

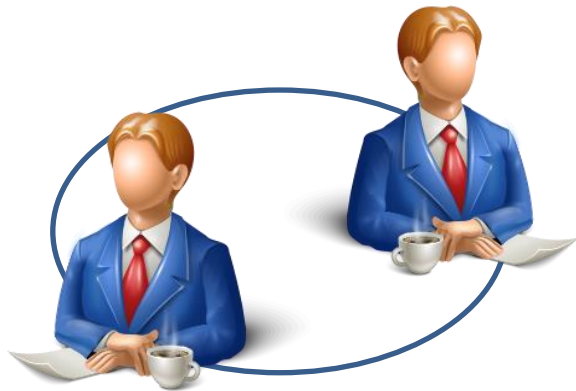


Dinko Bacun

INDICIO

<http://www.carpio.hr>

Disruptions in corporate business processes cause schedule delays



- A schedule task depends on corporate business processes that are external to the project
- Numerous small delays cause delays in project schedule
- There is significant statistical correlation between cost overruns and delays in schedules
- Errors and omissions found to be dominant category for change orders

Better coordination and communication needed

Communications are essential to project success



- 80% of project meet original goals (vs 52% with poor comms)
- Internal and external coordination
- Meetings, phone calls, emails
- Unexpected events cause communication overload
- Inter-project coordination is scarce

**Problem oriented framework
easily coordinates across multiple projects**

Traditional project communication



- Within a project:
 - PMBOK Project communication plan
 - Meetings, face to face, email, telephone
 - Complex communication paths
 - Complexity causes communication failures and disruptions business flow
 - Unplanned and unexpected events

Contractor PM is constantly extinguishing fires

Multi-project communication is scarce

- Mostly coordinate in the planning phase
- At the corporate level (division, department)
- Bi-weekly, weekly meetings
- Each PM focused on his own results
- PMs tend to be protective of the projects they manage



With project start every PM minds his own business

Technology enables continuous coordination

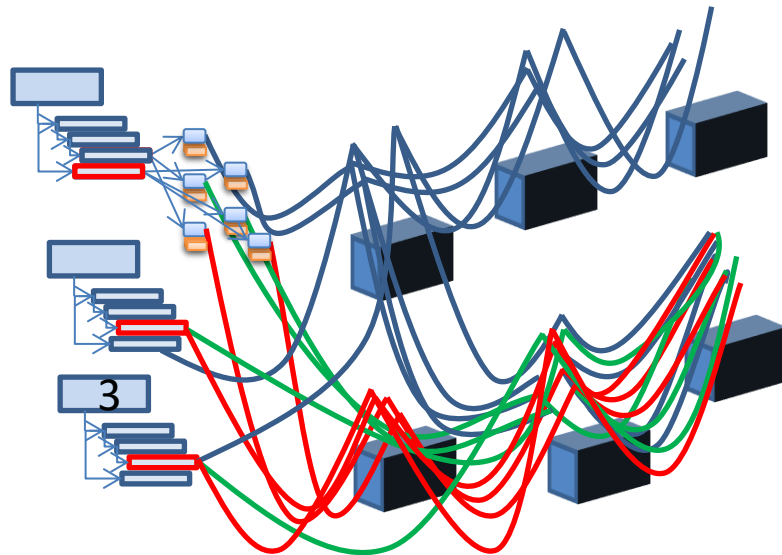


- New technology redefines PM behavior
- Rise of generation Y: virtualization
- Enterprise social networking
- Integrated voice, mobile, video, sms, chat
- Do not help PM's burdened schedule
- Do not decrease number of stakeholders
- No verifiable audit trail of actions
- Data overload

No synchronized schedules – continuous coordination

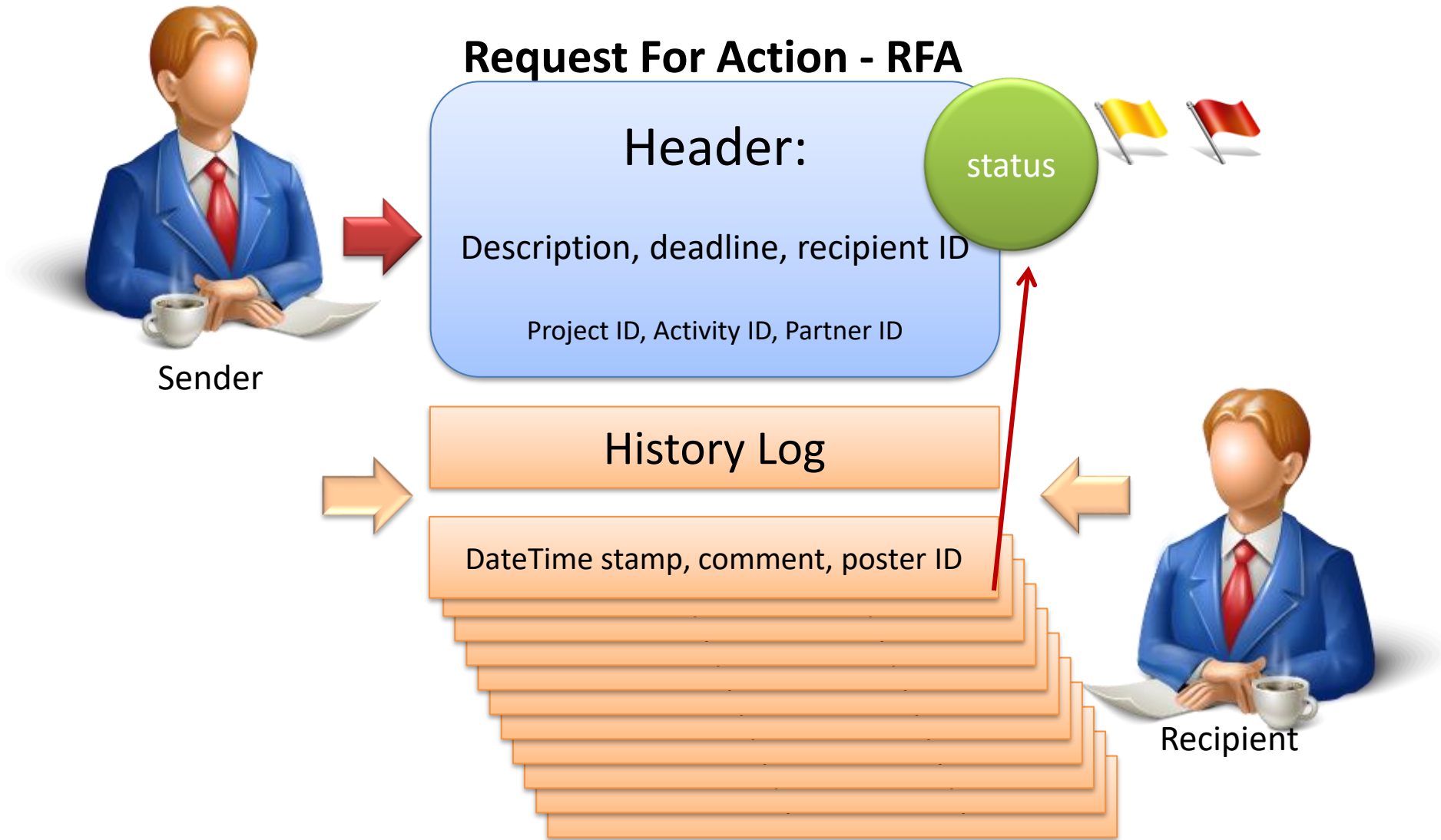
Model proposal

Integrates everyday corporate activities into project schedule

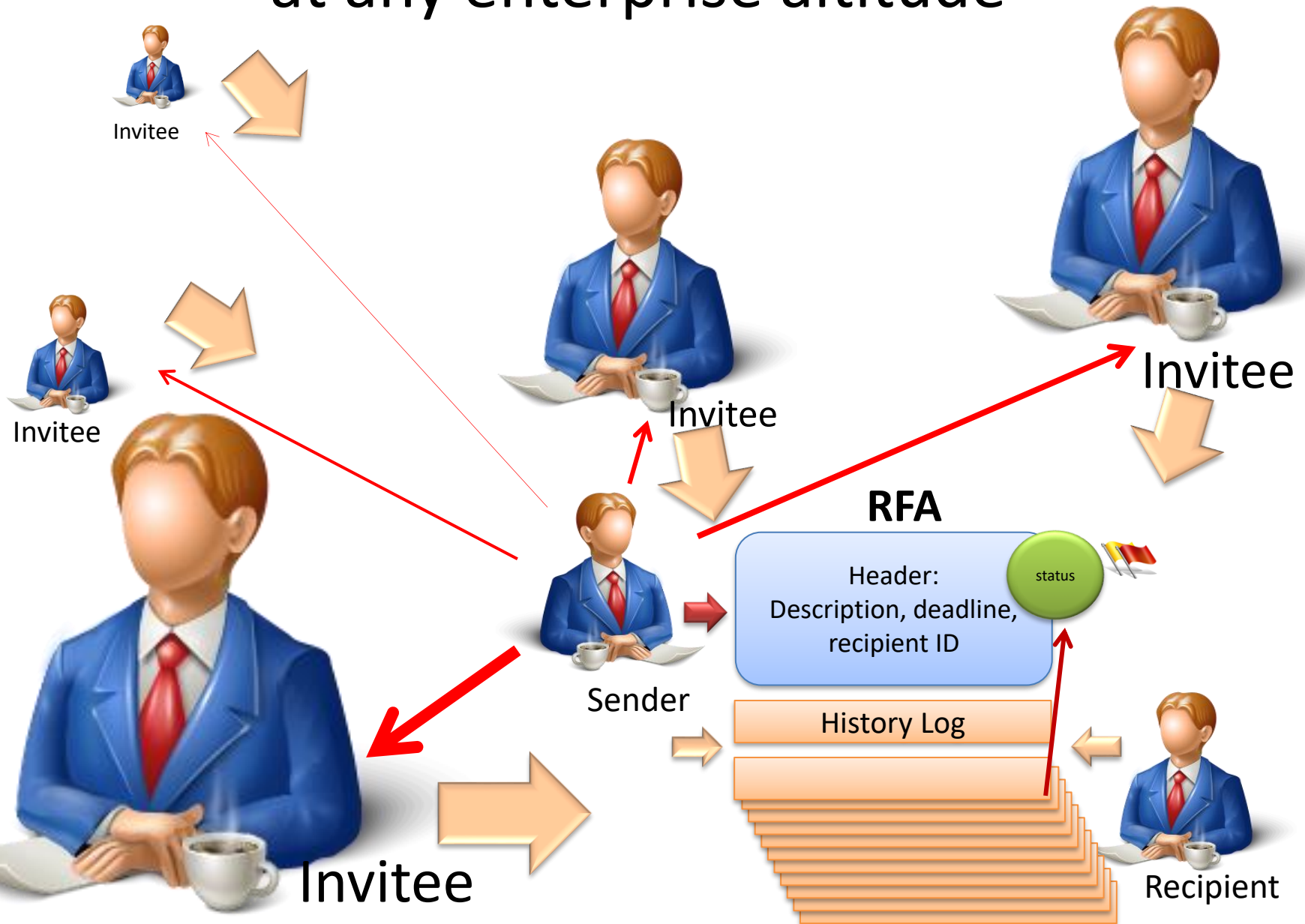


- Infrastructure – information transport: Multidimensional Preemptive coordination
- Integration elements of a schedule activity
- Corporate interleaved schedules: will corporate processes, external to the project, complete on time?

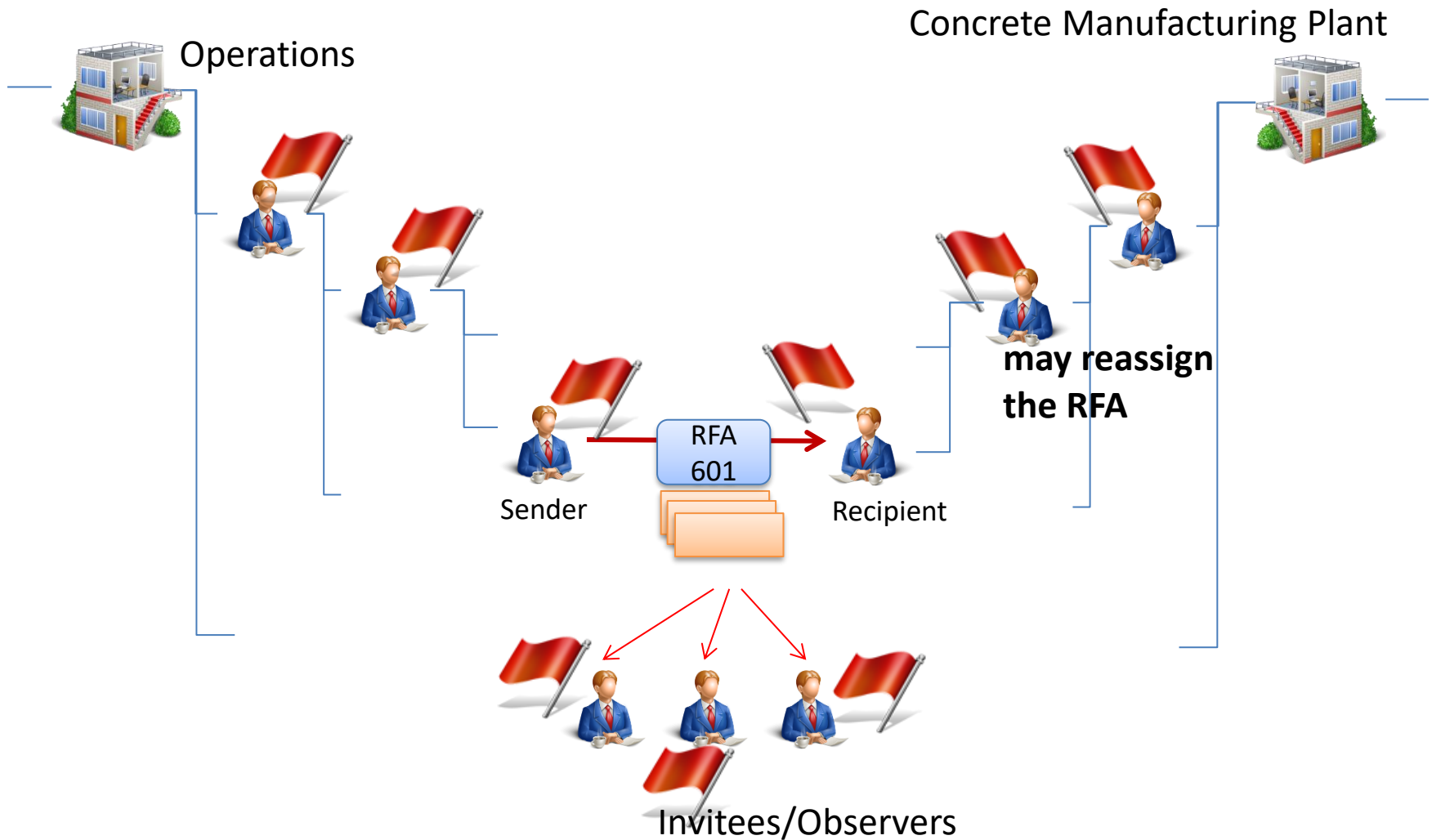
Element of a Multidimensional Preemptive Coordination



Sender can invite other professionals at any enterprise altitude

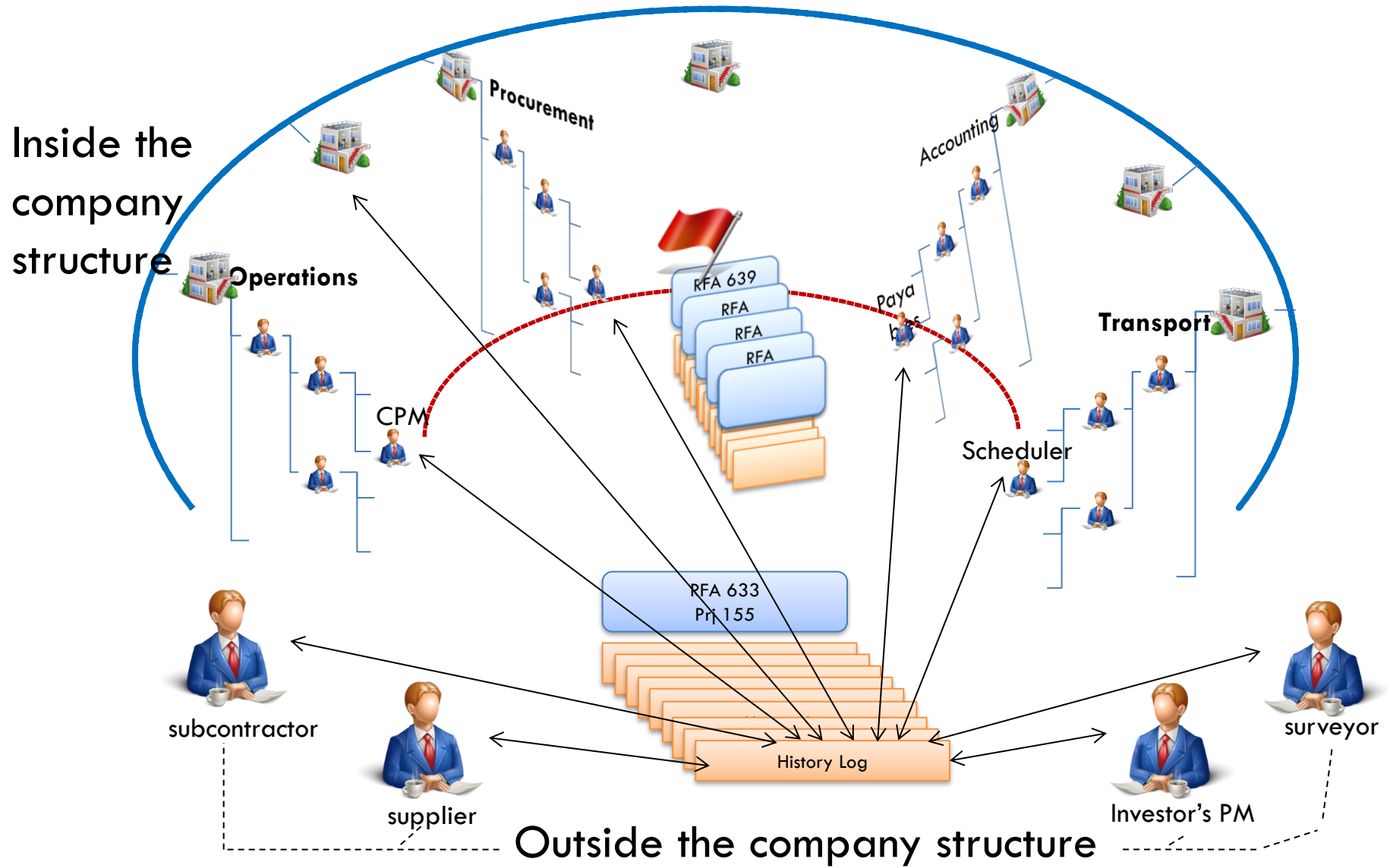


Upper management is invited by default



Alerts propagate across OBS

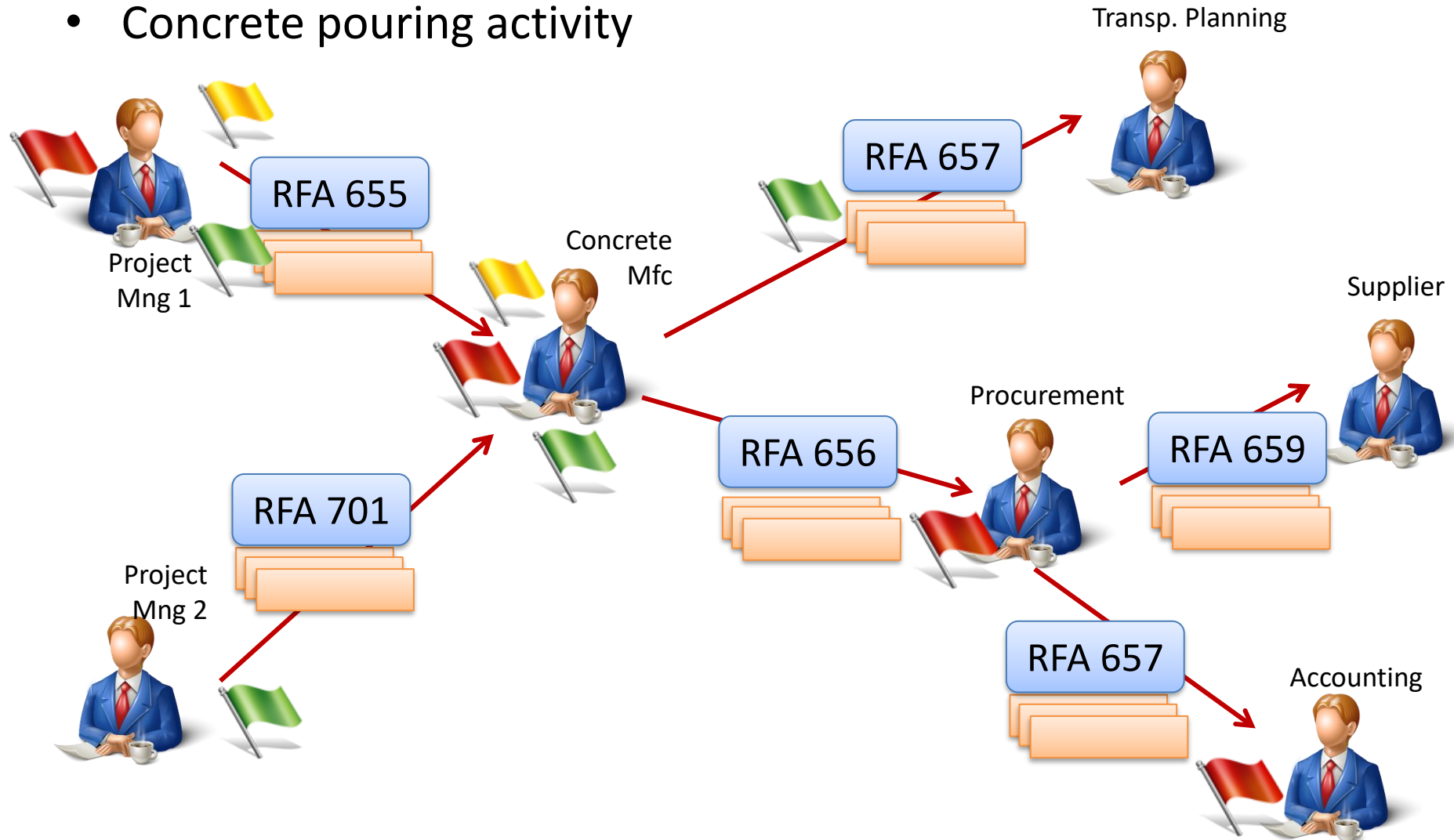
Enterprise wide and external coordination



Received RFA may trigger a new request

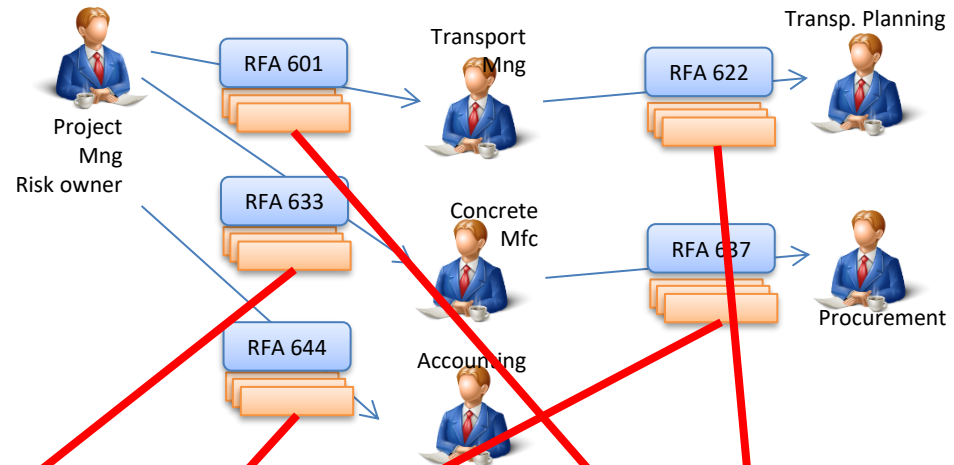
Example used in the presentation

- Concrete pouring activity



Multiple linked RFA form a *Topic*

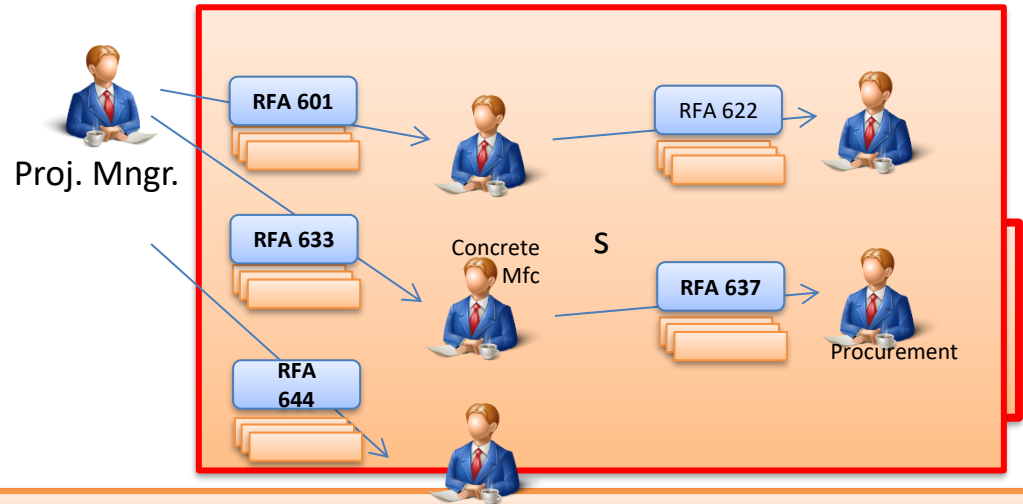
- Multiple linked requests generate a coordination topic



Date / Time	Comment	Sndr	Rcpt	Pri	RFA	Status	
						prev	curr
26.06.13 08:30	George, please organize...	Jim			601		?
26.06.13 08:35	George viewed RFA 601				601	?	*
26.06.13 08:45	Tim, make truck schedule for the activity...				622		?
....		...	...	...	...		

Participants have tailored visibility

- Selective topic view
- Multiple coexistent topic social networks
- Auditable chain of responsibilities



601 Transport



622 Transp. planning



644 Accounting



633 Concrete manufacturing



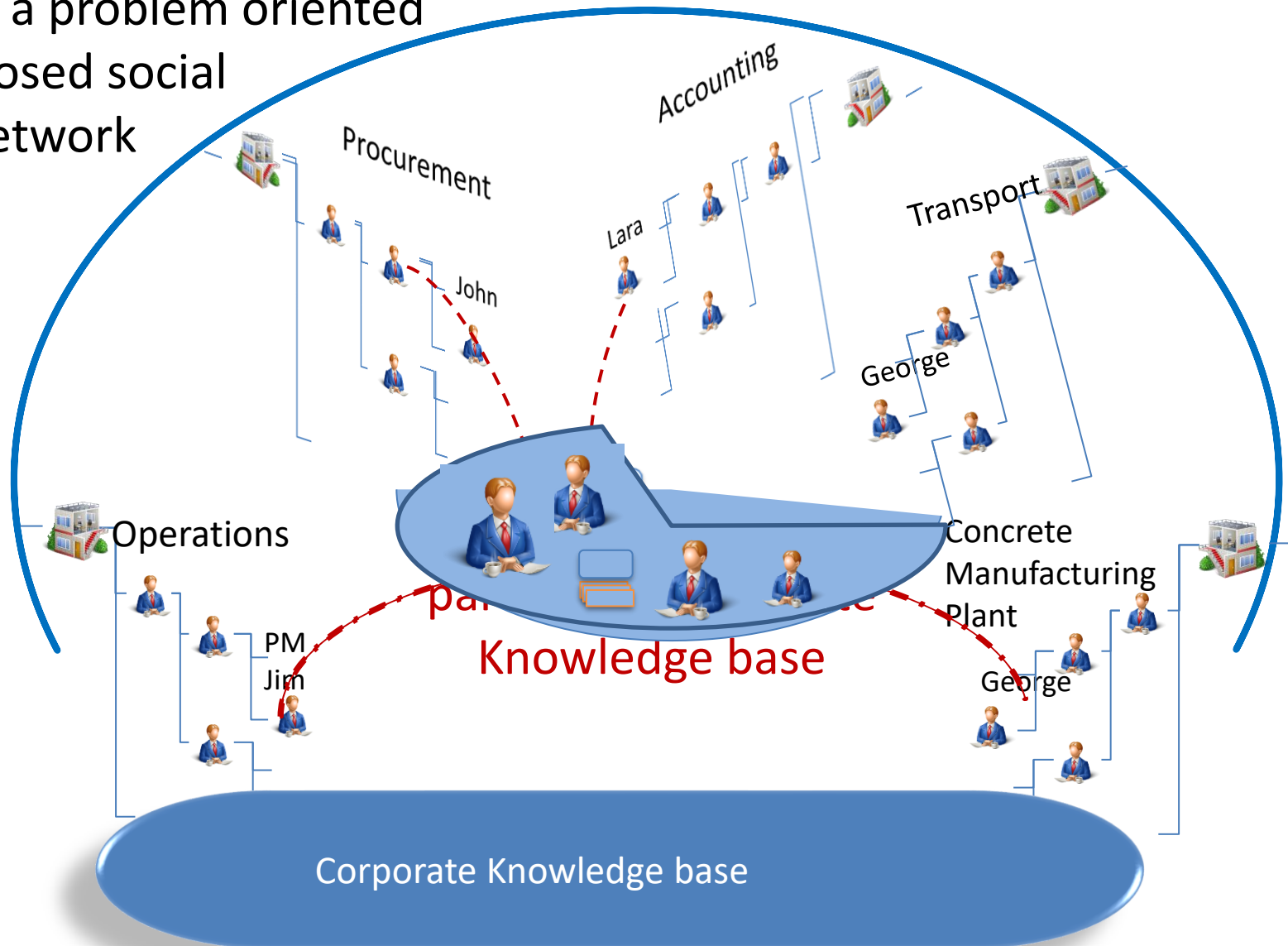
637 Procurement



Proj.Mngr.'s RFA visibility

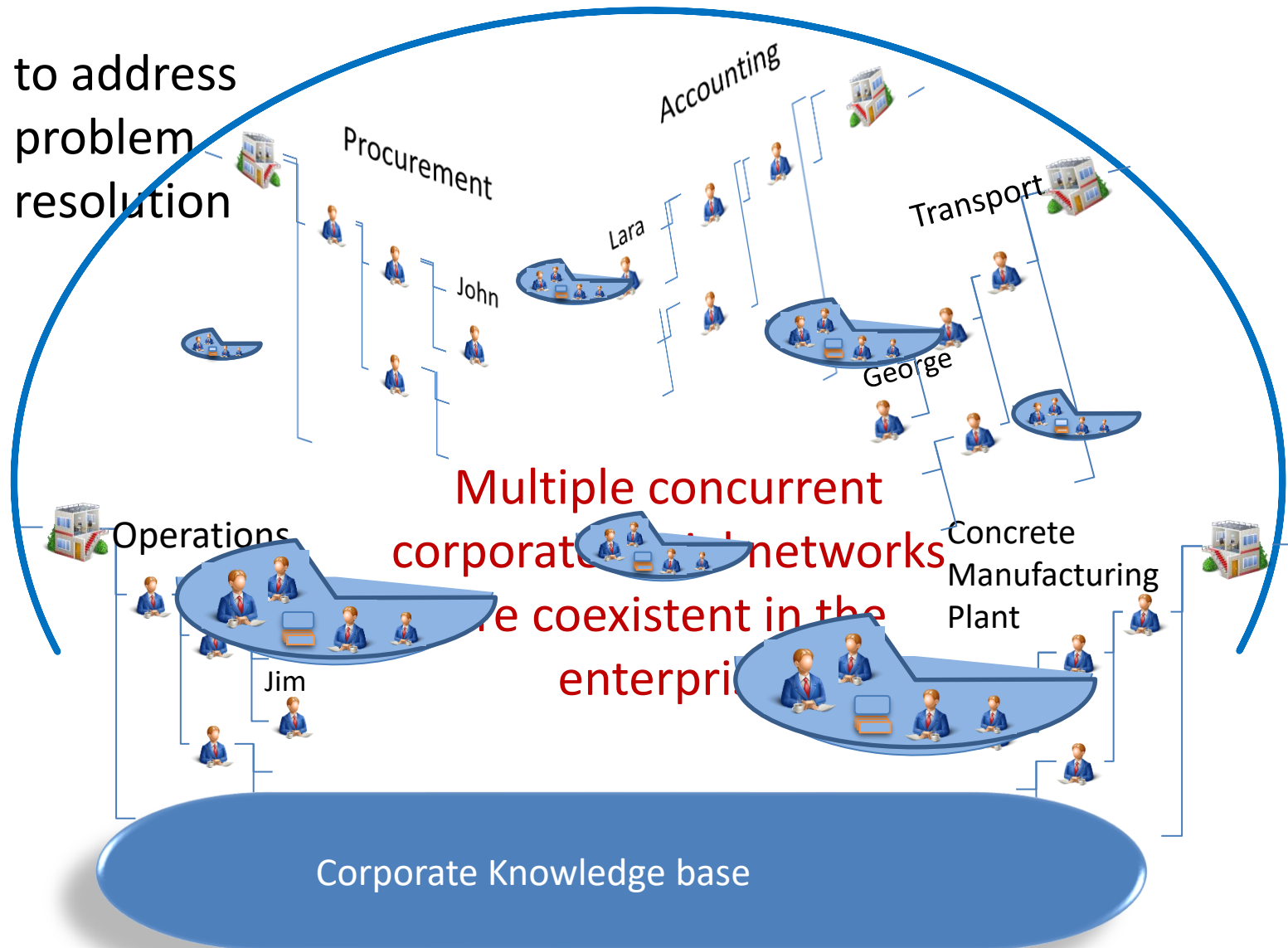
Group of professionals focus a business problem

- In a problem oriented closed social network

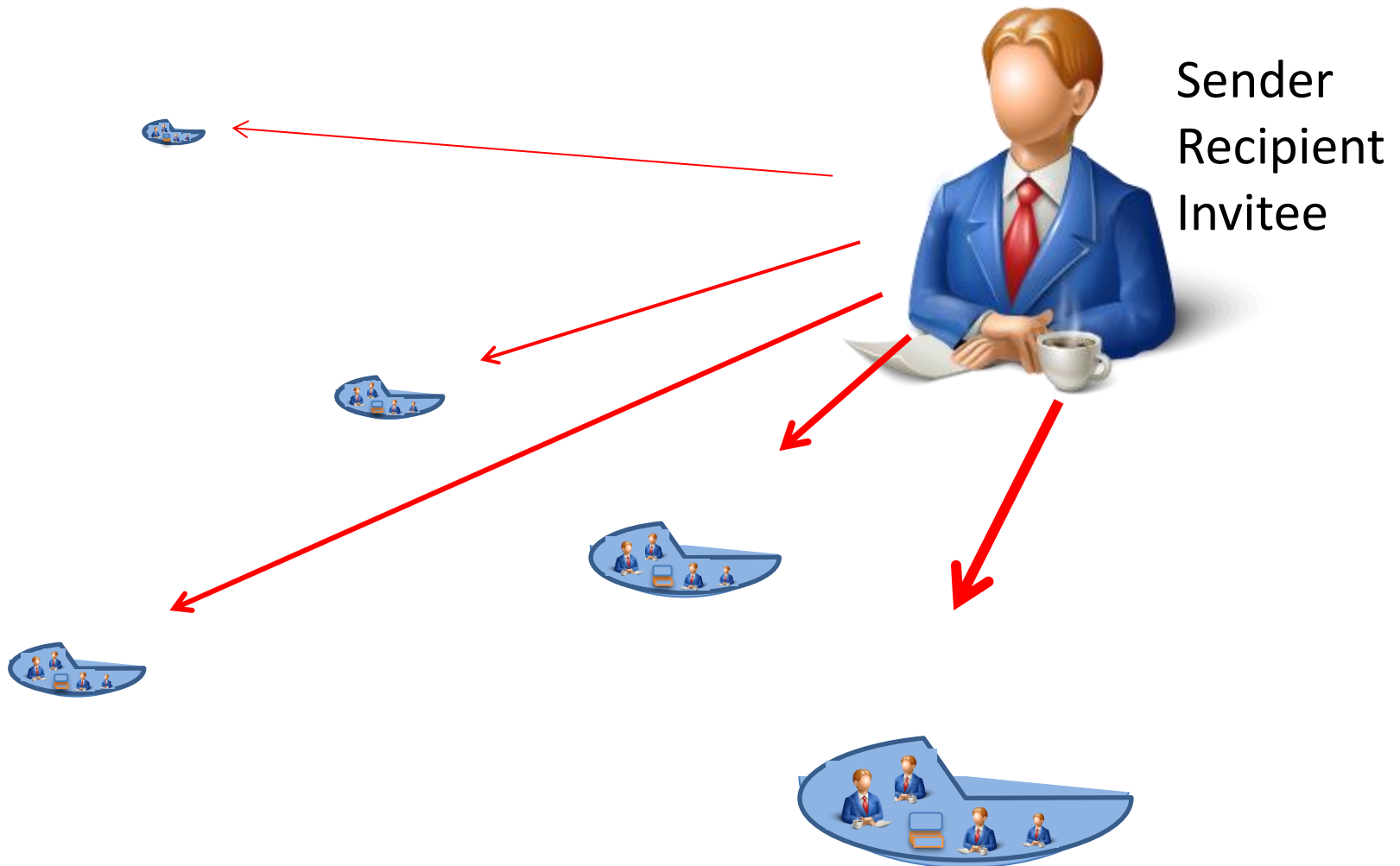


Emerging developments create a new network

- to address
problem
resolution



Each participant is part of multiple networks



Private social network Topic News Wall

- Tailored for each participant
- Filtered by:
 - Date
 - Project
 - Activity
 - Participant
 - Topic
 - Depth visibility
 - Status
 - Partner

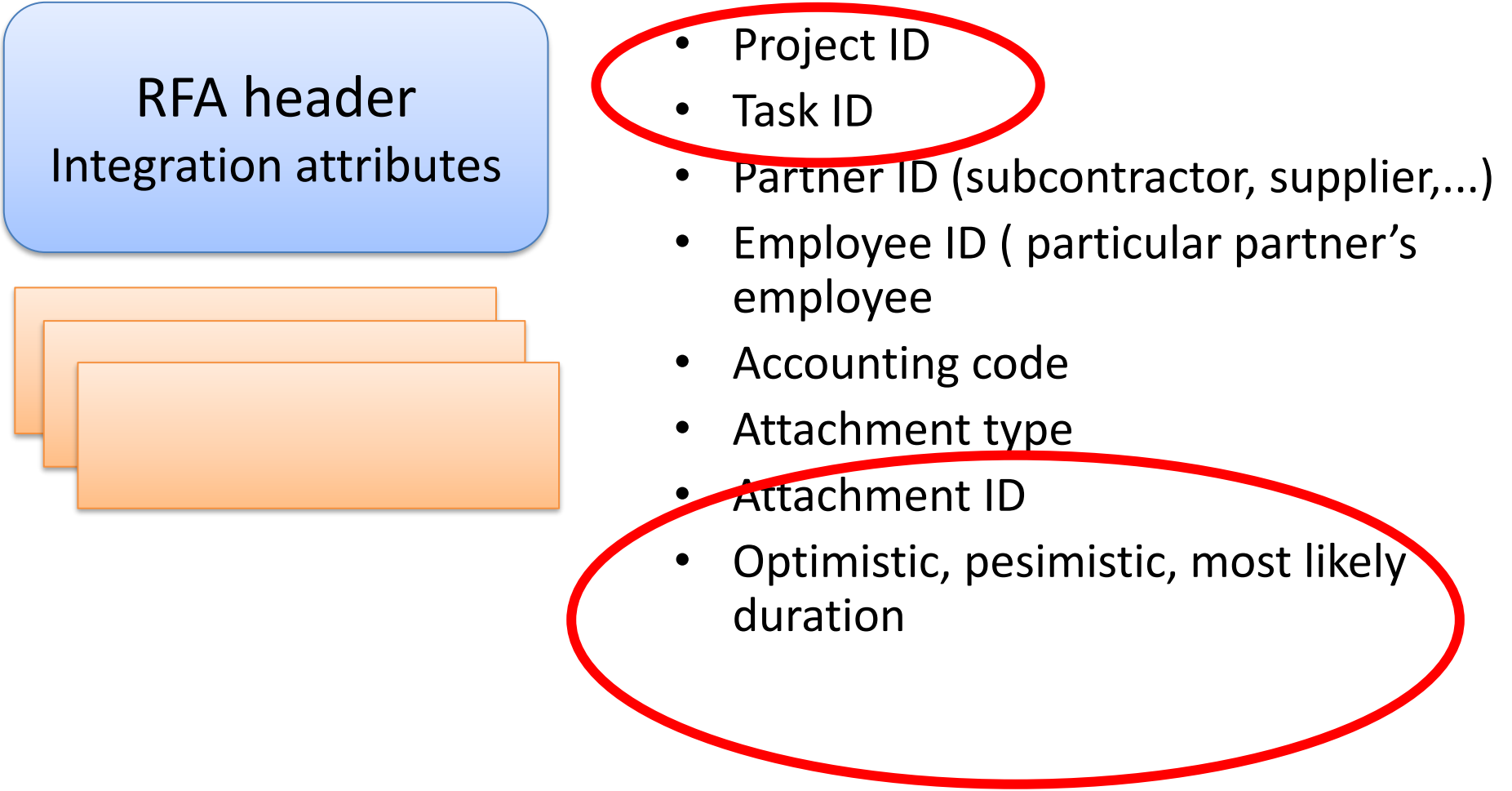


Multiple dimensions of the MPcoord model



- Horizontal – topic: internal and external
- Vertical – by Organizational Breakdown Structure
- Diagonal – by thread of RFAs
- Project – by project
- By Partner: subcontractor/supplier
- Schedule activity integrated into business processes

RFA integrates corporate processes into project schedule with attributes

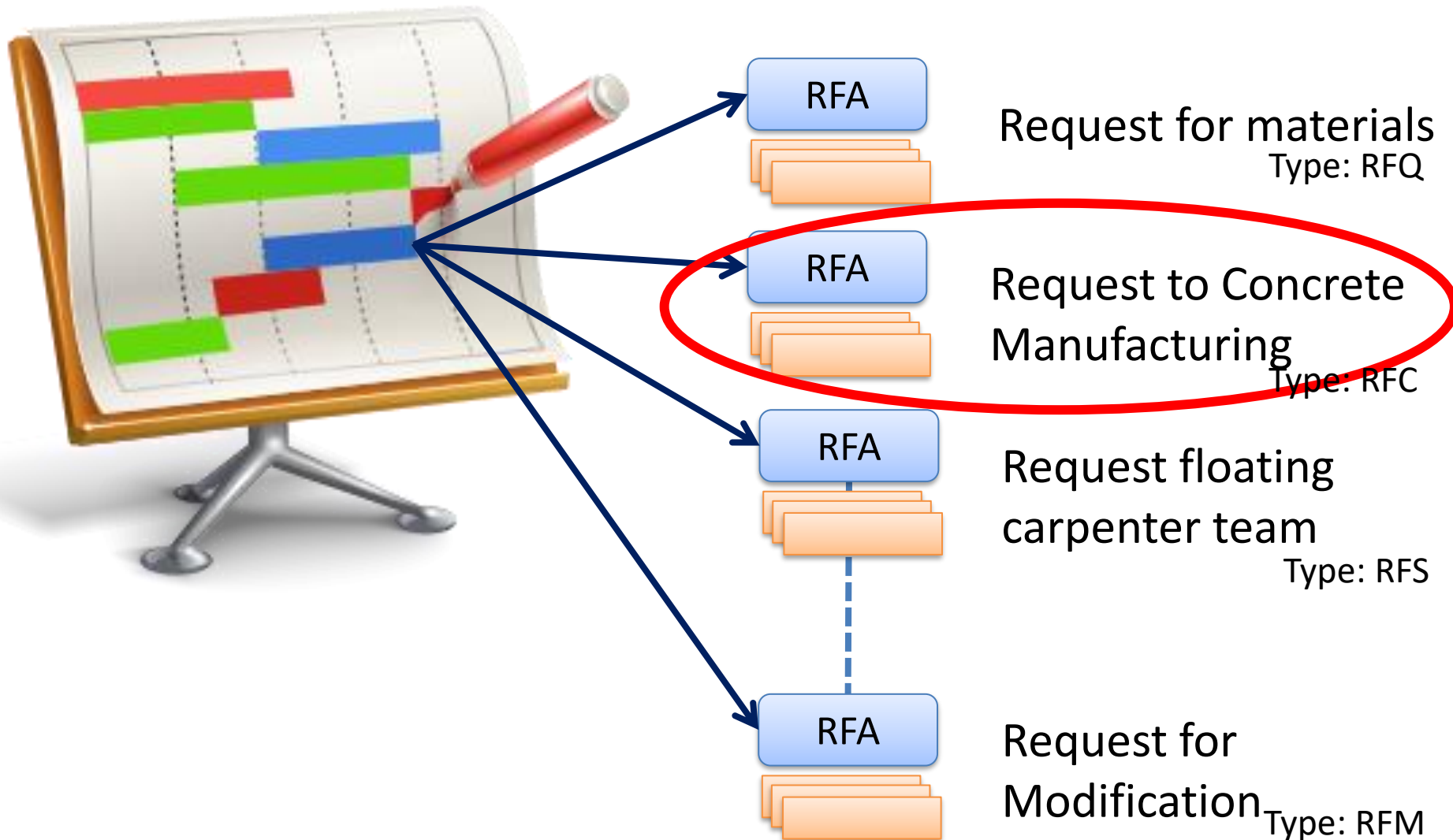


The diagram illustrates the integration of corporate processes into a project schedule using RFA (Resource File Attributes). On the left, a blue rounded rectangle labeled 'RFA header' contains the text 'Integration attributes'. Below it are three stacked orange rectangles. To the right, a bulleted list of attributes is shown. Two red ovals highlight specific groups of attributes: one oval encircles 'Project ID' and 'Task ID', and another oval encircles 'Attachment ID' and 'Optimistic, pesimistic, most likely duration'.

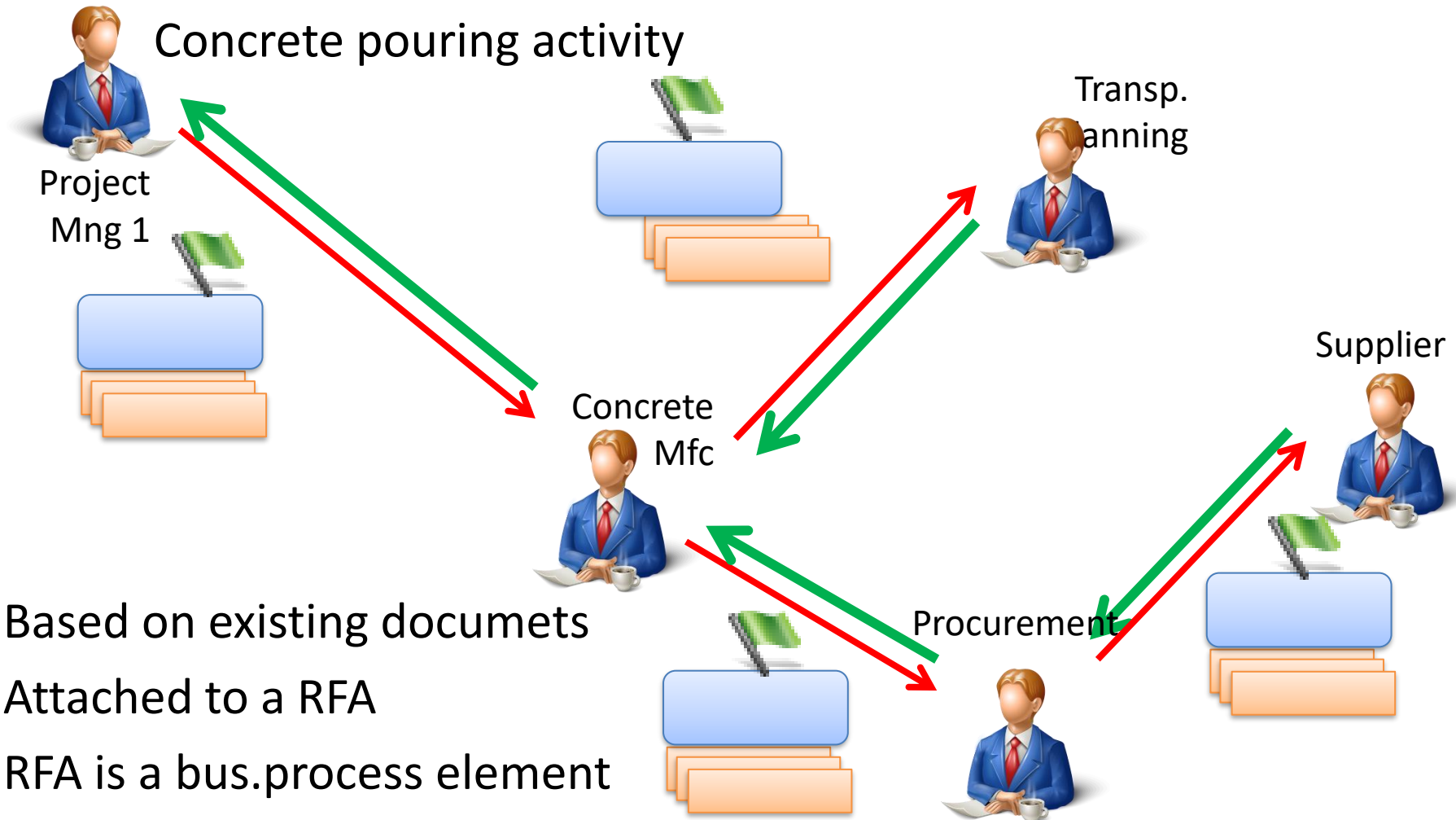
RFA header
Integration attributes

- Issue date, completion date, deadline
- Project ID
- Task ID
- Partner ID (subcontractor, supplier,...)
- Employee ID (particular partner's employee)
- Accounting code
- Attachment type
- Attachment ID
- Optimistic, pesimistic, most likely duration

Each Schedule task generates multiple requests

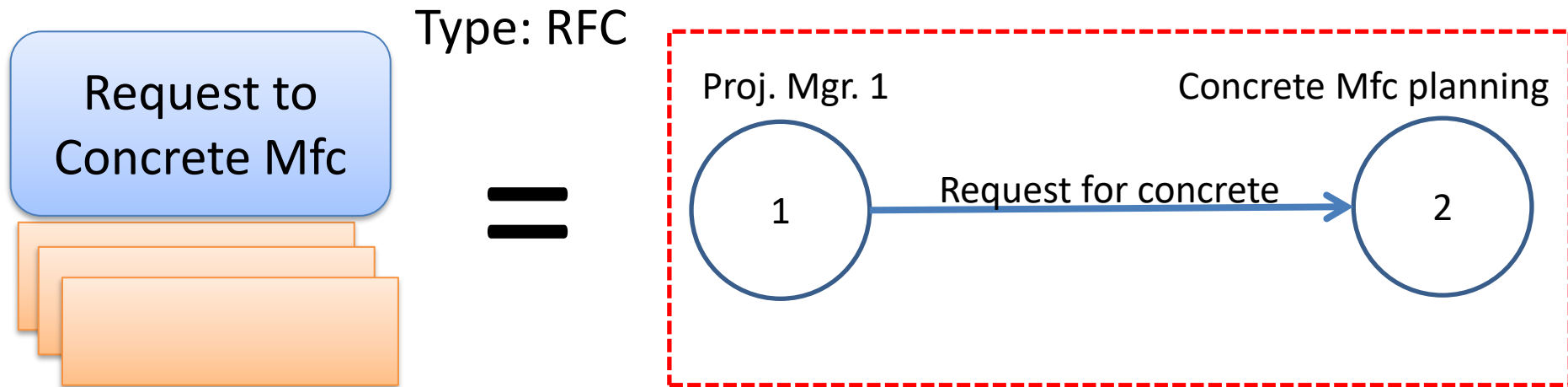


Each step represents a corporate business process element



- Based on existing documets
- Attached to a RFA
- RFA is a bus.process element
- No extra workload

RFA thread may be considered a corporate schedule



- Duration (completion date – issue date)
- Direction (Sender -> Recipient)
- Predecessors
- Successors
- Min/Max/Average duration

If we can detect the type we can measure it

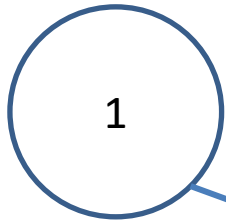
Request to Concrete Manufacturing

Project No	Request No	Duration
100	RFC-1	7
200	RFC-2	4
100	RFC-3	8
300	RFC-4	5
100	RFC-5	7
200	RFC-6	6
300	RFC-7	3

Optimistic = 3 ta
Pesimistic = 8 tb
Most likely = 5.5 tm

RFA attributes lead to probabilistic calculations

Proj.Mgr. 1



Concrete
Manufacturing

3	5	8

Transport
Planning

Supplier

Mean $\mu = (t_a + 4t_m + t_b)/6$

Variance $V = ((t_b - t_a)/6)^2$

Std.Dev. $\sigma = \sqrt{V}$

Z score = $\frac{\text{TimeToDeadline} - T\mu}{T\sigma}$

$T\mu = \sum \mu$

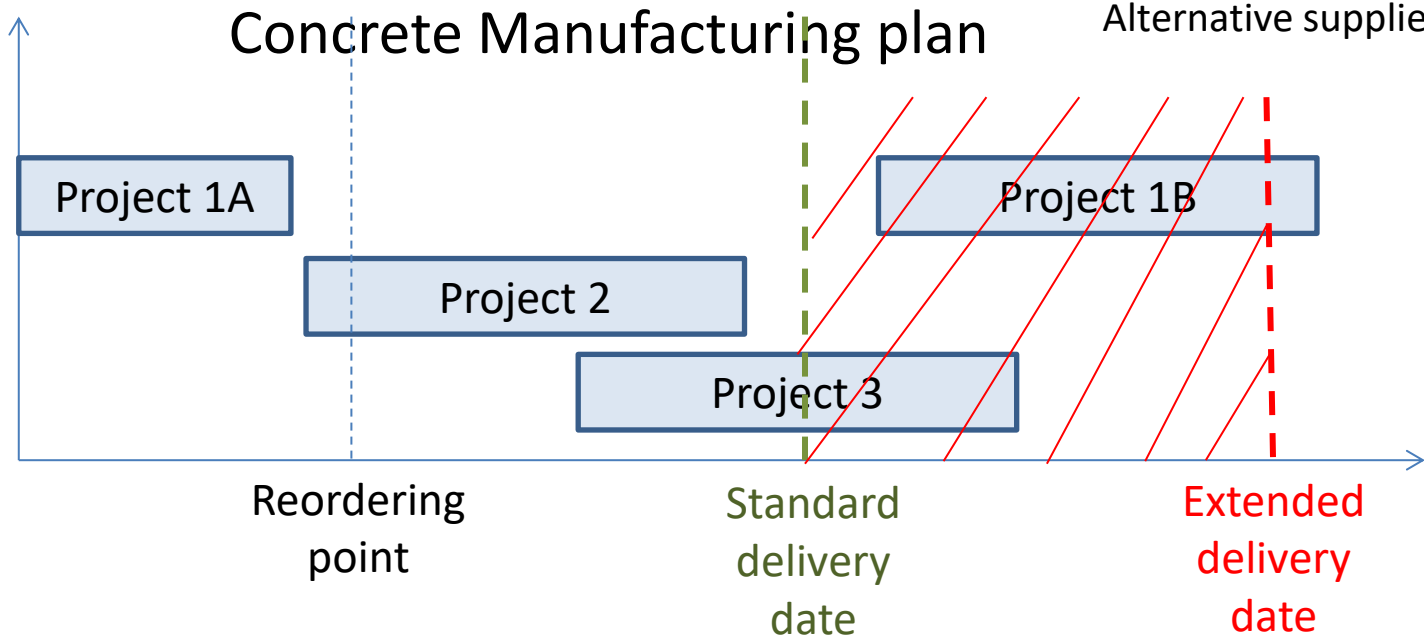
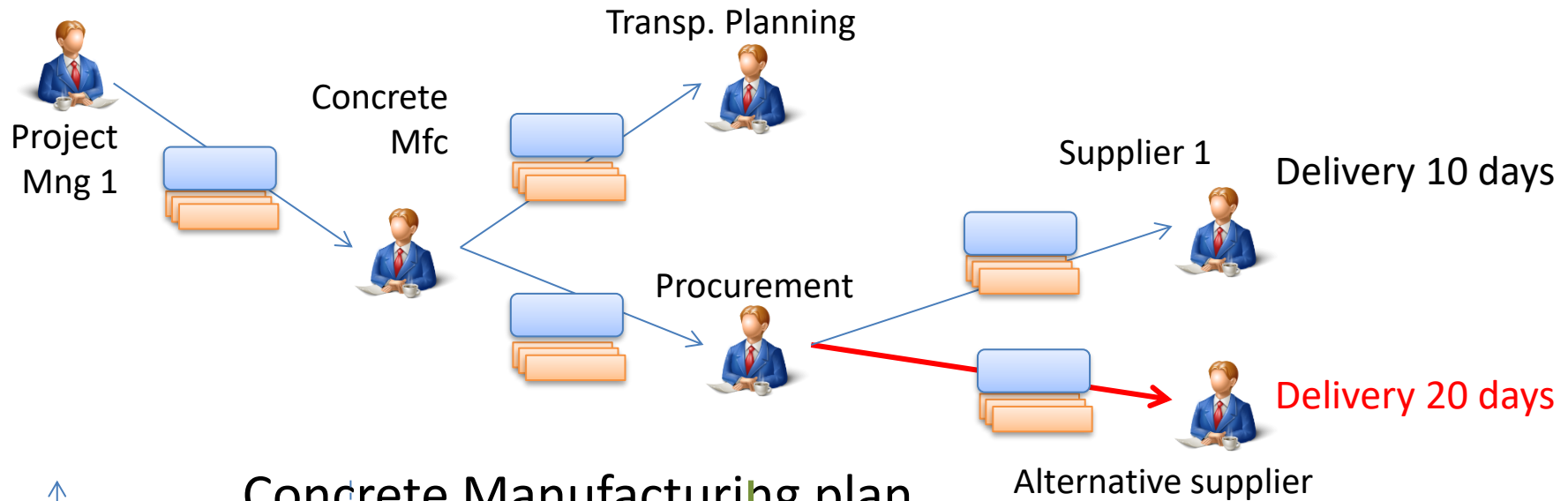
$TV = \sum V$

$T\sigma = \sqrt{\sum V}$

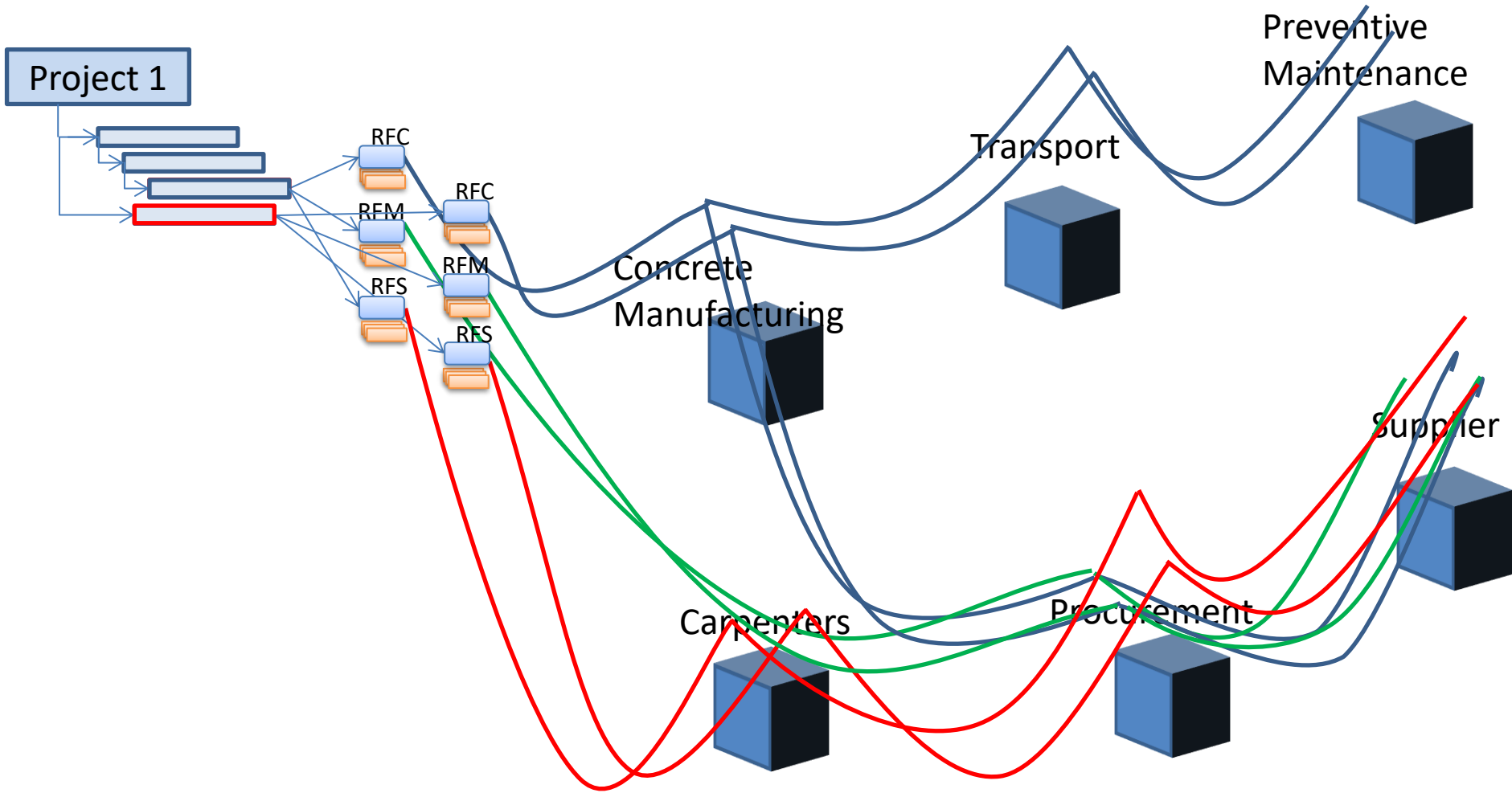
Procurement

Searching Z score table gives the probability that the deadline will be met

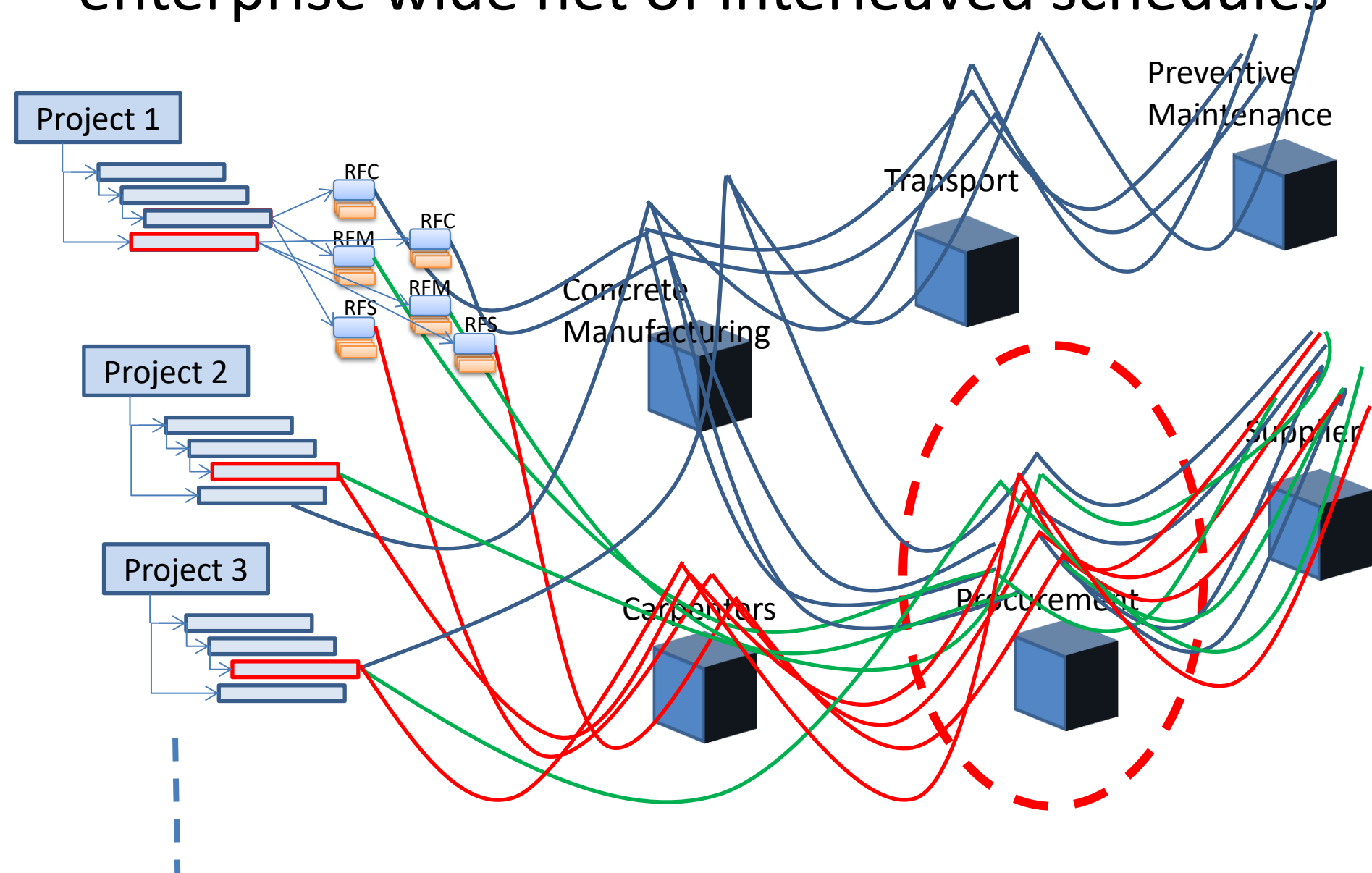
RFA threads intersect at a particular OBS point



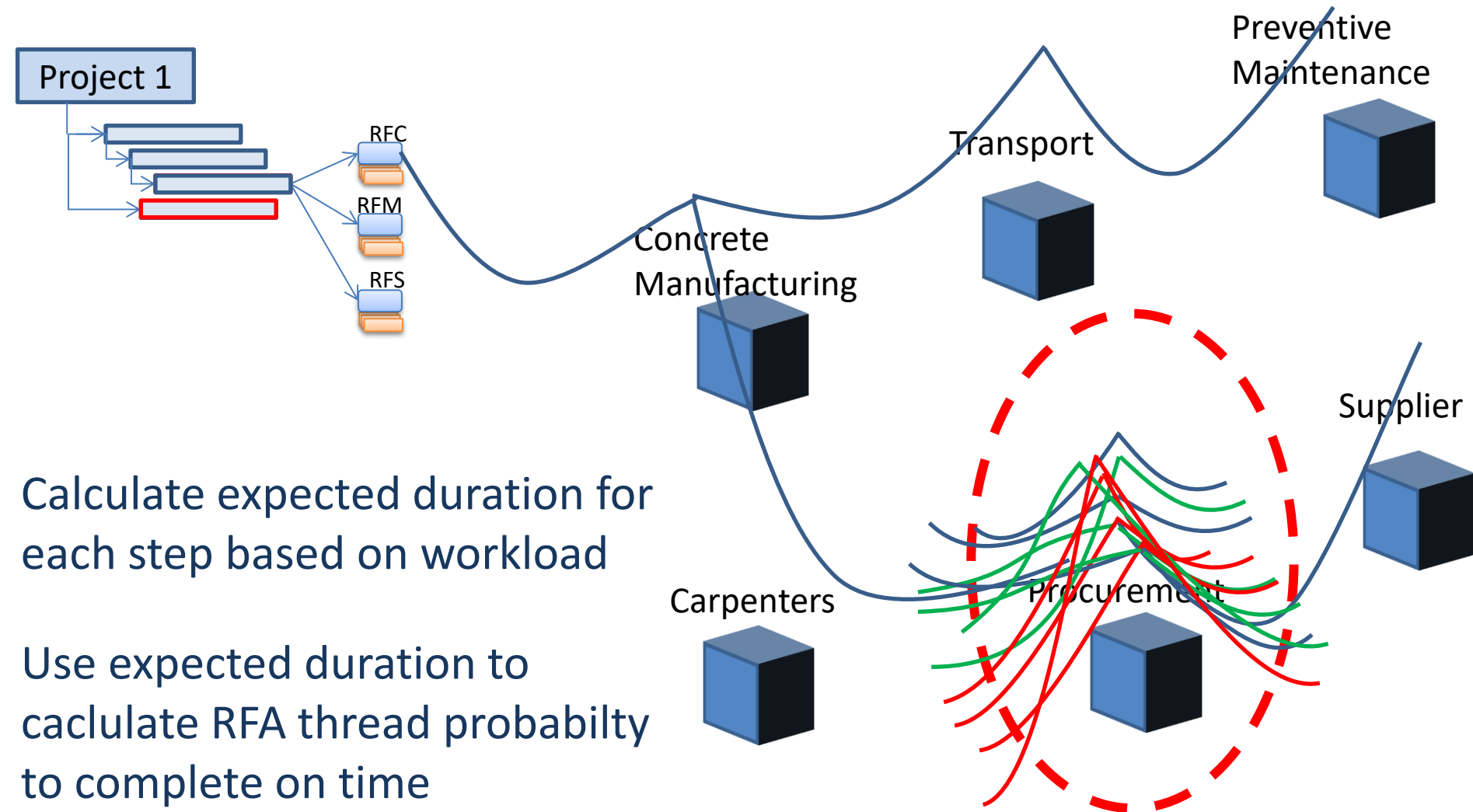
Integration of corporate schedules introduces enterprise wide net of interleaved schedules



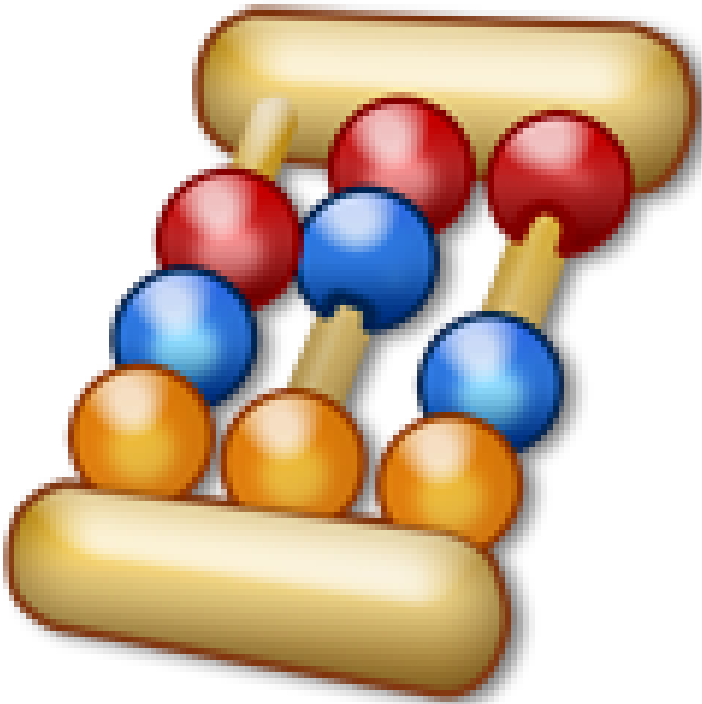
Integration of corporate schedules introduces enterprise wide net of interleaved schedules



RFA thread probability to complete on time depends on each step workload

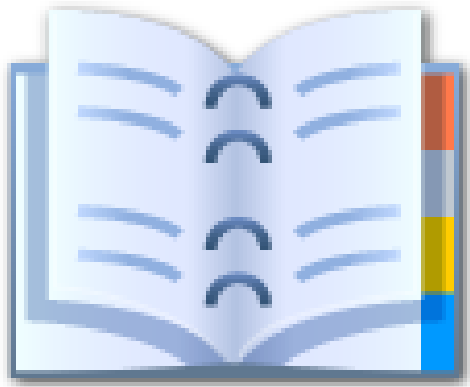


Only a small data subset needs to be calculated



- For particular intersection point calculate Expected duration only for RFAs **sent to a particular Recipient** with deadlines in current period (week, bi-week, month)
- For particular activity calculate only those **threads whose deadline fall in the current period** (week, bi-week, month)
- Coordination is a computer problem, rather than construction one

Conclusion



- Cost overruns and schedule delays are not improving despite new technology
- Lack of communication, low transparency across enterprise, confined business unit processes cause delays
- Proposed model integrates standard business processes with project schedule based on Multidimensional Preemptive Coordination
- Standard business processes can be viewed as corporate schedules intersected with multiple project schedules
- The probability of their timely completion can be calculated

Thank you

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Interested in becoming an early adopter?

Send us an email to

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or

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