Interface Risk Calculations

Number of Communication Channels

$$Number - of - communication - channels = \frac{N * (N - 1)}{2}$$

In [60]:
```
# Calculate N is the total number of project participants
#I.E. Client team, EPC, Contractor directly involved with specific comunication

# place total number here
N = 10

Channels = (N * (N - 1) )/ 2
Channels
```

Out[60]: 45.0

Communication Effectiveness

$$Communication - Effectiveness = \frac{(F1 + F2 + F3. . . . .)}{Number - of - Controls(F)} * 0.5$$

- Number of controls are activities taken to ensure communication
- 0.5 is the factor of unseen or unknow impact to communications that is +

In [61]:
```
# to compute CE

F = 3
# Project meetings with active participation
F1 = 0.5
# Communication email that is openned
F2 = 0.1
# Phone call with active Participation
F3 = 0.5

CE = 1 - (((F1 + F2 + F3) / (F - 1)) * .5)
CE

# Communication Effectiveness
```

Out[61]: 0.725

Communication Impact

$$Communication - Impact = \frac{(Channels * (1 - CE))}{Channels}$$

- Communication Impact is the probability that your communication will fail

In [52]:
```
# to Compute CI

CI = ((Channels * (1 - CE)) / Channels)
```

In [53]:
```
# Likelyhood of impact occurring
CI
```

Out[53]: 0.275

Communication Impact Costs

- Direct costs, Labour, equipment, and materials
- Indirect costs, insurance, administration costs, etc.
- Impact to business i.e. completion delay or inservice delay

In [54]:
```
# Direct Costs
package_cost = 750000.00
# Should be a time value day, week, month etc.
#for this example in weeks (time needed to order item)
schedule_delay = 4
cost_of_delay = 7500
schedule_delay_cost = schedule_delay * cost_of_delay
# in this case we will use I week of schedule delay due to critical path 500 k a
day
#Impact of 1 week
business_impact = 3500000
# cost of change reason for cummunication
#For this example we will use a valve in the origional package was incorrect
change_order = 55000.00
```

In [55]:
```
# Lets look at the postenial risk costs
potential_risk_costs = schedule_delay_cost + business_impact
potential_risk_costs
```

Out[55]: 3530000

In [56]:
```
# Expected impact and budgetted risk for project
finacial_impact = CI * potential_risk_costs
finacial_impact
```

Out[56]: 970750.0000000001

In [58]:
```
# Organization budgeted risk
organization_risk_impact = business_impact * CI
organization_risk_impact
```

Out[58]: 962500.0000000001

In [59]:
```
project_risk_impact = schedule_delay_cost * CI
project_risk_impact
```

Out[59]: 8250.0

Risk Mitigation Plan

Project Mitigation Plan (EPC)

Additional risks

- The project might classify this as critical
- Not identified as a risk
- Change order not approved
- Procurement does not order correct part, not informed of change order
- Impact to schedule critical path unknown

Mitigation Strategy Recomendations

- Increase risk contingency by 8,250.00
- Track change order through interface group (interface item)
- Track communication and order being placed by procurement
- Track updates to drawings
- Increase budget by 55,000.00
- Follow up and document each item
- Update WBS, scope documents, SBS, and CBS to include change order
- Escalate Change order approval if required

Mitigation Strategy for Business Unit / Client

- Increase Financial Reserve fund by 962,500.00
- Track change order approval (interface item)
- Track drawing updates

In [ ]: