

The Difference Between Workflow and BPR

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Tutorial Schedule

2:00

Work, Organizations, Coordination

1

2:30

Business Process Reengineering

2

3:00

Workflow State of the Art

3

3:30

Workflow Standardization

4

4:00

Applying Workflow to BPR

5

4:30

The Future of Workflow

6

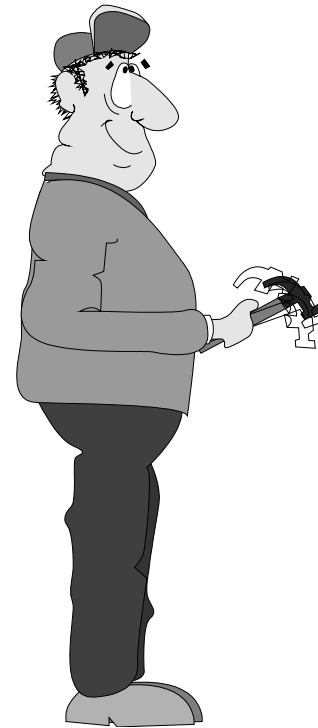
5:00

Part 1

Work, Organizations, and Coordination

Hammers and Nails

- ⇒ **When all you have is a hammer, many problems start to look like nails.**



What is Work?

Not the activities of individuals, but:

- ⇒ **Team Effort**
- ⇒ **Goals**
- ⇒ **Coordination**

Coordination is only visible when it is absent.

Coordination Questions

- ⇒ **What needs to be done now?**
- ⇒ **What are the supporting materials?**

- ⇒ **Who wants it done?**
- ⇒ **What are the options at this point?**
- ⇒ **What will happen after this?**
- ⇒ **What has led up to this point?**
- ⇒ **Who else is involved?**

Coordination Questions

- ⇒ **What needs to be done now?**
- ⇒ **What are the supporting materials?**

Work

- ⇒ **Who wants it done?**
- ⇒ **What are the options at this point?**
- ⇒ **What will happen after this?**
- ⇒ **What has led up to this point?**
- ⇒ **Who else is involved?**

Plans

Plans Help Model Work

- ⇒ **Expression of future possible actions.**
- ⇒ **Tell who might do those actions.**

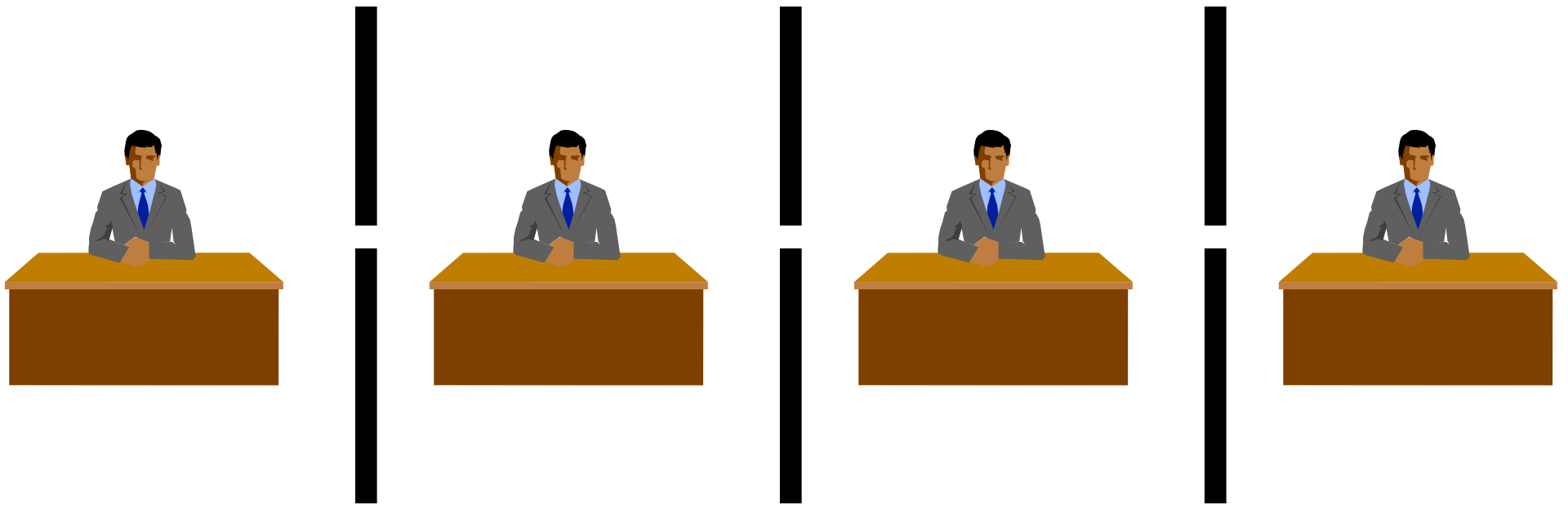
Extensions:

- ⇒ **Communicates current status.**
- ⇒ **Keep a list of past actions.**

Why Model Work?

- ⇒ **Automating work on a computer requires a model for how that work is done.**
- ⇒ **The ability for a system to support work depends on how well that model matches the actual work being done.**
- ⇒ **To answer the question of whether workflow can support BPR, we need to compare the workflow model of work, with the BPR model.**

Is This How Work Gets Done?



Or is Work Like This?



Office Work is Situated

- ⇒ **Many of our daily activities lack the rigorous repeatability required for a predefined process, yet have elements of process.**
- ⇒ **Work is seen as a collection of activities, some of which are enabled at the current time.**
- ⇒ **Focus on activities as a universal concept.**

Situated Processes

- ⇒ **Depend upon people involved**
- ⇒ **Depend upon specifics of instance of task**
- ⇒ **Change when situation changes**
- ⇒ **May be Competitive Advantage**
- ⇒ **May need to change in response to competitive pressures**
- ⇒ **Can not afford to be fixed into a single plan**

Situated Action

- ⇒ “[The term ‘Situated Action’] underscores the view that every course of action depends in essential ways upon its material and social circumstances.
- ⇒ Rather than attempting to abstract the action away from its circumstances and represent it as a rational plan, the approach is to study how people use their circumstances to achieve intelligent action.”
 - » Lucy Suchman, 1988

2 Kinds of Processes

⇒ Formal Process

- About 12% of all office work can be formalized.
- Often automated as an application dedicated to this process: Bank Teller, Accounting, Order Processing
- Workflow (if used) is just a way to help distribute the application among users

⇒ Situated Processes

- Other 88% of office activities lie in this domain.
- Users use standard productivity tools, WP, SS, DB, or applications specialized to the task and not the process.
- Workflow integrates tools specialized for user's task into a process.

No Fixed Plan

“To fill this gap between formal theory and wisdom, we need a framework that recognizes that the set of activities to be performed is not given in advance, except in a most general way - that one of the very important processes in organizations is the elaboration of this set of activities, and determination of which precise activities are to be performed at which precise times.”

» March & Simon, 1959

Who Knows the Process?

- ⇒ **Trainers can teach the basic skills, but not the specifics of an activity.**
- ⇒ **Co-workers can observe the activity, but can not know the internal rational behind decisions.**
- ⇒ **Even the worker is not completely aware of all actions or why particular choices are made.**
- ⇒ **The answer: No one!**

Job is Largely Unknown

- ⇒ **“The skilled carpenter knows just how a given variety of wood must be handled, or what type of joint will best serve his purpose at a particular edge. To say that he ‘knows’ these things is not to say that he can put these ideas into words. That is never entirely possible. ... The practitioner’s knowledge of the medium is tacit.”**

» **Ulric Neisser, 1983**

Plans: Resources for Action

“Just as it would seem absurd to claim that a map in some strong sense controlled the traveller’s movements through the world, it is wrong to imagine plans as controlling actions.”

» Lucy Suchman, 1988

Planning is like Communications

It is possible for people to talk to each other during a thunderstorm:

“Our communications succeed in such disruptive circumstances not because we predict reliably what will happen and thereby avoid problems, or even that we encounter problems that we have anticipated in advance, but because we work, moment by moment, to identify and remedy the inevitable troubles that arise.”

» Lucy Suchman, 1988

References from Part 1

- ⇒ **Organizations - March & Simon**
- ⇒ **Plans and Situated Action - Suchman**
- ⇒ **Corporation of the 90's - Scott Morton**
- ⇒ **In the Age of the Smart Machine - Zuboff**

Part 2

Business Process Re-engineering

BPR is NOT...

Distorted definitions of BPR appear from time to time. For example:

“Simply put, [BPR] is any approach that can dramatically improve a company’s performance, productivity, and profitability by altering key business activities.”

» Uniforum Monthly, Jan 1995

Key Elements of BPR

⇒ Process Orientation

Business must be viewed as being composed of processes which satisfy customer demands.

⇒ Quantum Leap due to I.T.

The newly designed processes must consider, from a fresh perspective, how Information Technology can best be used.

Productivity Paradox

- ⇒ **Billions of \$ spend on Information Technology**
- ⇒ **No evidence at aggregate level of any increase in white collar productivity.**

Why?

Management in the 90's

“In order to gain the improvements in productivity that we seek, it is necessary to rethink the processes that are currently being used and, in many cases, to transform the organization dramatically to gain the improvements in productivity that IT makes possible.”

» Stuart E Madnick, 1991

BPR vs. TQM

⇒ BPR

- proposes dramatic change
- change due to information revolution
- Synonym: Process Innovation

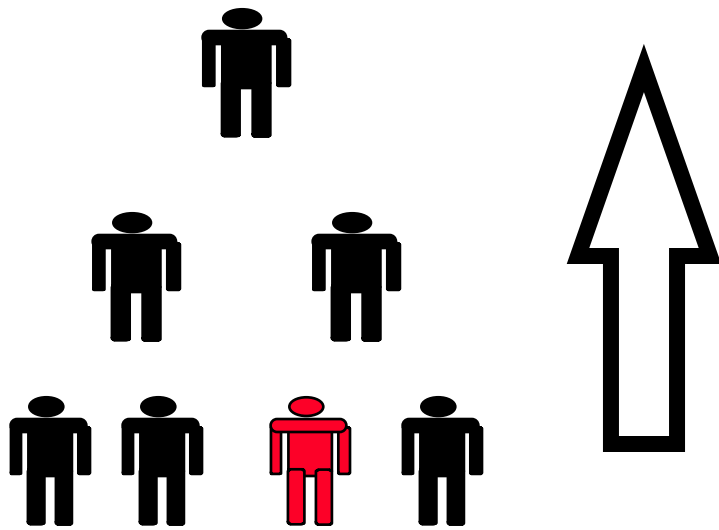
⇒ Total Quality Management (TQM)

- gradual change
- any kind of change
- Synonym: Process Improvement

⇒ Both BPR and TQM

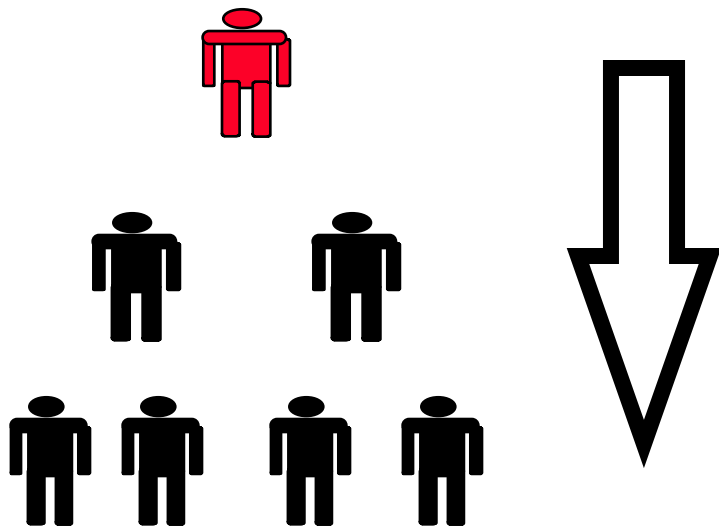
- Have a process orientation
- Require input from workers themselves

Improvement: Bottom-Up



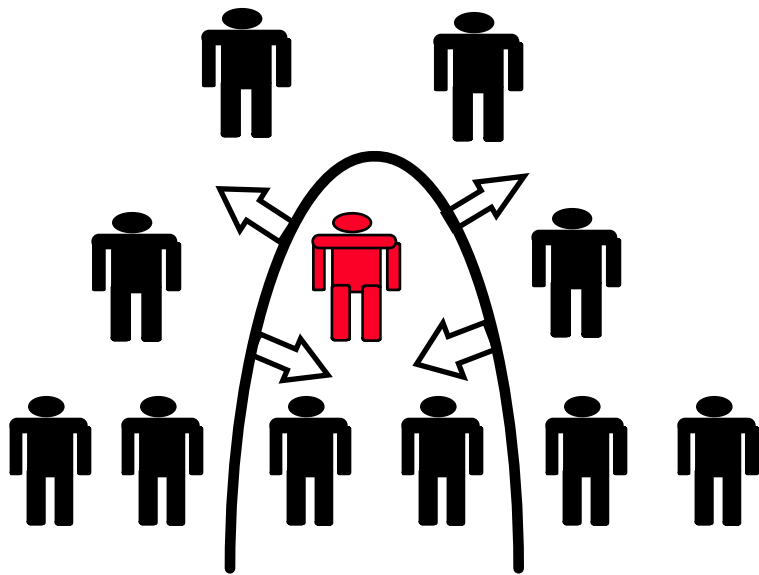
Process Improvement, or TQM, deals with the details of the process, requiring an intimate knowledge of the process, and is for that reason motivated from bottom up.

Innovation: Top Down



Process Innovation, or BPR, proscribes a radical change that redefines the processes from a fresh perspective. This must be motivated and supported from top.

Reality: Middle-Out



Those above or outside of an organization might view a given change as incremental, while those inside the organization might view the same change as radical innovation.

It all depends upon your perspective.

BPR is Collaborative

“The actual work of reengineering ... is the job of the reengineering team members.”

“Insiders by themselves, however, are incapable of reengineering a process”

» Hammer and Champy

BPR supports Individualism

Organizations are urged to

- ⇒ Form their own BPR teams**
- ⇒ Find the process right for them**

It does not propose that there is one best process for everybody

B.P.R. References

- ⇒ **Sloan Management Review July 1990, Hammer**
- ⇒ **Reengineering the Corporation 1993, Hammer and Champy**
- ⇒ **Process Innovation - Tom Davenport**
- ⇒ **Management in the 1990's - Scott Morton**
- ⇒ **Business Reengineering with Information Technology - Donovan**

Part 3

Workflow:
State of the Art

What is Workflow Management?

Automation of procedures or workflows where documents, information or tasks are passed from one participant to another in a way that is governed by rules or procedures.

» **Workflow Management Coalition**

Workflow Origins

- ⇒ **Grew out of office automation, and paperless office movements in the 70's.**
- ⇒ **Earliest implementation: Michael Zisman**
 - PhD thesis, Wharton School, 1977
- ⇒ **Significant contribution: Clarence Ellis**
 - “OfficeTalk” at Xerox PARC, around 1980
- ⇒ **Term “workflow” coined by industry**
 - around 1984, possibly FileNet

3 Reasons for Popularity of Workflow

- ⇒ **Relative Ubiquity of Networking Infrastructure**
- ⇒ **Recession of Early 90's --> Downsizing**
- ⇒ **Trend toward Process Orientation in Management**

Separation of Process Rules

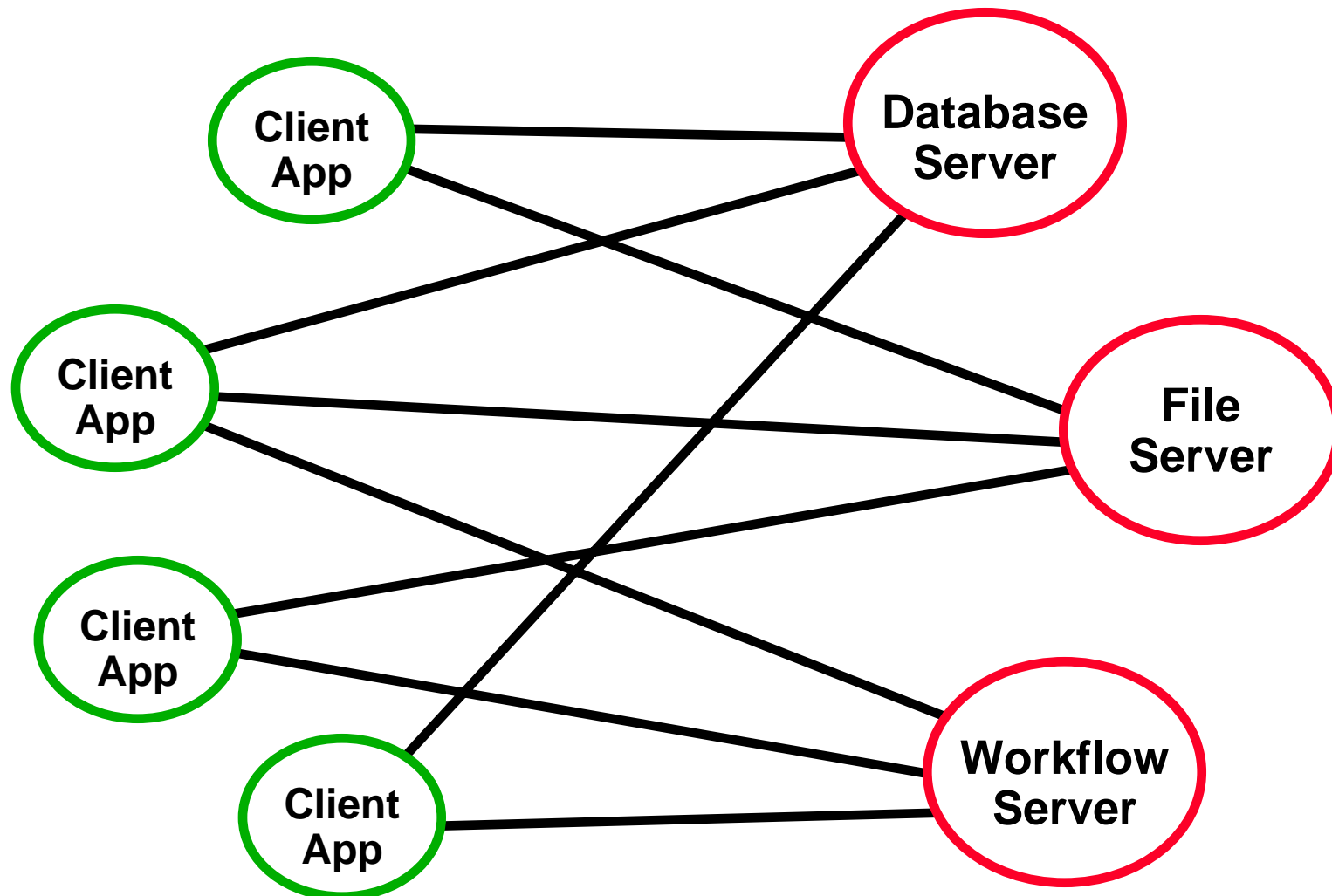
⇒ 1980's Database Technology

- separation of the data storage from applications
- allows applications to share data, to be “data integrated”
- protects data from changes and improvements in application

⇒ 1990's Workflow Technology

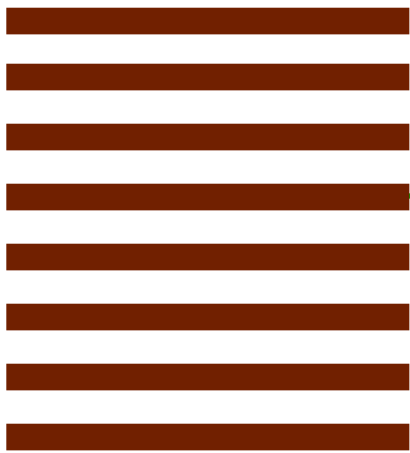
- separation of process rules from the applications
- allows applications to participate in workflow, to be “process integrated”
- protects applications from changes and improvements in business processes

A New Service



Process Lifecycle

**Process Definitions
(Templates)**



Start



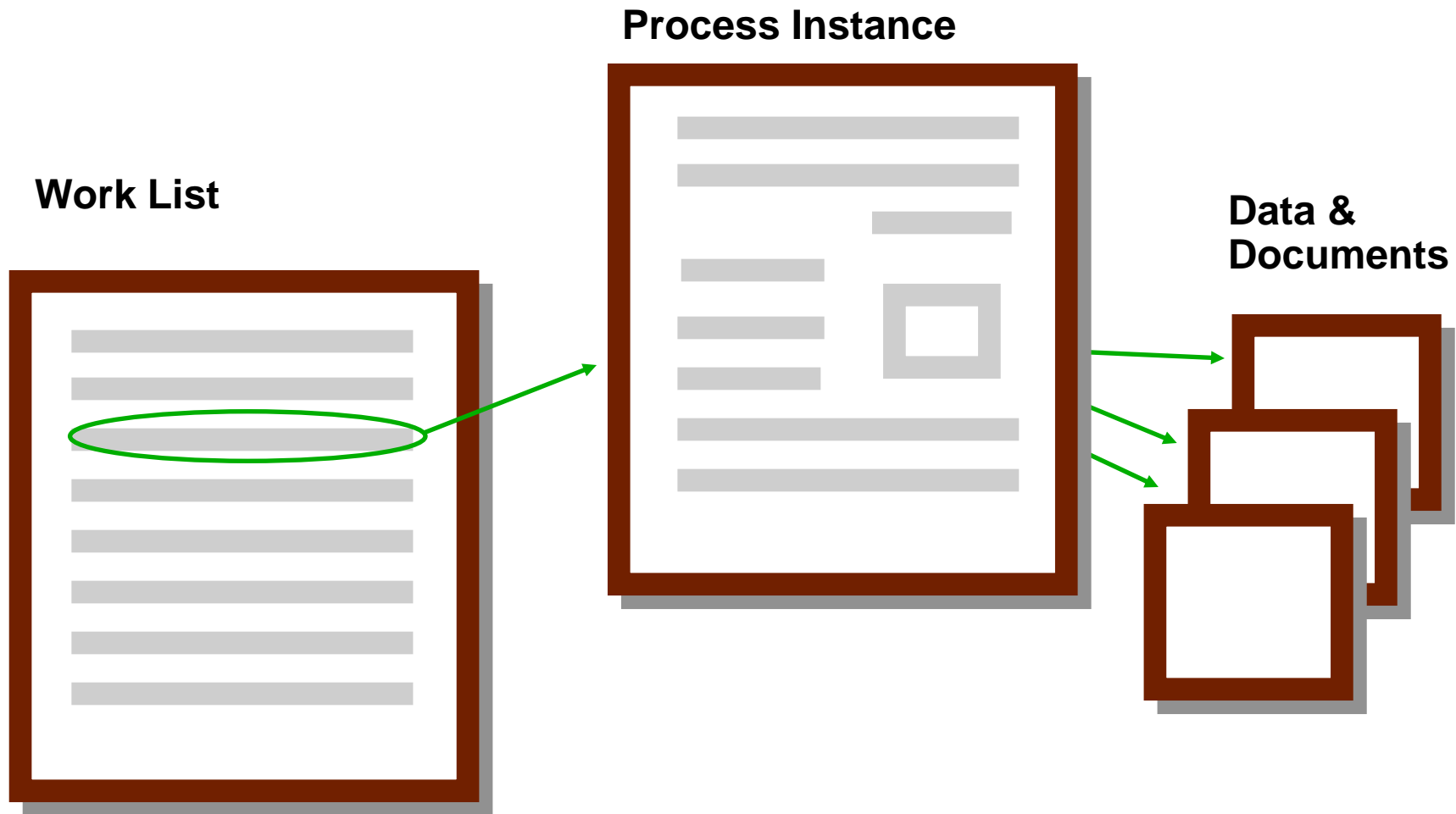
Process Instance



Complete

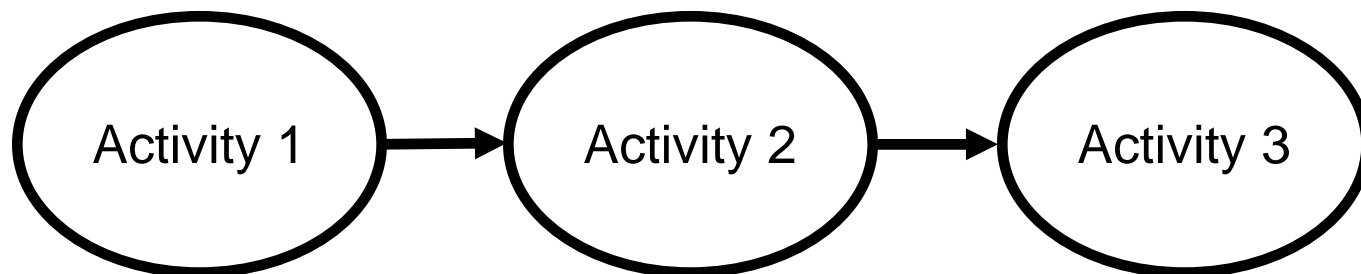


User Interaction Sequence



Activity Orientation

- ⇒ **Underlying model is that a process consists of a collection of activities.**
- ⇒ **The activities are sequenced “somehow”**



Good Automation Candidates

- ⇒ If process involves a number of people
- ⇒ If a large number of instances must be tracked
- ⇒ If process lasts a long time
- ⇒ If mistakes are expensive
- ⇒ If people are located far from each other

Part 4

Workflow: Standards for Interoperability

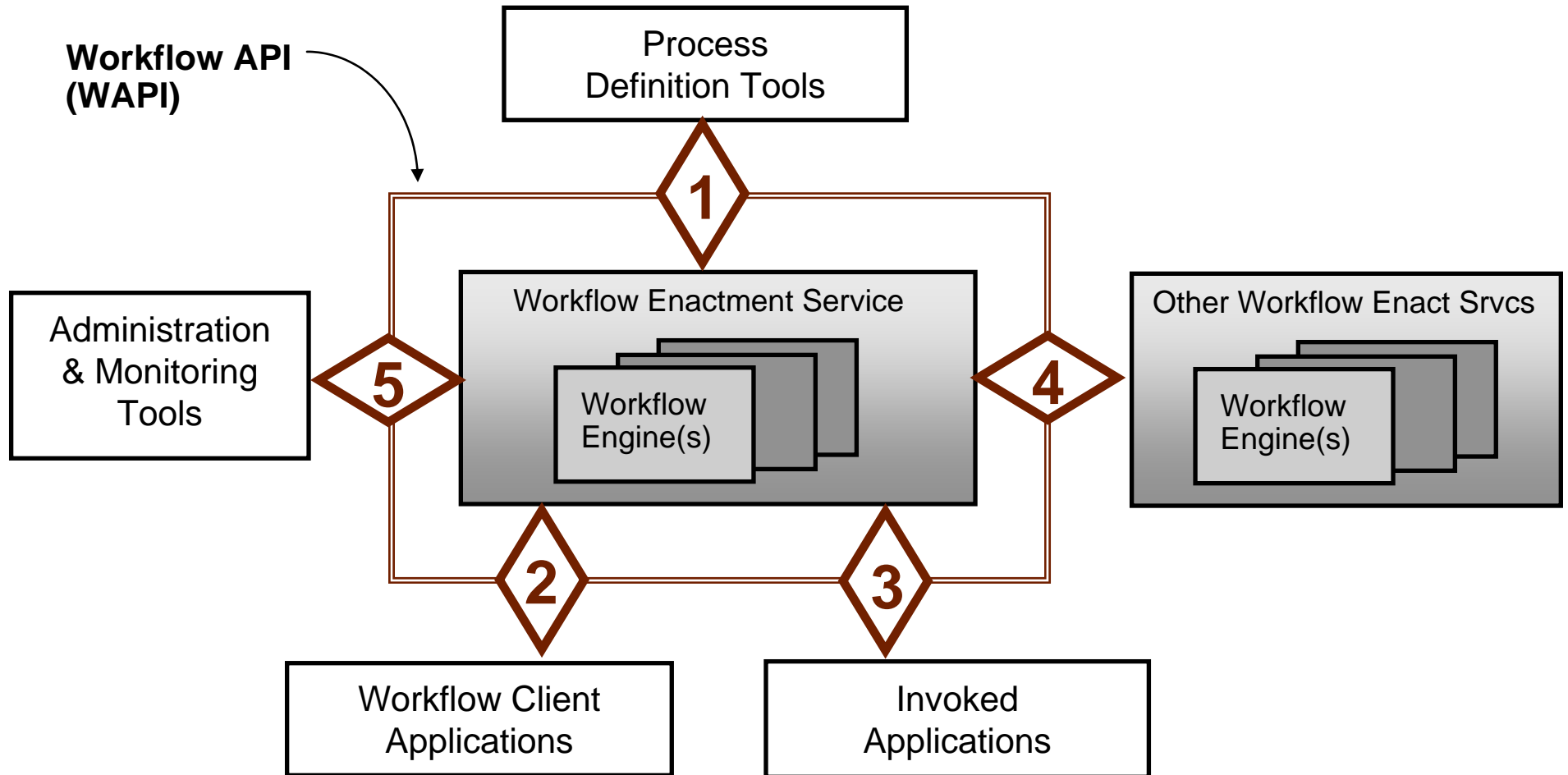
The Workflow Management Coalition

Founded in 1993, the Workflow Management Coalition is a non-profit, international organization of workflow vendors, users and analysts committed to the establishment of standards for workflow terminology, interoperability and connectivity.

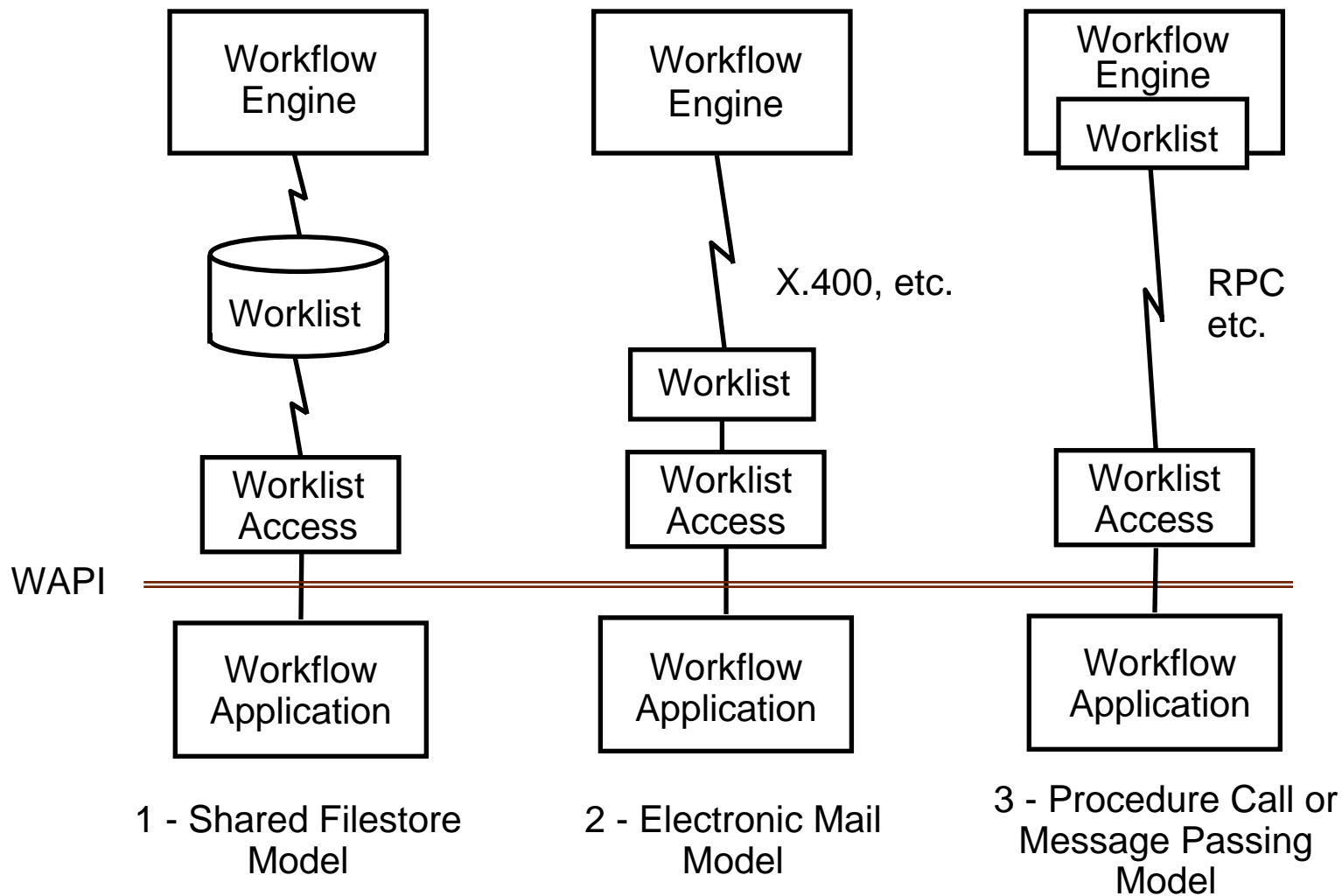
Goals of WfMC

- ⇒ **Common API's to workflow services and functions for use by corporate developers, third party developers and other Workflow Management Coalition members**
- ⇒ **Provide standards for interoperation between different workflow products**
- ⇒ **Exchange business process definitions between different workflow models**

Workflow Reference Model

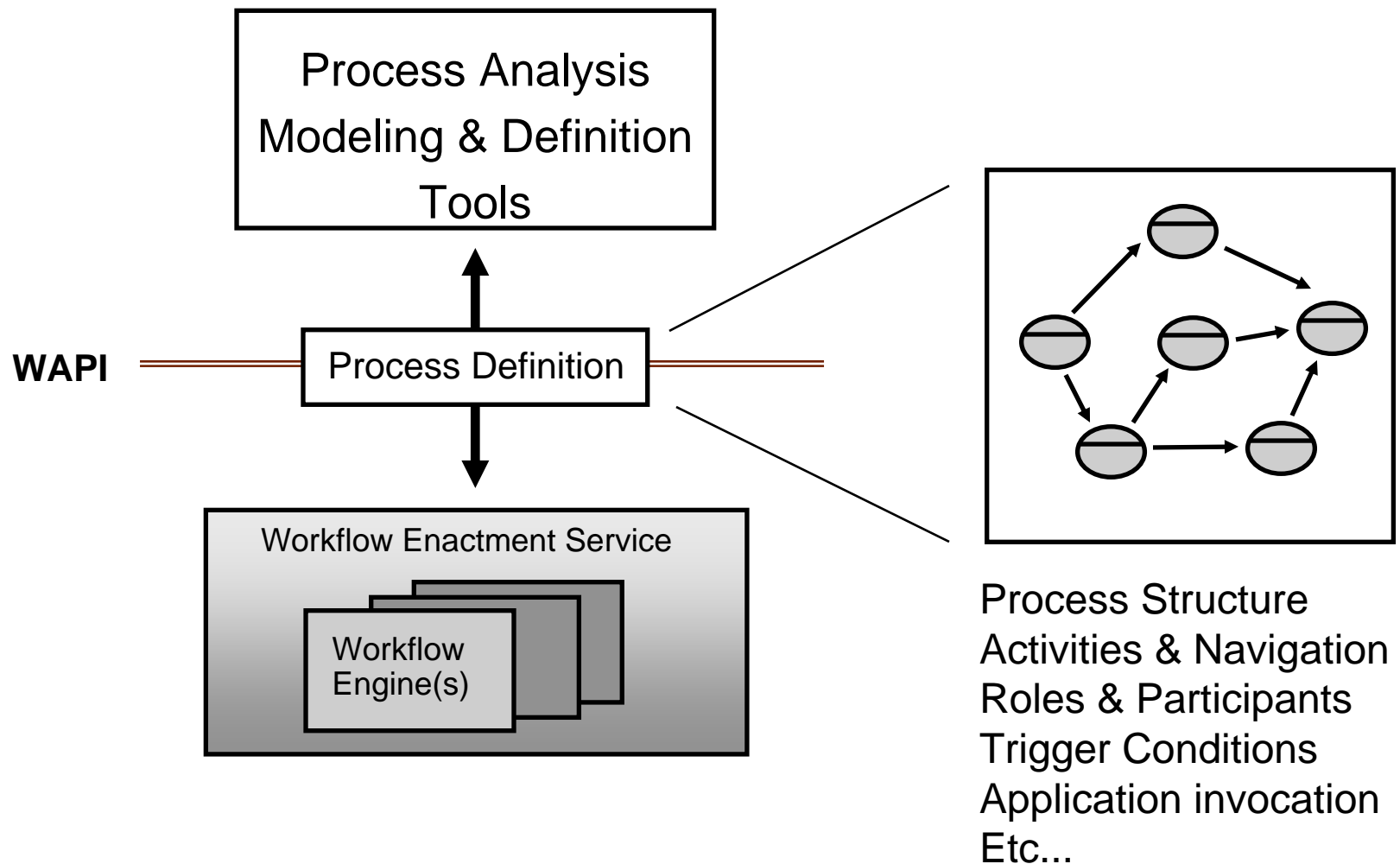


Implementation Scenarios



1

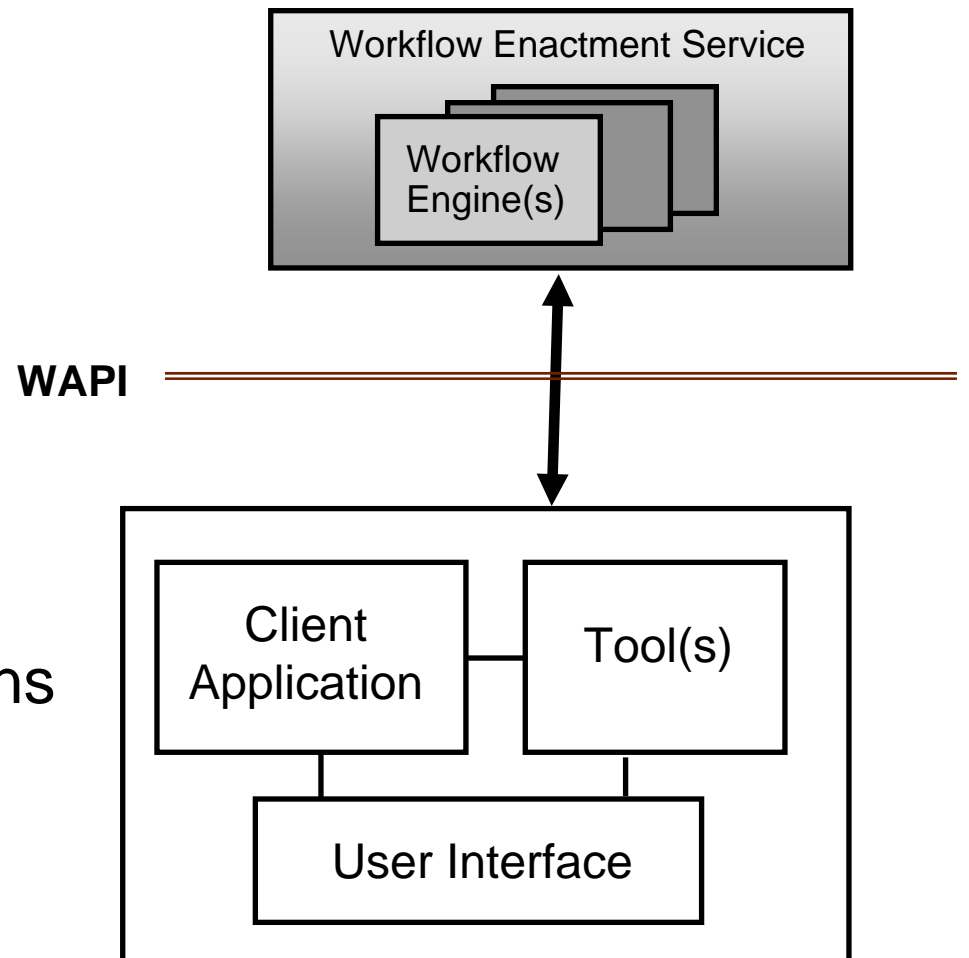
Process Definition Import/Export





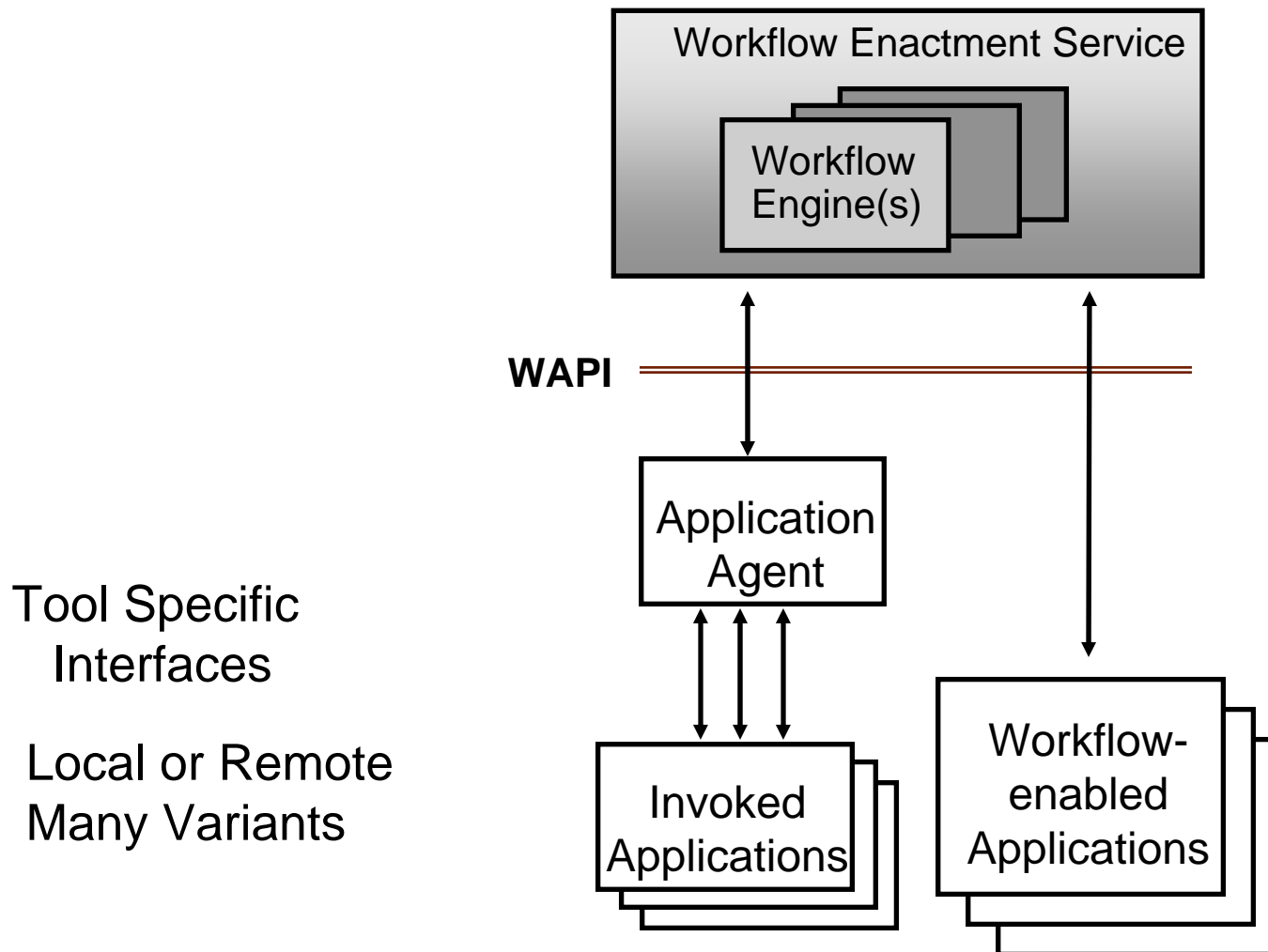
Client Apps Interface

Connection/Disconnection
Process & Activity Control Functions
Process status Functions
Worklist Manipulation Commands



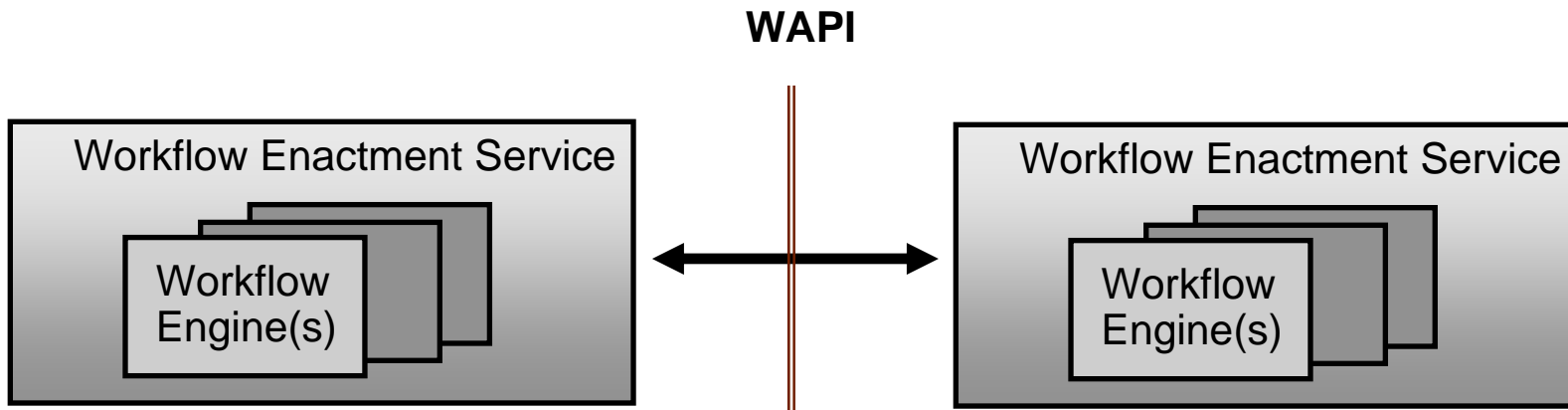
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Application Invocation



4

Interoperability: Workflow Service



Scenarios:

Simple Gateway - inter-process connection

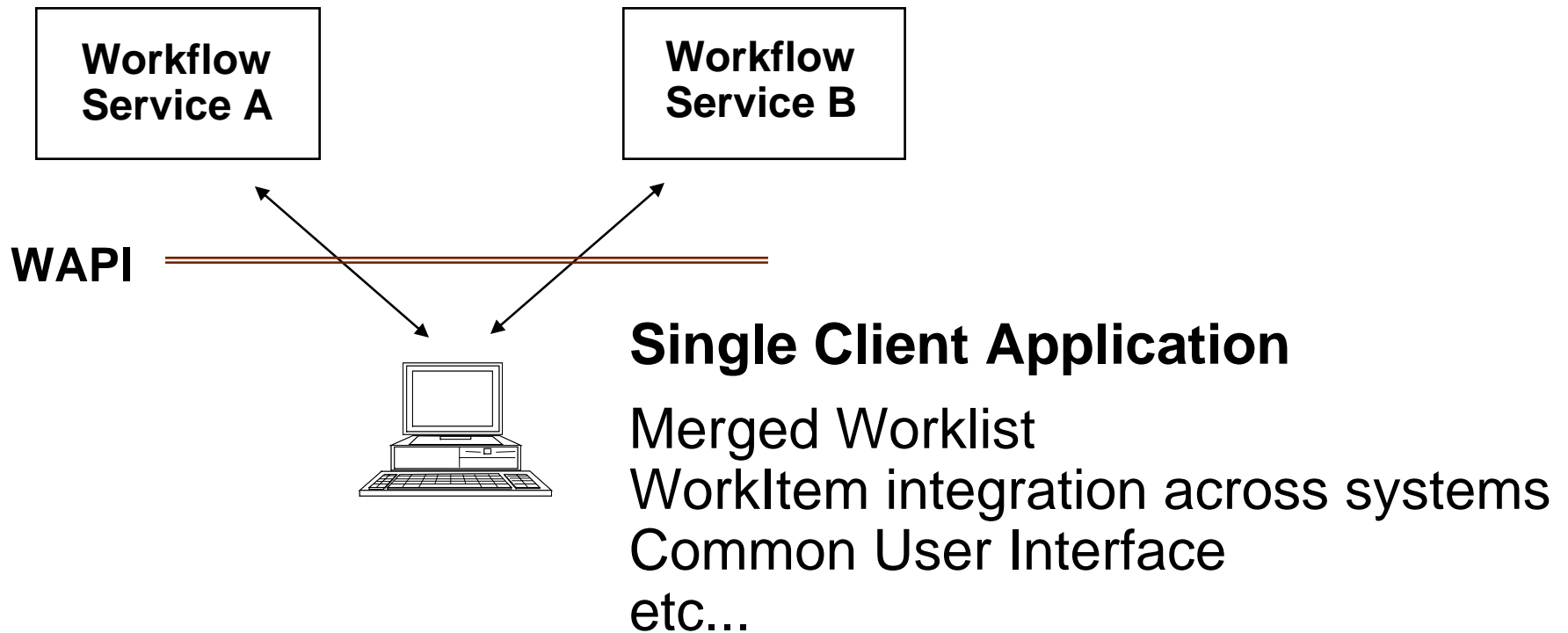
Hierarchical - nested subprocesses

Peer-to-Peer - fully shared process enactment

Independent - with synchronization points

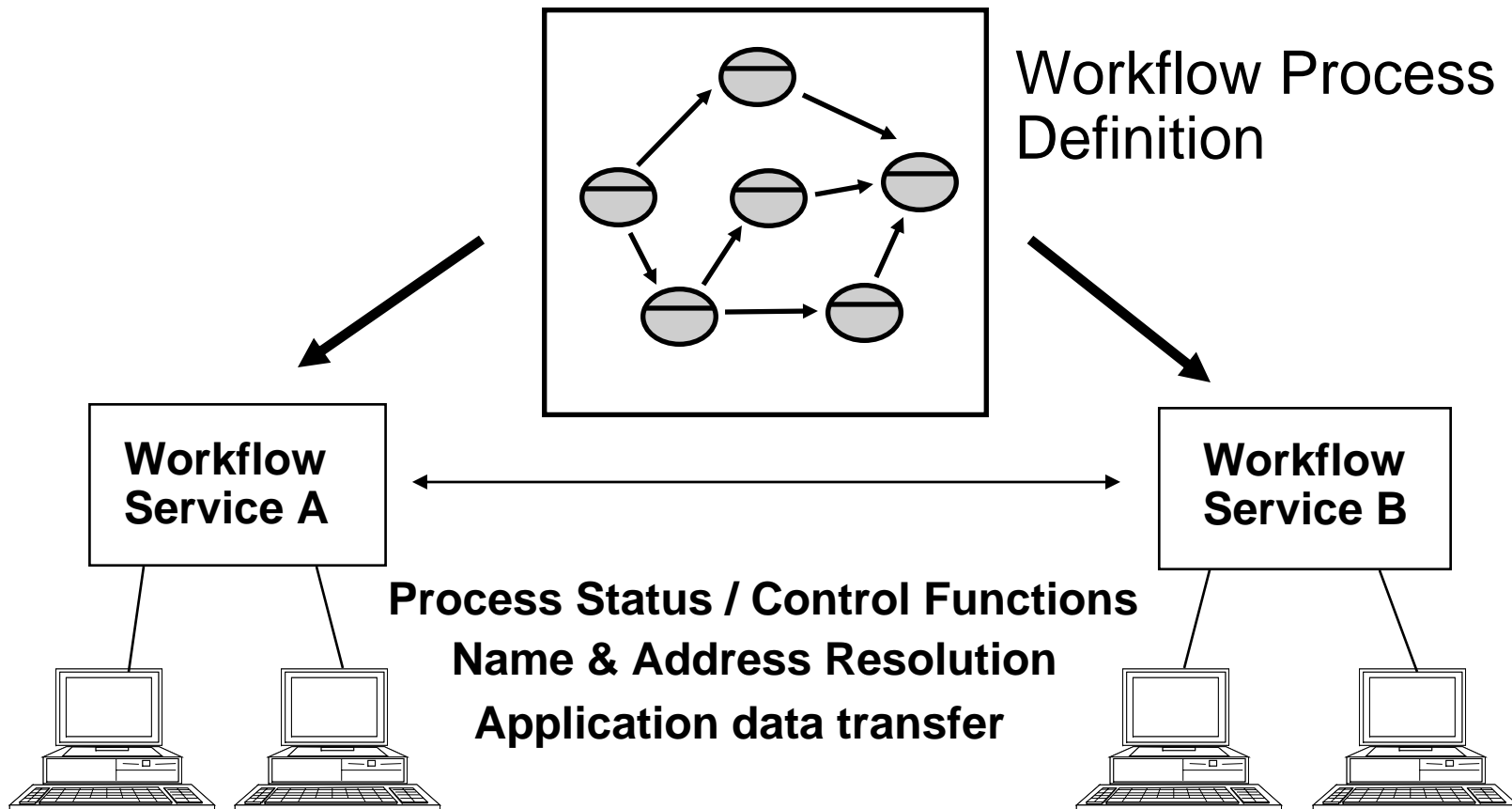
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Interoperability: Common Client



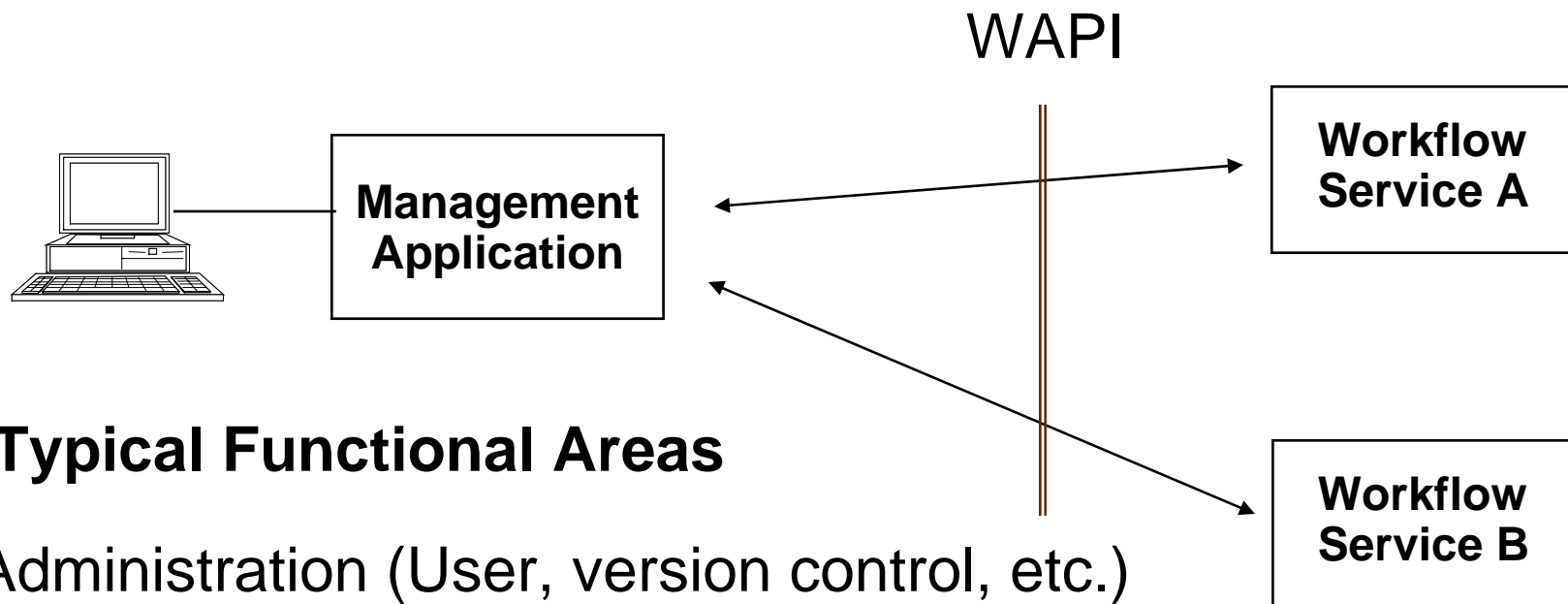
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Interoperability: Workflow Service



5

Admin & Monitoring



Typical Functional Areas

- Administration (User, version control, etc.)
- Role management
- Audit management
- Metrics
- Resource management

Process Interchange

MIT Center for Coordination Science is developing a standard Process Interchange Format (PIF) to:

- ⇒ **Allow BPR teams to express plans in a way independent of specific workflow.**
- ⇒ **Allow plans developed for one workflow system to be moved to another.**
- ⇒ **Allow specilzed process analysis tools to be linked to real workflow systems.**

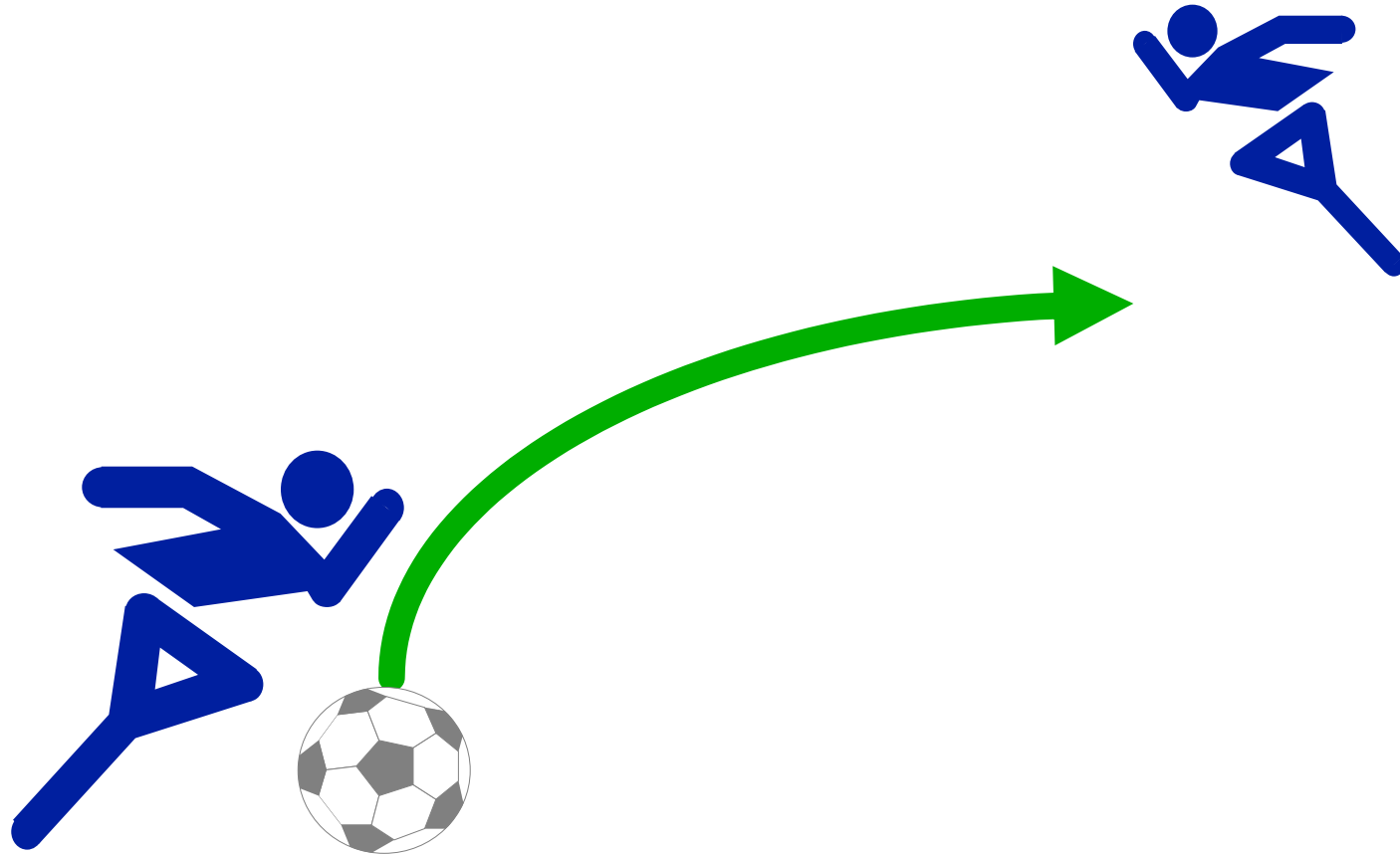
References From Part 4

- ⇒ **Workflow Management Coalition**
 - » Avenue M. Thiry 204
 - » B-1200 Brussels, Belgium
 - » +32 2774-9633
 - » 100113.1555@compuserve.com
- ⇒ **WfMC Glossary**
- ⇒ **WfMC Reference Architecture (to be published)**
- ⇒ **Center for Coordination Science (MIT), Process Handbook Project**

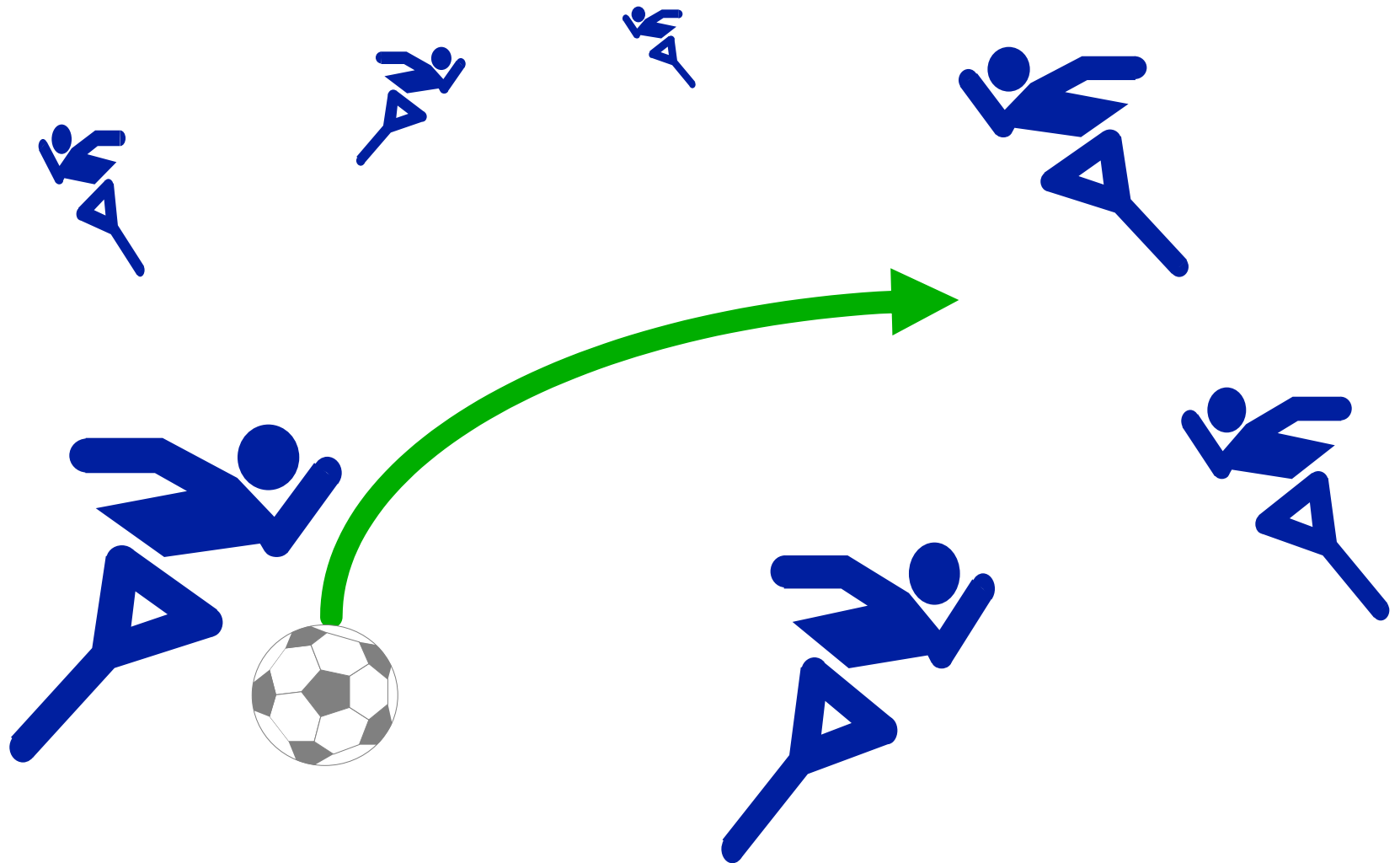
Part 5

Application of Workflow to BPR

Worldcup Analogy



Worldcup Analogy



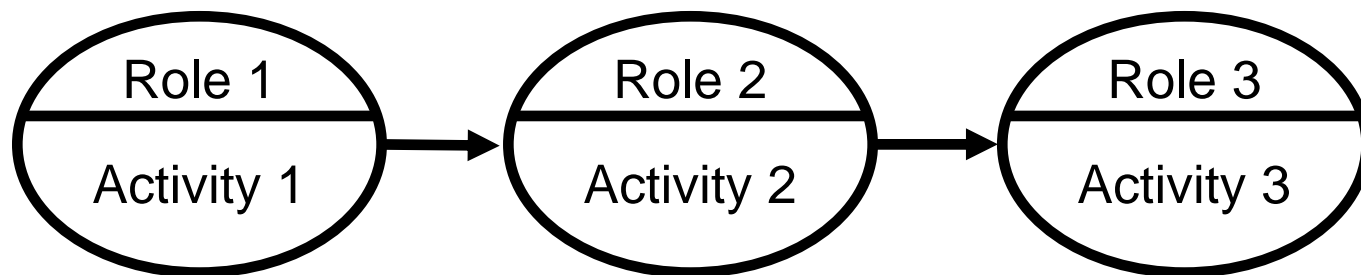
Intangibles

- ⇒ **Office work consists of tangibles and intangibles.**
- ⇒ **By focusing only on tangibles, one might miss important aspects of what is really happening.**
- ⇒ **Intangibles may not be readily apparent.**

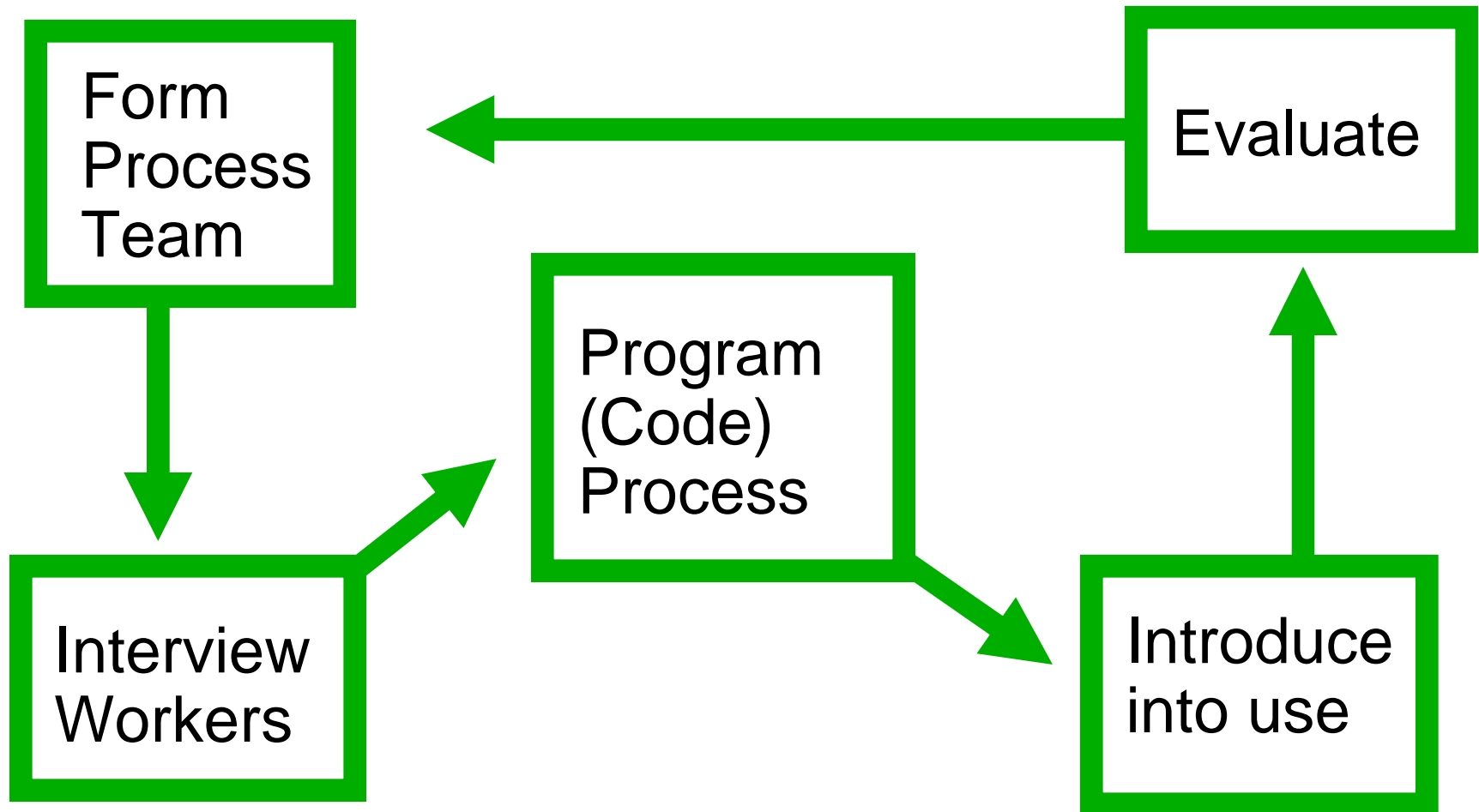
Conclusion 1

Workflow software that focusses on Documents might not support all kinds of work.

Focus on Activities instead.



Standard Meta-Process



Fixed in Stone

- ⇒ **Implementation of a process in a workflow system may have the effect of “fixing” the process in a certain version.**
- ⇒ **If a programmer is required to change the process, the cost of change may be too high, thereby preventing change.**

BPR needs Plans - Not Programs

- ⇒ Trend toward plans which describe a particular instance of a process.
- ⇒ Plans can account for the specific situation.
- ⇒ Plans are expressions, like documents, and are used to explain the process to others.
- ⇒ Plans can be created and modified by regular office workers.

Conclusion 2

Situated Processes need flexibility to change the process.

Workflow that does not have this ability to continually change process plans might not be able to support situated processes.

Situated Tennis

- ⇒ **Doubles Tennis is not just tennis with two people on each side of the net.**
- ⇒ **The number of players changes the game and strategy in fundamental ways.**
- ⇒ **The exact strategy depends upon who the players are.**
- ⇒ **Work must be planned “in the situation”.**

Conclusion 3

Processes need to be individualized.

Workflow that constrains the entire organization to the same process plan might not allow teams to work optimally.

Politics of Workflow

- ⇒ **Why is everyone talking about defining someone else's job?**
- ⇒ **Control of process definition means control of others.**
- ⇒ **Who will hold this power?**

Be Careful...

When automating work processes we must be very careful, because:

- ⇒ **Workers are intelligent**
 - Simple coding of rules into a computer will not work.
- ⇒ **Workers want flexibility**
 - Workers don't want to lose control over their activities and status reports.
- ⇒ **Exception Handling**
 - Ability to work around rules is critical to an efficient organization.
- ⇒ **The work place environment is very important to workers.**

Keep Workers Involved

- ⇒ **“Technological design embodies assumptions that can either invite or extinguish a human contribution”**
- ⇒ **“There is a need to create organizational environments that support the quality of effort and the kinds of relationships in which intellectual competence can be demonstrated.”**

» Shoshanna Zuboff, 1988

Conclusion 4

Workflow can change the balance of power in an organization.

Workflow that is centrally controlled might only be suitable for a very centralized organization.

Distortion of Process

- ⇒ **Since the workflow process definition is an expression of an intangible, it is only natural that it will not represent it perfectly.**

Conclusion 5

- ⇒ **The BPR team will need to choose a workflow tool that represents processes in a way that is natural to them.**

Find the right Match

**Organizational
Quality**

Sensitive to...

Quiescence

**Cost of change of
process**

Coherence

**Cost of change of
process**

Autocratic

Centralized Control

Part 6

The Future of Workflow: A Tool Designed for BPR

Collaborative Planning

- ⇒ **BPR is essentially planning, but it involves a team to collaborate to find the best process.**
- ⇒ **Workflow is good for enacting plans, but has little support for the planning activity itself.**

Therefore:

- ⇒ **We call the tool that should support the BPR activity itself a “Collaborative Planning” tool**

What is CP?

Collaborative Planning is concerned not with the process definitions, but rather the process by which those definitions are created.

Sharing in Planning

- ⇒ **Planning is a run-time activity of drawing up a process description.**
- ⇒ **Planning must not require a programmer.**
- ⇒ **Many people can be involved at same-time or at different times.**

Control of Planning

But the change must be controlled, so:

- ⇒ Process Definition must be fragmented so that different users can have different rights for different parts of the process.**

Planning in the Situation

- ⇒ **Ability to add activities on the fly means that the plan does not have to be complete from the start.**
- ⇒ **Planners can wait until they are “in the middle of the process” to add activities for the particular situation.**
- ⇒ **All possible exceptions do not need to be accounted for in advance.**
- ⇒ **Activities are situated in the context of the plan and need only enough details to make sense in that situation.**

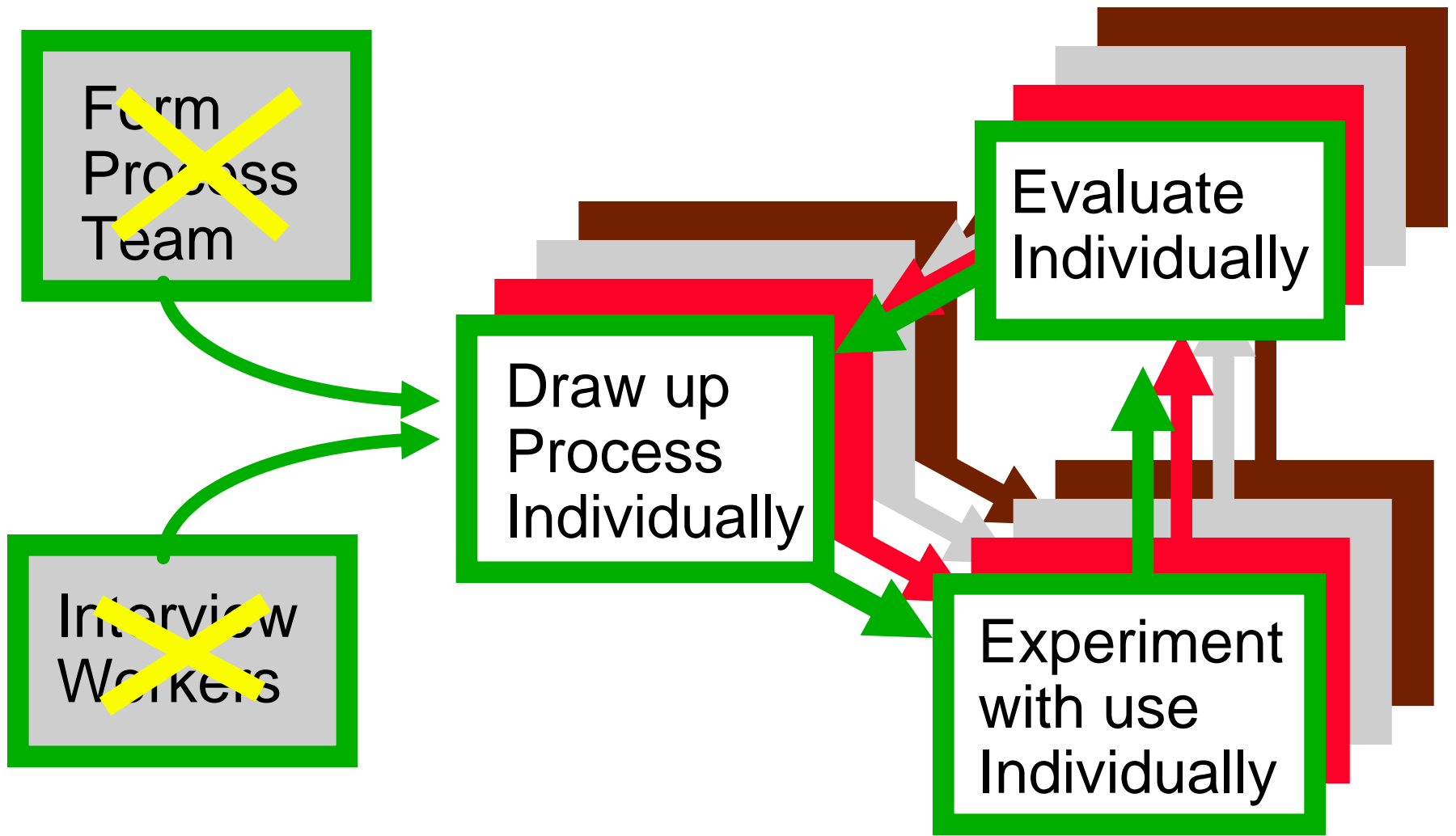
Support of Individualization

- ⇒ **Planners must be able to paste pre-defined pieces into the plan.**
- ⇒ **Different groups must be able to have different versions of the same piece of a process.**
- ⇒ **Different instances may need different versions of the pieces, depending upon the situation.**

Process Capture

- ⇒ **Individuals (or small groups) try out processes.**
- ⇒ **They change only the part of the process they own.**
- ⇒ **No distinction between user mode and planning mode.**
- ⇒ **If the process is incomplete or wrong, changes can be made immediately - in effect learning.**
- ⇒ **The quality of the process increases until it is satisfactory.**
- ⇒ **No need to know how the process works from the beginning, like the way people learn their job.**

Collaborative Planning



CP Decentralizes

- ⇒ Rather than centralized creation and control of process definitions, CP gives this capability out to smaller groups, even individuals.
- ⇒ Users have control over their own processes.
- ⇒ Improvements can be made on the spot, without having to get buy-in or sign-off from the entire organization.

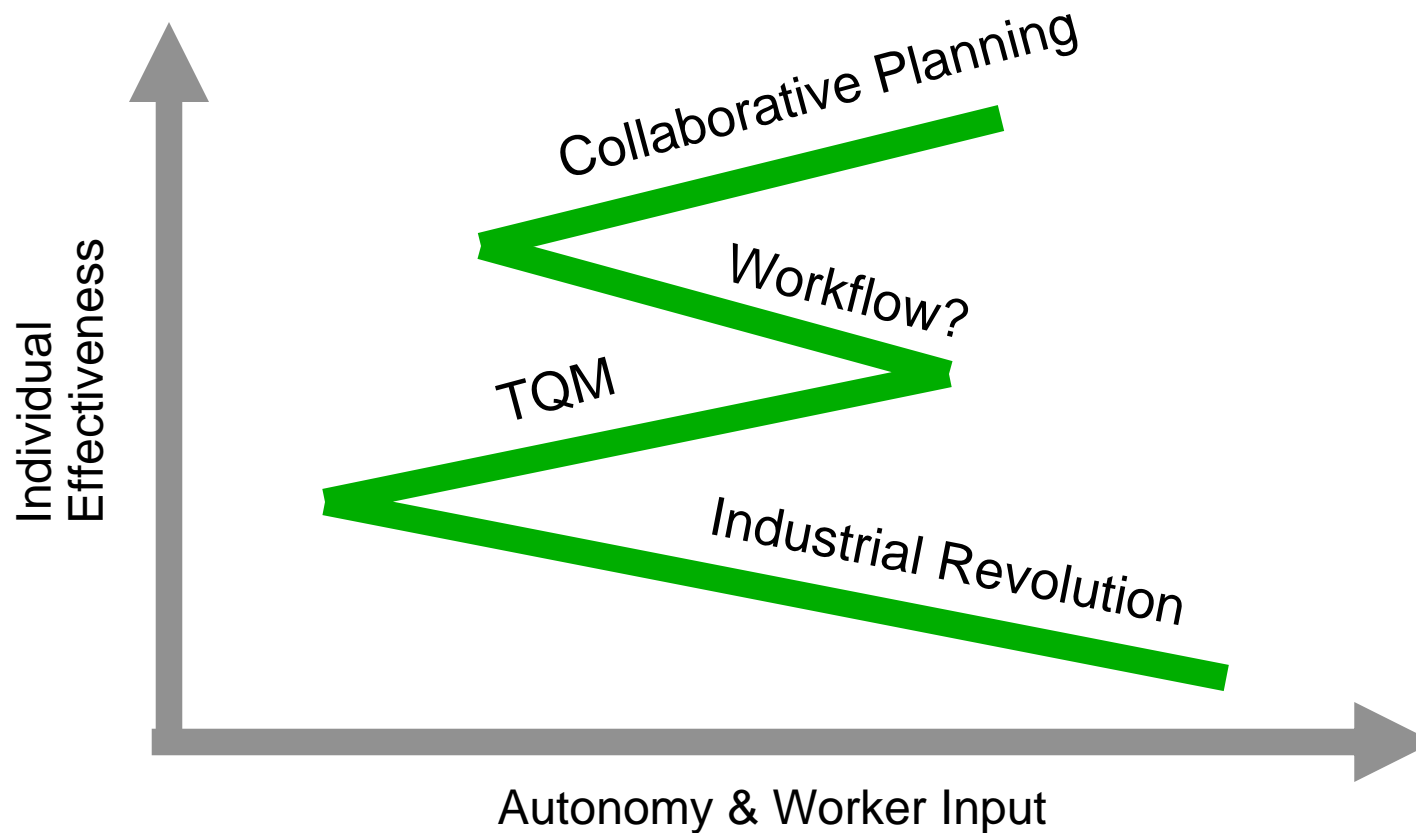
Investment before Payback

- ⇒ **How many people and how long does it take to develop a workflow process?**
- ⇒ **What if it is wrong? How quickly can it be changed?**
- ⇒ **Will you be able to respond to external changes. Will a workflow system hold your company back?**
- ⇒ **The biggest barriers to workflow use: Cost & Risk.**

CP Reduces Initial Investment

- ⇒ Complete process description not needed before starting.
 - ⇒ Since the system is designed around exceptions and responding to them, there is no need to code all possible situations from the start.
 - ⇒ Design for change makes a collaborative planning system more responsive.
- ⇒ Better fit for non-quiescent organizations

Management Swings



Effects and Benefits of CP

- ⇒ **Changes the cycle needed for developing processes. --> More Responsive.**
- ⇒ **Allows for more parallel development of process descriptions. -->Decentralized**
- ⇒ **Better fit across all groups --> Individualization**

Collaborative Planning

- ⇒ **Many people can share in planning**
- ⇒ **Different parts owned by different people**
- ⇒ **Plan composed from reusable pieces**
- ⇒ **Changes allowed at any time**
- ⇒ **Plans are specific to the instance**

The result is that the actual process of BPR is supported by a Collaborative Planning tool.

Design For Change

- ⇒ **First Generation Workflow can be made to support a process.**
- ⇒ **Second Generation Workflow recognizes that processes themselves change, and supports the activity of creating processes.**
- ⇒ **A Collaborative Planning tool is one that it is designed for continual improvement and re-engineering of processes.**

Administrivia

⇒ Please fill in Session Evaluation Forms

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