**Monitoring & control processes:**

* Measure and report progress, handle changes to scope, time, cost and quality
* Manage project team
* Manage risk mitigation strategies
* Monitor procurement contracts

Diagram

Description automatically generated

Monitoring:

Collect & report information concerning previously defined project performance elements

Control:

Use the info supplied by monitoring techniques to bring project actual results in line with stated project performance standards

**Keys to effective monitoring & controlling:**

* The organisation and project manager must foster an environment that allows for the honest reporting of results
* To reduce the chances for biased reporting, the process should be as automated as possible and there needs to a separation of responsibilities
* Time must be allocated in the project schedule to perform the tasks of monitoring and control
* All members of project team, stakeholders and other management resources should receive training on effective monitoring and control techniques

**Earned Value Management (EVM):**

A technique used to help determine and manage project progress and the magnitude of any variations from the planned values concerning cost, schedule and performance

**EVM key values:**

* Planned value (PV):
  + budgetary cost of work scheduled (BCWS)
  + the budgeted cost for the work scheduled to be completed up to a given point in time
  + final PV of a task = task’s budget at completion (BAC)
* budget at completion (BAC):

total amount budgeted for the task

* earned value (EV):
  + budgeted cost of work performed (BCWP)
* the budgeted amount of work actually completed on the task during a given time period
* EV = project budget \* percent complete
* Actual cost (AC):
  + actual cost of work performed (ACWP)
  + total cost incurred in accomplishing work on the task during a given time period
* cost variance (CV):
* show weather and by how much the project is under or over the approved budget
* CV = EV – AC
* Actual dollar value by which a project is either overrunning or under running its estimated cost
* Negative CV: over budget/ cost overrun
* Positive CV: below budget
* Cost performance indicator (CPI):
  + Show the project’s cost efficiency or utilisation of the resources on project
  + CPI = EV / AC
  + <100%: over budget
  + >100%: below budget
* Schedule variance (SV):
  + Show weather work is ahead/behind approved schedule
  + SV= EV – PV
  + Difference in dollar value between the amount of work that should have been completed in a given time period and the work actually completed
  + Negative SV: behind schedule
  + Positive SV: ahead schedule
* Schedule performance indicator (SPI):
  + Project’s schedule efficiency
  + The rate at which the project is progressing (ahead/behind schedule)
  + SPI = EV / PV
  + < 100%: behind schedule
  + > 100%: ahead of schedule
* Budget at completion (BAC):

Budget for total job

* Estimate to completion (ETC):
* From the point, how much more do we expect it to cost to finish the job
* ETC = (BAC-EV)/CPI
* ETC = BAC/CPI – AC
* Estimate at completion (EAC):
  + What do we currently expect the total project to cost
  + EAC = BAC/CPI
  + EAC = AC + ETC

**Report performance:**

Collect & disseminate performance information

* All project & product related data
  + Schedule
  + Costs
  + Quality
  + Risks
  + Human resources
  + Procurement (if needed)
* Distribution of performance information to stakeholders

Frequency of reports determined by:

* Type of report
* Size of project
* Importance of project as stated in the communication plan

Categories:

* Progress reports:
  + physical progress to date
  + actual data VS planned data
* Status reports
  + Identify where the project is today (date the report is prepared)
  + Info from collected performance data to calculate SV and CV
* Project reports
* Earned value numbers:
  + - EAC
    - ETC
    - SPI
    - CPI
  + Forward looking: give projections/forecasts of project finish
* Exception reports:
  + Exceptions
  + Problems
  + Risks