

Capital Expenditure (CAPEX) decisions are high value, high risk, and high impact. Good decisions will enable an organisation's growth strategy and competitive differentiation. Poor investment decisions can have catastrophic impacts. CAPEX digital transformation seeks to both accelerate and control the process through intuitive web forms, workflow automation, supporting document management, rich analytics and seamless system integration. The overall objective is to ensure that executives can make better, timely, and more confident investment decisions with a high degree of demonstrable probity and policy compliance.

This document provides a best practice reference guide for the implementation of a comprehensive CAPEX process based on IQX Business Solutions' experience at a number of customers. The focus is on SAP integration as this is the predominant ERP backend for large enterprises.

The scope of the CAPEX process varies from organisation to organisation. Core to most processes is the capital purchase request, with appropriate classifications, financial return measures and supporting business case documentation. Whilst delegation of authority limits are clearly defined in most organisations, the process of data collection, workflow, decision making and execution are often only weakly supported by IT systems and are poorly integrated.

From a best practices perspective, the CAPEX process really starts with ideation around a wishlist of potential initiatives, and includes annual planning, and periodic replanning. Tightly integrated to the CAPEX process are the procurement and capitalisation execution activities, as illustrated below:
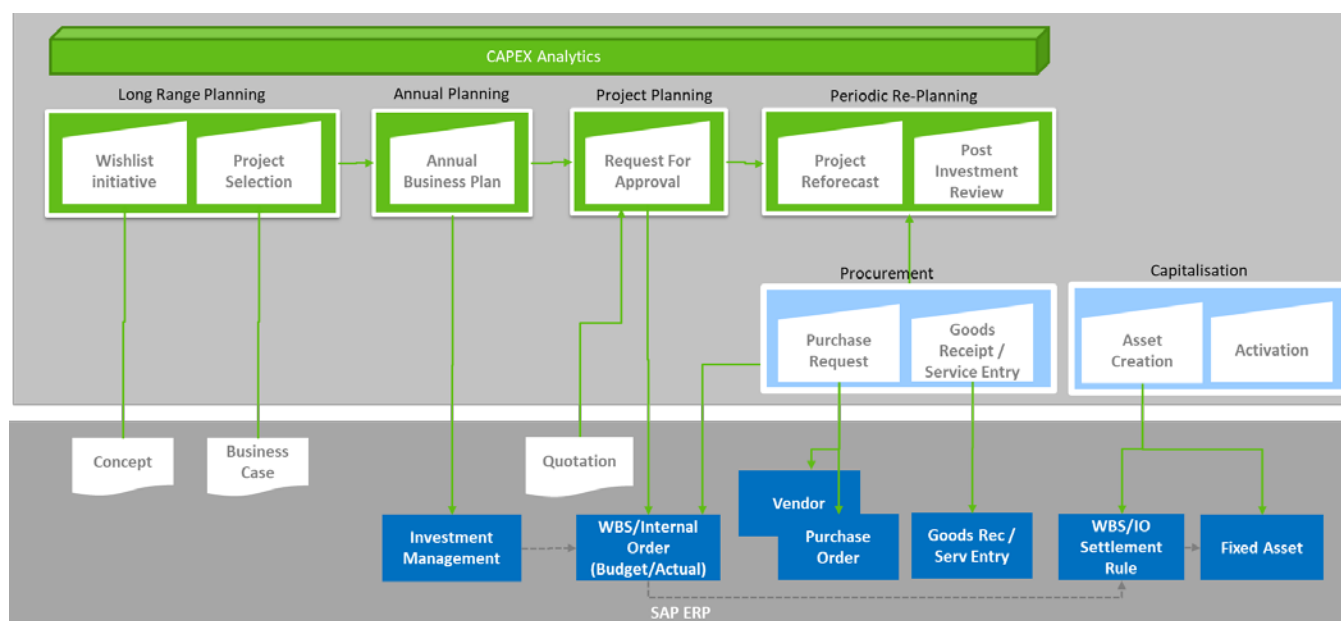


*Figure 1 - Integrated CAPEX process*

Significant capital expenditure is directly related to replacing existing capacity. A complete CAPEX process must therefore also incorporate capital disposals and revaluations. Similarly, leases and inter-company transfers must also be included.

IQX AppBuilder for SAP Fiori and IQX OneList Approvals applications work together seamlessly to provide an ideal CAPEX automation platform.

This key business benefits of an automated CAPEX management process are faster decisions and greater policy compliance and control.

## 2. Solution Components

### 2.1. Overview

For successful adoption, the CAPEX process must:
- Provide a user experience that engages and delights the participants including project sponsors and approving executives;
- Provide a data model and process definition that can adapt to the evolving needs of the business;
- Provide a high degree of security and auditability.

The technical components underpinning a successful CAPEX solution include a responsive web application, automated workflow, excel analytics and document management all tightly integrated with SAP as illustrated below:
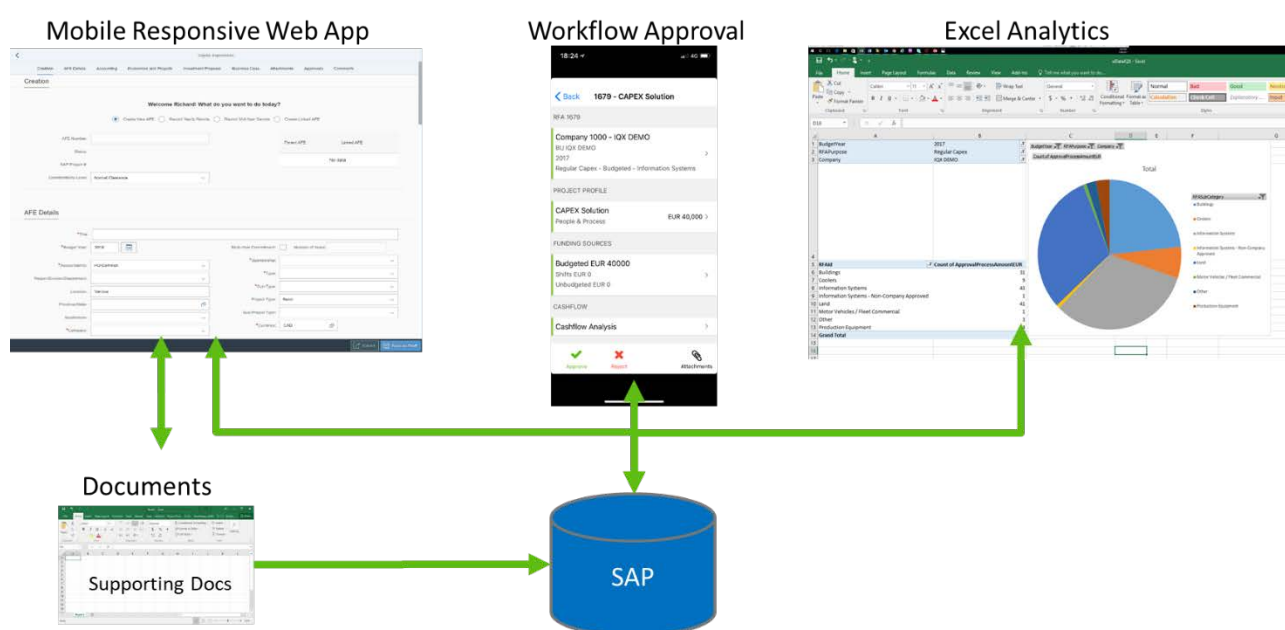


*Figure 2 - Technical components of a successful CAPEX solution*

### 2.2. Web Application

Internet browser-based data collection provides instant device-independent access with no other software to pre-install. By their nature, web apps are dynamic which means that the request form can automatically adapt to the business scenario and classification. The additional details to be supplied for the acquisition of a truck will be different to those required for laptop computer, for instance.

Web apps should be designed to be responsive, meaning they can be accessed on desktop, tablet and mobile devices. This is increasingly relevant when it comes to CAPEX review and approval.

Importantly, with a web app, the latest 'version' of the app is always live, preventing users applying 'last-years' template. This inherent flexibility helps process owners refactor learnings into the process for continuous improvement.

## 2.3.    Excel

The best way to address the user-experience of financial end-users is to leverage the power of a very familiar tool: Excel. Almost invariably, business cases and budgets are prepared in Excel, and financial data analysed in Excel. Any solution proposal aimed at eliminating Excel is likely to receive significant resistance.

Instead, Excel should be co-opted into the overall solution design, and used for its strengths, mitigating its risks. Typically this means ingesting key financial measures (eg ROI) from Excel into the request form, whilst providing preparers flexibility within the Excel templates to accommodate individual circumstances. Excel business cases should be attached to a request, version managed and available for subsequent review.

From a reporting perspective, Excel analysis should not rely on data-dumps. Instead, live data sources provide the greatest efficiency. oData service feeds and Power-BI cubes integrated to the reporting source, can both be effectively used to support the users' excel reporting requirements.

## 2.4.    Workflow and mobile approval

At the heart of the CAPEX process is executive decision making. To meet the needs of senior executives the following solution attributes facilitate confident and timely decision making:
- Eliminate email clutter – senior executives are bombarded with emails, and important time critical CAPEX approvals can easily get lost in the noise.
- Provide a live task list – enable executives to easily monitor the status of all their assigned tasks in one list.
- Present CAPEX request information meaningfully – show most important information at a higher level, and support drill-down to details as required.
- Attach version-managed supporting documents – CAPEX processes typically include a number of supporting documents which should be readily accessible as required by process participants.
- Show prior approval comments – an important input to CAPEX decisions is the assessment of subject matter experts and prior reviewers and their supporting comments. This audit trail history should be readily accessible by approvers.
- Enable ad-hoc requests for more information and conversations – allow the decision maker to invite a further collaborator, or ask questions of subject matter experts including the requestor.
- Enable actions when out of office or offline – enable Executives to make quick decisions whenever and wherever they are.

## 2.5.    Document Management

CAPEX processes typically include a number of supporting documents including business cases, product specifications, and supplier quotations. All attachments should be digitized, centrally stored, secured, classified and readily accessible as required by process participants. Any changes to the attachments should be version managed and date stamped to ensure that everyone is reviewing the correct version of the document.

This central document management is a major benefit of digital automation – all too often, with paper or email-based processes, the documents get out of sync and out of control – by copying everyone on an email, for example, there can often end up being hundreds of versions of the same document in various email inboxes after a few iterations. When it then comes to post-investment review it can be particularly difficult to retrieve the final set of documents with confidence if not centrally stored.

# 3.    Long Range Planning

Long range CAPEX planning is about recording potential 'wish list' investment initiatives, and then selecting the priority initiatives for funding.

## 3.1.    Ideation

When it comes to generating and progressing ideas, best practices include the following:
- The business undertakes regular strategic reviews to generate investment initiatives/projects and a standardised method exists for registering the new investment initiatives.
- All related documentation is centrally stored and secured.
- Roles and responsibilities for progressing an Initiative are assigned at an early stage.
- Projects are all consistently classified by
    - Confidentiality (eg Highly Sensitive (eg involving market sensitive announcements, or broad job losses), Restricted (negatively impacting a limited number of employees, commercially sensitive), Normal, and Unrestricted)
    - Asset Category (eg Fixed Property, Plant & Equipment, Technology)
    - Investment Order of Magnitude (in value bands, eg <50K, <100K, <200k, <500k, <1m, >1m)
    - Major Benefit Driver (eg cost saving, revenue generation, or compliance)
    - Investment Measures (eg NPV, ROI, and Payback period)
    - Project Risk Profile (eg best case, worst case, and most-likely)
    - Key Sensitivity Factors (eg exchange rates, oil prices, revenue growth)
- A standardised process is place to transition projects from wishlist items to investment candidates through a stage gate evaluation process.
- Collaboration between interested parties is enabled through tracked conversations and other collaboration features. Interested parties are immediately notified when an initiative in their area of focus is recorded.

## 3.2.    Initiative Prioritisation and Selection

Corporate Strategy will guide the ranking and prioritisation of investment initiatives. A CAPEX planning committee or similar function will review and standardise the Initiatives to ensure comparability, and then rank according to strategic alignment (eg mature businesses may favour cost-cutting initiatives, whereas growth industries will be focussing on expanding capacity).

Best practices include:
- Rigorous standardised Business Cases are produced to justify candidate investments. These are reviewed for quality and completeness of evaluation.
- Explicit criteria are set for Return on Investment measures. Benchmark hurdle rates are set for Return on Investment and Payback Period .
- Standardised models are available for calculating the potential return from investment. All flows are risk weighted and evaluated in terms of best case, most likely and worst-case scenarios.
- A standardised corporate Cost of Capital rate is applied in calculating Net Present Values.
- Project and Portfolio sensitivity analysis is conducted (including Monte Carlo simulations) in evaluating proposed Annual Capex project portfolios.

# 4. Annual Planning

All organisations face constraints over the level of Capital expenditure that can be undertaken in any particular financial year. The level of investment spending is influenced by strategy, the business cycle, and funding capacity. Of primary consideration in the final selection of Initiatives is the cashflow impact. An organisation needs to consider cashflows in the current financial year related to previous budget year initiatives together with cashflow requirements of current Budget Year initiatives.

Best practices include:
- Financial controllers prepare and upload annual budgets directly from Excel without re-keying.
- Monthly cashflow impacts of the Investment over multiple years is planned, and cumulative cash-flows profiles are graphically presented.
- Any related asset disposal are included in the Cashflow forecasts.
- A range of minor planned investments for an asset class can be bundled in a single CAPEX budget item, however the use of such 'bucket' investment plans is restricted by value.
- Foreign currencies flows are planned in transaction currency. Future exchange rates are based on achievable forward exchange contracts.
- Budget can be shifted between planned projects to accommodate emerging priority opportunities or cost savings and overruns.
- A final annual CAPEX budget containing all approved CAPEX initiatives is finally signed-off by the board of directors. This final approval should be recorded in the system with the associated signature record.
- The annual CAPEX budget is loaded into the financial system.

Within SAP, Investment Management planning positions are created as part of an investment management structure for a budget year. In the Investment Planning Position the asset class is defined and the investment budget is allocated per fiscal year. Whilst the SAP Investment Management structure is effective for holding the Investment Plan, it is not user-friendly for analysis. The planning funding capacity and actual budget allocation should be viewable graphically and accessible directly from Excel for end-user analytics.

# 5.  Project Planning

Requests for Approval are the core of the CAPEX process. These capital purchase requests may variously be referred to as:

- Request For Approval/Appropriation (RFA)
- Authorisation for Expenditure (AFE)
- Capital Expenditure Request/Proposal (CER/CEP)

In this paper, we will use the term Request For Approval (RFA) to accommodate other approval scenarios besides new acquisitions including asset disposals, transfers and revaluations.

The primary objective of this process is to ensure all requests are approved in accordance with the organisation's delegation of authority limits.

The delegation of authority policy will typically specify the Organisational Position responsible for approval based on the request characteristics which include:

- Budgeted or Unbudgeted
- Asset Class
- Transaction Type (Acquisition, Disposal, Revaluation, Transfer)
- Org Unit responsibility
- Value

When systemised, the chart of authority is typically referred to as the Authorisation Matrix. It is the role of the Workflow system to automatically route requests to approvers in accordance with the Authorisation Matrix definition. The workflow implementation should be flexible enough so that additional approvers added and pre- and post- approvers can be specified in-flight. For example, an approver my require pre-approval by a subject matter expert, prior to routing the request back to themselves for final approval. Or an approval may be given subject to an additional approval by a more senior executive. In addition to Approve and Reject actions, approvers should be able to "Request more information" and "Redirect" requests if appropriate.

In addition to formal approvals, notifications should be issued to interested parties. The Notify To parties should be pre-defined in the Approvals Matrix and also be able to be appended to the request at any time. Notifications to interested parties are typically generated on initial submission and on final approval, and to the requestor after each and every approval decision.

Collaboration on a key investment decision is captured in Conversations. In addition to approver comments, any related conversations with subject matter experts should be associated with the request and readily available for contribution and review. Email correspondence should be discouraged as it is not contextualised, and at the minimum should be attached to an RFA for later review.

Evidence of probity with regard to RFA's is essential for the protection of decision makers. It is therefore imperative that all RFA access is appropriately restricted, and all changes and approval actions are logged.

A particular challenge that is often addressed in the Request For Approval is the correct classification of Leased Assets. Per the new international accounting standard, IFRS 16 for leased assets accounting, even operating leases will normally need to be capitalised. The nature of the funding (cash or lease) should be included on the RFA form, and for leased assets, a checklist should be provided to help determine whether capitalisation of the leased asset is required. Under the new standard, only in a minority of cases will leased assets not require capitalisation.

Best Practices observed for Request for Approval processes include:

- Authorisation matrix is based on Position not person, for reduced administration overhead - as individuals move in and out of key positions, the responsibilities will follow. The matrix can be downloaded to and uploaded from Excel and is under the direct control of the business process owner and not IT.
- New Requests for Approvals can be made for both budgeted and unbudgeted projects. For completeness, planned investments still go through the RFA process as variations may have occurred between the preliminary Business Case proposal included in the annual plan, and the project scope at the time that the investment is ready to action. The details of a budgeted project are defaulted into the RFA with the ability for these to be adjusted as required. Budgeted projects within the budgeted funding allocation follow an expedited approval process.
- RFA's indicate the funding source. For budgeted projects this will be the Annual Plan as recorded on the Investment Planning Position. The available budget amount should be reflected on the RFA, and any unbudgeted over-run clearly reflected. Budget 'shifts' between planned projects is supported but subject to additional approvals.
- Change Requests are linked to the original investment request. From the parent request, it is possible to link to each supplementary RFA. Reporting is designed to enable cumulative project budget vs actual analysis.
- The structure of cost controlling objects (eg Internal Orders or Project WBS elements) can be defined in the RFA, with the budget split accordingly. Multiple cost objects are employed to facilitate project management or where a single RFA results in multiple fixed assets being recorded (eg a new manufacturing facility may include land, plant and equipment assets being capitalised).
- Where complex SAP project structures are required to manage major CAPEX investments, the CAPEX process will trigger a different sub-process for the definition of the project structure. This definition can then be reviewed, technically approved, and automatically creates the SAP project.
- RFA's are highly classified as to nature and responsibility area. This information is exposed through graphical web reports and exposed to end-users for Excel-based analysis.
- RFA's can be approved on mobile devices to expedite approval decisions. Similarly Notifications can be received and Conversations joined in the mobile application.

From an SAP implementation perspective Appropriate Requests (transaction IMA11) represent an RFA. If the organisation's classification and analysis data model is a close fit with SAP Appropriate Requests, these can be used as the transactional store of an RFA. However, frequently SAP Appropriation Requests are not suitable as their structure is excessively complex, and extension of the standard SAP functionality is not feasible. In these cases, the RFA is stored as an independent custom object in SAP (inherent capability with IQX AppBuilder), and on approval the required Cost Controlling objects are generated, and budget is distributed directly from the Investment Planning Position to the CO objects as Investment Measures.

The relationship between planning processes and the corresponding SAP technical objects is illustrated below:
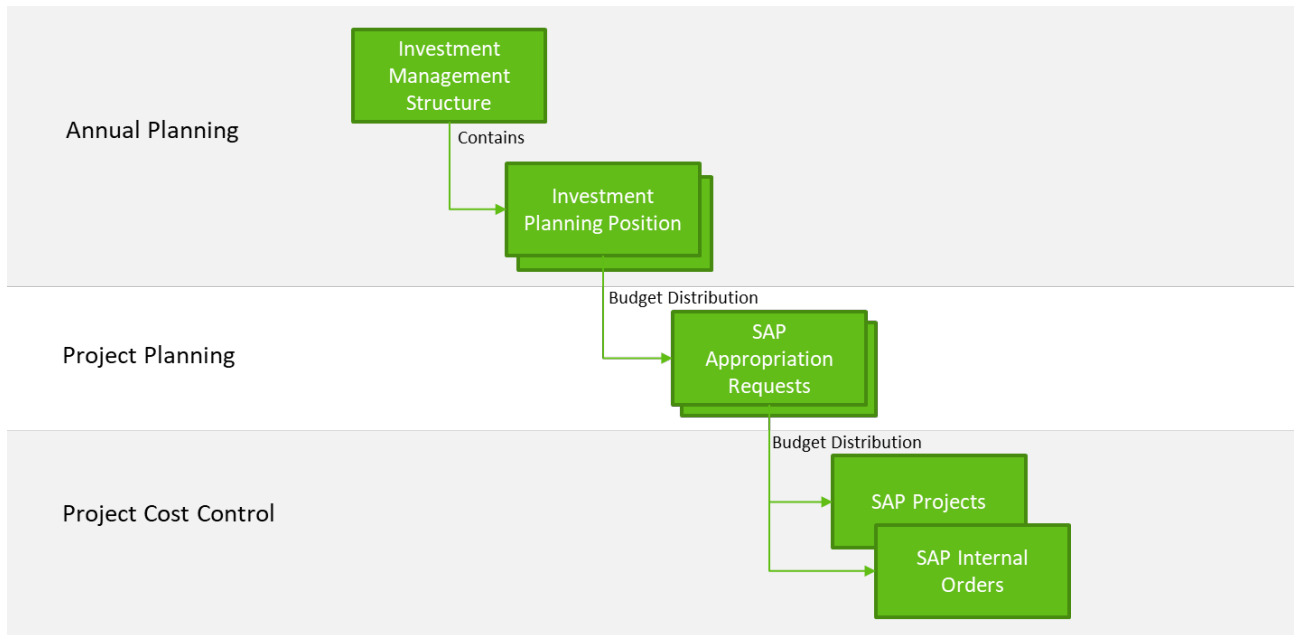
*Figure 3 - SAP CAPEX Planning Objects*

# 6. Periodic Re-planning

In this stage of the CAPEX process, in–progress initiatives are monitored and completed investments evaluated.

## 6.1. Reforecasts and monitoring

Once an RFA is approved and the investment execution commences, costs begin to accumulate on the Cost Controlling objects (orders or projects). It is essential that the actual expenditure is closely monitored with reference to the approved investment budget.

Best practices for reforecasting and monitoring include:

- Investment request forms are automatically updated with actual costs as incurred. This allows investment sponsors to track the execution of a project to completion.
- On completion of an investment project, the RFA is marked as completed. Any under-utilised budget is released back to the Annual Budget. The Cost Controlling object is blocked for further cost accumulation.
- Reforecasts and Change Requests can be raised for projects underway. If the additional forecasted cost or change requests exceed the budgeted funding, additional approvals are obtained.
- Actual predicted cashflow timings can be adjusted if required based on project experience.
- Process owners are able to analyse the process status of a portfolio of investment initiatives. This analysis shows the status of approvals in process, as well as projects in process. Bottlenecks in project approval are identified for remediation. Delays and cost over-runs in project execution are exposed for management intervention.

## 6.2. Post Investment Reviews

An essential control in the CAPEX process is the performance of post-investment reviews. The focus of these reviews is to assess whether the investment returns that were anticipated were actually achieved.

The very existence of the post-investment review cycle helps ensure that financial projections are realistic. Any variations are identified and evaluated in terms of both investment costs and achieved results.

This learning is then fed back into the process to improve the estimation and risk assessment of future investments.

Best practices for post-investment reviews include:

- A post-investment review process is formally defined. A sampling mechanism is in place to select projects for post-investment review. A defined data recording format and workflow are implemented to allow participants to identify variations and provide explanations and learnings. A process is in place to ensure that corrective actions are performed.
- Investment evaluation measures are defined and actually measured after the investment is completed. The expected vs actual achievement is reportable and sponsors are held accountable for adverse variations.

# 7.  Procurement

## 7.1.  Purchase Requisitions and Orders

Following approval of a CAPEX request and the establishment of cost controlling objects (project or order), the procurement process commences.

One or multiple purchase requisitions is raised against the order or project. In the case of procurement from a new vendor, a vendor on-boarding process will be triggered. When initiating the purchasing requisition, it should be possible to reference the related RFA, and have relevant details defaulted into the requisition form including the relevant project or order number.

In the case of simple asset purchases, the requisition could be directly for a fixed asset, and the details of the fixed asset will be captured immediately in the requisition form. In this case, the order or project will be statistical, but still referenced for budget control purposes. The benefit of purchasing directly to a fixed asset, is that the asset settlement process is avoided. The difficulty, is that the buyer may not have all required asset details at hand, and the requisition may require input from finance for asset accounting information, and the details of the asset may still need to be captured on receipt. These additional details may include serial numbers, registration numbers, and specific model numbers.

It is normal for the actual requisitions to be subject to a further managerial review prior to conversion to Purchase Orders. For the consistency of the executive user experience, these purchase requisition approvals should be presented in a similar fashion to the RFA requests. When reviewing a purchase requisition, the approver should be able to drill-back to the original RFA, and have clear visibility of budget capacity.

Similarly, for a Disposal scenario, and integrated CAPEX process will support the creation of a sales invoice.

Best practices for CAPEX procurement include:
- Initiators are notified of final CAPEX approvals, and are able to access the request form and trigger follow-on procurement activities.
- CAPEX procurement can be indirect via cost control objects or direct to a fixed asset. Vendors are created in an integrated fashion. Asset master details can be captured as part of the procurement process.
- The requisition process enforces the organisational procurement policy: for example, alternative vendor quotations are made mandatory above certain procurement levels, unless procurement exemption is obtained via an integrated workflow process.
- The system prevents requisitions being raised once the approved budget is consumed.
- Both RFA's and Requisitions are presented to executives in one integrated task list, and provide a consistent executive user experience. Approval actions can be performed on a mobile device. Offline review and approval processing is supported.
- If a CAPEX acquisition is for the replacement of an existing asset, or if a disposal RFA has been approved, it is possible to create a one-time customer and generate a sales invoice where applicable.

## 7.2.    Goods Receipt/Service Entry

Work In progress asset acquisitions require the processing of goods and services receipts in order to accumulate the costs. The project manager user-experience for the recording of the receipts should be consistent to the RFA and requisition processes.

Best practices for goods receipt/service entry include:
- Goods receipts and service entry is performed directly by the person responsible via an intuitive web application.
- Sub-contractors directly process timesheets which are simply reviewed by the internal manager without re-keying.
- Goods receipts and service entry can be performed on a mobile device.
- Proof of delivery and/or deviations are captured photographically and attached to the goods receipt transaction.

# 8. Asset Capitalisation

## 8.1. Asset Master Creation

From an Asset Accounting perspective, the end-result of the CAPEX acquisition process is the creation of a new fixed asset in the asset register. The total costs of bringing the fixed asset into use are capitalised. A depreciation method and useful life are determined and assigned to the asset. The monthly depreciation charge is automatically calculated, charged to the responsible cost centre and accumulated against the fixed asset cost. Similarly, cost of capital charges are generated and charged to the responsible cost centre.

Best practices for asset creation include:
- The Asset master is created with reference to the RFA. Additional location, condition and technical data is supplied by the responsible person.
- The asset accounting details are work-flowed to finance for asset accounting assignments.
- The settlement of Asset Costs from the cost controlling objects (orders and projects) is automatically settled to the new asset only when the asset is confirmed as ready for use.
- In addition to depreciation charges, a cost of capital charge is levied on the responsible cost centre based on the organisation's weighted average cost of capital. This capital charge continues even once the asset is fully depreciated until the asset is formally disposed.

## 8.2. Asset Activation

Once an asset is commissioned, it may be required to perform certain off-system administration activities (eg activate vehicle registrations, assign etags, update insurance schedules), as well set-up maintenance plans within the system.

Best practices for asset activation include:
- Follow-on manual activities that may have no direct system impact are assigned and tracked within the overall CAPEX workflow process.
- Serviceable asset equipment is defined and installed in the relevant functional locations. A suitable maintenance plan is activated.
- Asset Identification tags are affixed to the assets for security and auditability.
- Operating instructions are registered, and Work instructions are updated as required.

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# 9.    IQX Business Solutions for CAPEX

Fiori is SAP's Web and Mobile app delivery platform. Fiori Apps can be effective in tailoring the end-user experience for usability and productivity.

IQX AppBuilder for SAP extends the user-experience capabilities of Fiori with flexible request forms and integrated workflow capabilities.

IQX OneList provides approvers with a mobile enabled consolidated task list of all CAPEX approvals including Business Plans, RFA's, and Purchase Requisitions.

IQX Apps are ideally suited to supporting the CAPEX process because of the following key features:
- IQX Apps are based on SAP Fiori for a familiar and consistent end-user experience. For example, users may utilise the standard SAP Goods Receipts Fiori App, and have a highly customised RFA request form, but both will look and behave similarly.
- Enables a highly configurable data model to meet an organisation's reporting needs. In particular, additional request classification and description fields can be added without customising core SAP objects or adding additional custom Z* objects.
- The user interface can be flexibly updated to reflect an organisation's terminology and unique data model.
- Requests are staged for approval, with SAP objects and transactions only being generated on approval.
- Excel integration to upload budgets, business cases and updated cashflow forecasts.
- Excel analytics on CAPEX process status and project costs.
- Easy to maintain automated workflow incorporating an Authorisation Matrix to ensure that requests are routed appropriately for approval.
- Mobile approval capability for executives in order to expedite time-critical opportunities.
- Integrated with SAP document management system to ensure that attachments are accessible and secure.
- Deep bi-directional SAP integration to read master data and transaction values as well as create Investment Management structures, Appropriation Requests, and Cost Controlling objects.
- Fine-grained SAP access controls and encryption mean that sensitive financial data is highly secure.
- The provided tooling enables organisations to be self-sufficient with continuous process improvement and support.

*Figure 4 - Example Fiori Request for Approval form*

*Figure 5 - OneList integrated desktop and mobile approval of all tasks including CAPEX items*

# 10. Business Benefits

In summary, the key business benefits of CAPEX process automation are the following:

- Accelerates CAPEX process decision cycles to take advantage of time-sensitive opportunities and expedite value realisation. If it's worth doing, it's worth doing sooner than later, and an automated CAPEX process helps speed up the end-to-end process.
- Improves the productivity of end-users by providing intuitive data entry forms, eliminating rekeying of information, ensuring supporting documentation is easily accessible, supporting the way finance users work with excel integration.
- Ensures compliance with CAPEX policies with automated workflow based on an authorisation matrix reflecting your delegations of authority.
- Reduces audit fees by enforcing process compliance and providing detailed audit trails to evidence probity.
- Enables executives to make better, more informed and more confident CAPEX decisions based on standardized data and reliable supporting documents.
- Ensures capital expenditure remains within your capital funding and cashflow constraints.
- Enables flexible analysis based on a centralized, integrated, single source of truth for active monitoring and timely management intervention.