

Software Modeling

- Software Development Process

KUPE for Open Source Project

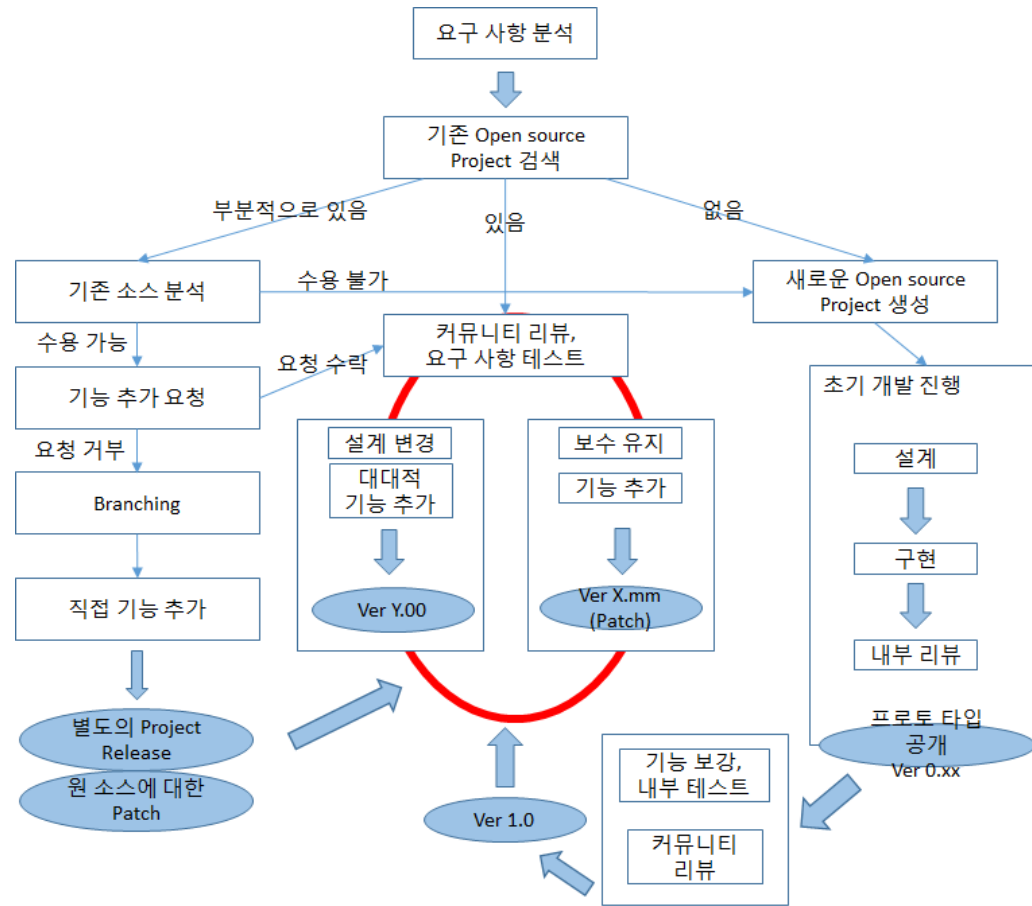
김민우
오현택
최수용

KUPE for Open Source Project

Open source project

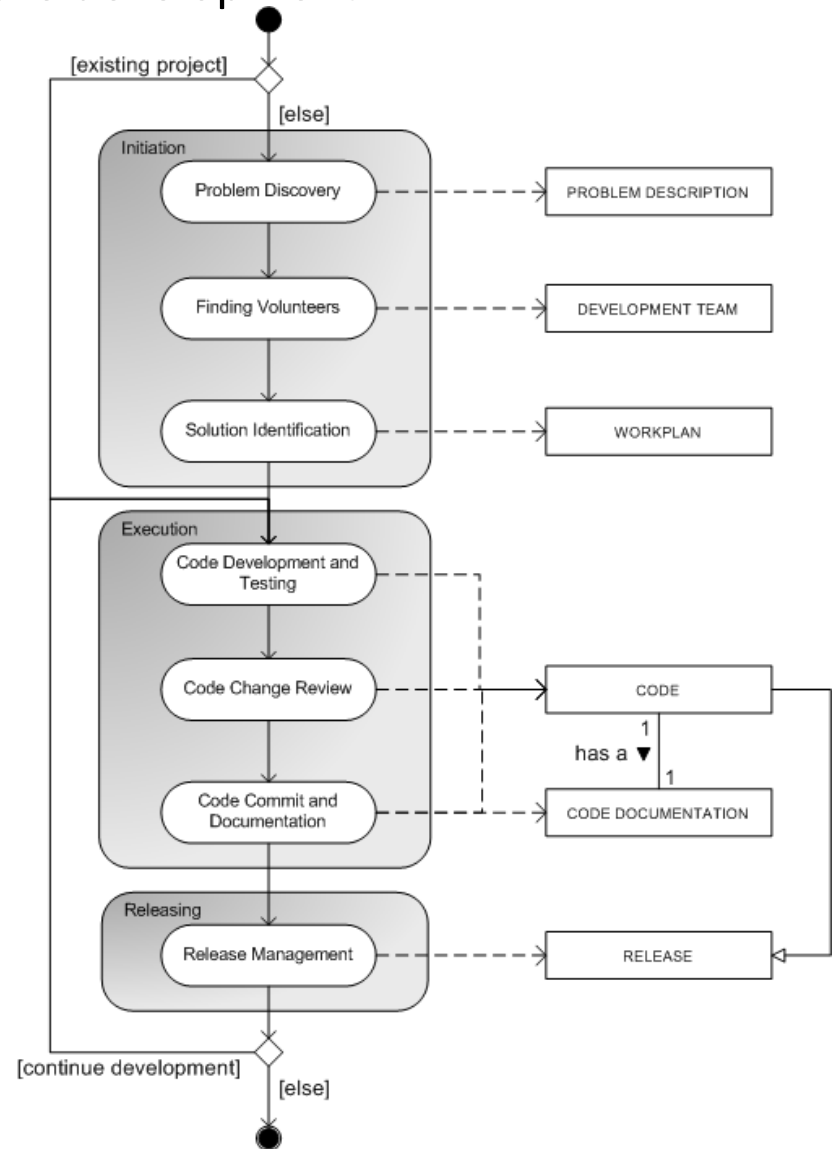
Open source project

Open Source Project Development Process



Open source project

Process-Data Model for open-source software development



Open source project

Open Source Project Task

- Coding
- Testing
- Patch Manage
- Documentation Manage
- Issue Manage
- Release Manage
- Code review
- ETC...

Open source project

Open Source Project Participants

- Manager
 - Patch Manager
 - Translation Manager
 - Documentation Manager
 - Issue Manager
 - Release Manager
- Committer
- Code reviewer
- ETC...

Open source project

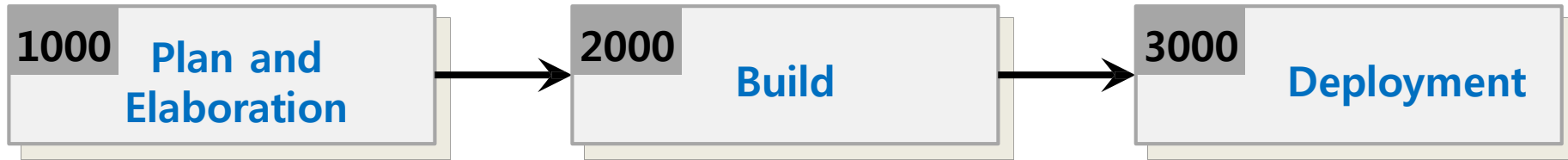
KUPE 에 적용할 수 있는 Open source Project 의 고려 사항

- 라이선스
- 메일링
- 커뮤니티
- IRC
- Wiki
- Merge manage
- ETC..

KUPE for Open Source Project

Application to KUPE

Application to KUPE



Stage 별 수정사항

- Open source Project 를 개발하기 위해서 전체적인 수정이 필요
- Open source project 참가자의 역할에 따라 Activity 가 다름.
 - Contributor (Coding committer) / manager (merge manager)
- 기존 KUPE 에 없는 라이선스, 메일링, 커뮤니티 관련 사항 추가

Activity 1001.5 Find Open Source Project

1001.5 Find Open Source Project

- Description
 - Find an Open source Project
 - Input : a draft project plan
 - Output : an Open source Project
- Steps
 1. Write motivation and objective of project
 2. Write scope of project
 3. Identify and write functional requirements
 4. Identify and write non-functional requirements
 5. Estimate resources (human efforts(M/M), human resources, duration, budget)

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Application to KUPE


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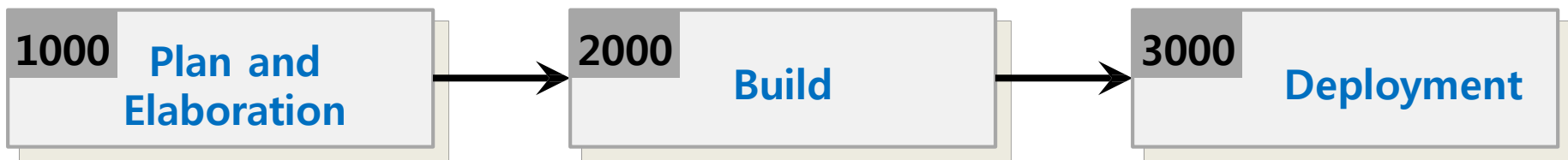
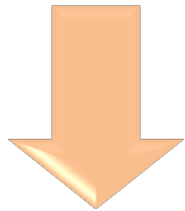
Added Activity

**Activity 1002.
Create Preliminary Investigation Report**


- 1002 Create Preliminary Investigation Report
- Description
 - Write an investigation report on alternatives, business needs, risk, etc
 - Input : draft project plan, **related open source project report**
 - Output : an investigation report
 - Steps
 1. Write alternative solutions (**include open source project**)
 2. **Write project's justification (business needs)**
 3. Identify and manage risks, and write risk reduction plans
 4. Analyze business market
 5. Write managerial issues

Modified Activity

Stage 1000. Plan and Elaboration



Activity 1001. Define Draft Plan

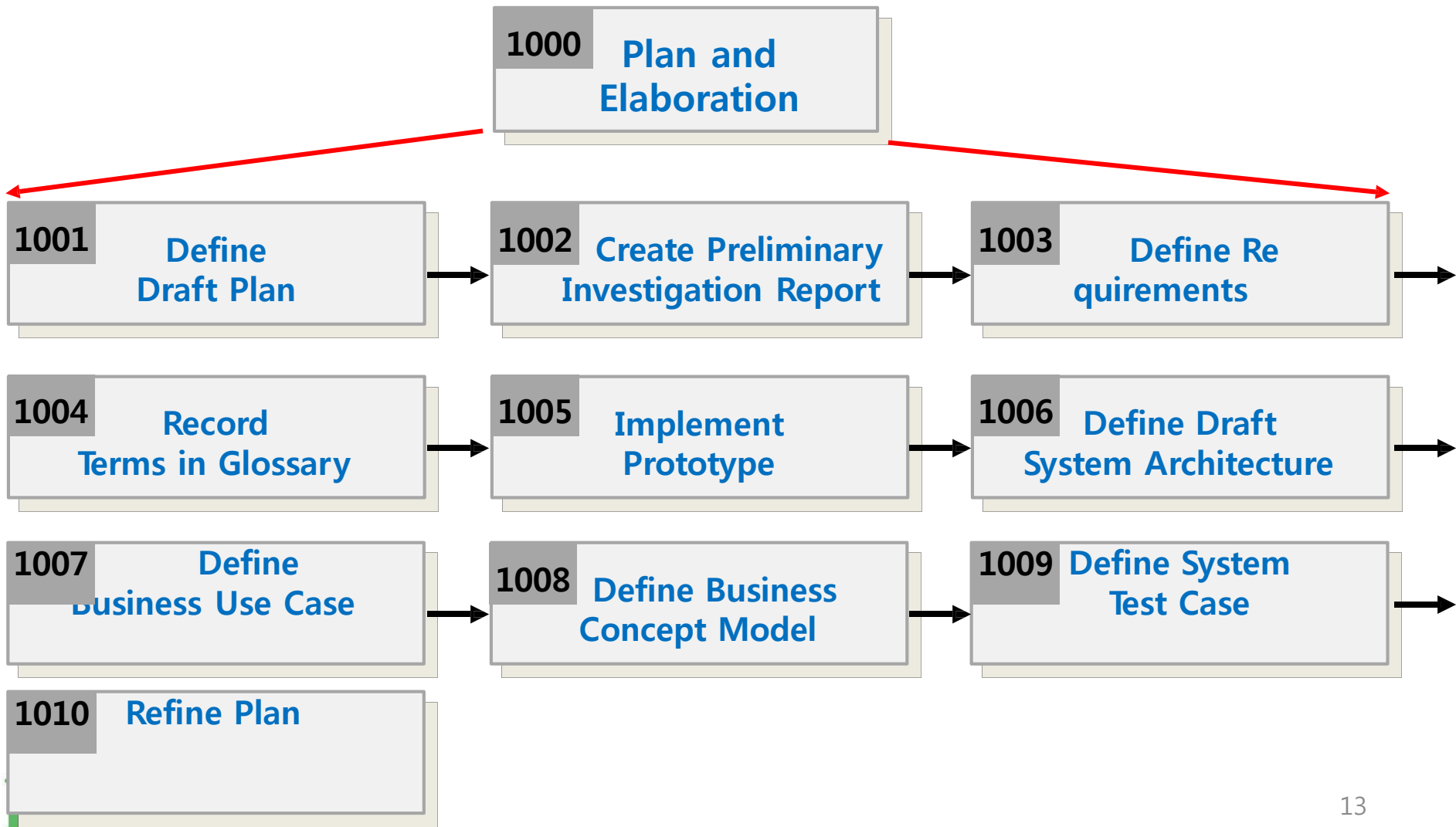
1001

Define
Draft Plan

- Description
 - Write a draft plan for schedule, resources, budget, objective, etc
 - Input : related documents of previous similar projects
 - Output : a draft project plan
- Steps
 1. Write motivation and objective of project
 2. Write scope of project
 3. Identify and write functional requirements
 4. Identify and write non-functional requirements
 5. Estimate resources (human efforts(M/M), human resources, duration, budget)

Stage 1000. Plan and Elaboration

- Stage 1000 Activities



Activity 1001.5 Find Open Source Project



1001.5 Find Open Source Project

- Description
 - Find an Open source Project
 - Input : a draft project plan
 - Output : related open source project report
- Steps
 1. Draft project plan 의 정보를 바탕으로 open source project 찾기.
 2. Open source project 가 있을 경우
 1. 같은 프로젝트일 경우 plan 과 같은 프로젝트로 분류 작성
 2. 비슷한 프로젝트일 경우 plan 과 부분적으로 같은 프로젝트로 분류 작성.
 3. Open source project 가 없을 경우 plan 에 부합하는 open source project 미존재로 분류 작성.

Activity 1002.

Create Preliminary Investigation Report

1002 **Create Preliminary Investigation Report**

- Description
 - Write an investigation report on alternatives, business needs, risk, etc
 - Input : draft project plan, **related open source project report**
 - Output : an investigation report
- Steps
 1. Write alternative solutions (**include open source project**)
 2. **Write project's justification (business needs)**
 3. Identify and manage risks, and write risk reduction plans
 4. Analyze business market
 5. Write managerial issues

Open source project 가 존재 하지 않을 경우.

- Activity 1003 수행.

Activity 1003. Define Requirements

1003 Define Requirements

- Description
 - Write a requirement specification for a project
 - Input : draft project plan, investigation report
 - Output : a requirement specification
- What is a requirement? (IEEE Std 610.12-1996)
 - A condition or capability needed by a user to enable him or her to achieve a particular objective.
 - A condition or capability that must be met or exceeded by a particular system component to satisfy a contract, standard, or formally imposed documents.
 - A documented representation of a condition or capability that must be met or exceeded by a particular system component.

Activity 1003. Define Requirements

- Functional requirements
 - A requirement that specifies a function that a component must be able to perform.
 - Analyzed and Realized in Use
- Non-functional requirements
 - Constraints on the services provided by a component, such as performance, timing constraints, constraints on standards, etc.
 - Portability, Reliability, Usability, Security, etc.
 - Delivery, Implementation, Support, etc.
 - Ethical, Interoperability, Legality, etc.
- Recommended reference : IEEE Std 610.12-1996

Activity 1003. Define Requirements

- Steps
 1. Gather all kinds of useful documents
 2. Write an overview statement (objective and name of the system, etc.)
 3. Determine customers who use the product
 4. Write goals of the project
 5. Identify system functions
 - Functional requirements
 - Add function references (such as R1.1, ...) into the identified functions
 - Categorize identified functions into Event, Hidden, and Frill
 6. Identify system attributes
 - Non-functional requirements
 7. Identify other requirements (Optional)
 - Assumptions, Risks, Glossary, etc.

Categorization	
Event	should perform / visible to users
Hidden	should perform / invisible to users
Frill	optional

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Open source project 가 존재 할 경우.

- Activity 100X. Identify Open Source Project 수행.
- 기존의 Open source project 의 소스코드, 문서 등을 확인하는 과정
- 완전히 같은, 부분적으로 같은 open source project 의 경우 둘 다 수행.

Activity 100X. Identify Open Source Project

- Description
 - Identify a requirement specification in open source project
 - Input : draft project plan, investigation report, **open source project information**
 - Output : an open source project specification report
- Step
 1. Open source project 의 정보를 파악
 2. 부분적으로 같을 경우 기존 소스 분석 후 수용 가능 판별
 1. 수용 불가능 할 경우 새로운 open source project 생성
 2. 수용 가능 할 경우 기능 추가 요청
 1. 추가 요청 승인 시 해당 open source project 참여
 2. 추가 요청 거부 시 해당 open source project 에서 branching (fork) 하여 직접 기능 추가 개발
 3. 완전히 같을 경우 해당 open source project 참여

Activity 1004.5 Create/Identify Wiki page

1004.5 Create/Identify
Wiki page

- Description

- Open source project 는 다수의 참여자가 용어에 대한 정의를 확인 할 수 있도록 wiki 페이지 운영.
- 다국적으로 사용 될 경우 번역 필요
- 기존의 프로젝트를 참여할 경우 identify (understand)
- 부분적으로 사용하는 open source project 거나 새로운 open source project를 생성한 경우 wiki page 의 작성 필요.
- Input : a term dictionary
- Output : wiki pages

- Steps

1. Activity 1004 의 결과물인 a term dictionary 를 통해 wiki page 작성

Activity 100x. identify open source project output

100x identify open source project output

- Description
 - Open source project 의 product (output) 을 확인 하는 과정.
 - Input : open source project output
 - Output : output usage, feature report
- Steps
 1. 참여 하기로 한, 혹은 부분적으로 사용하는 open source project 의 output을 확인.
 2. 확인 한 내용을 report 로 작성.

Activity 100x. identify open source project System Architecture

100x identify open source project System Architecture

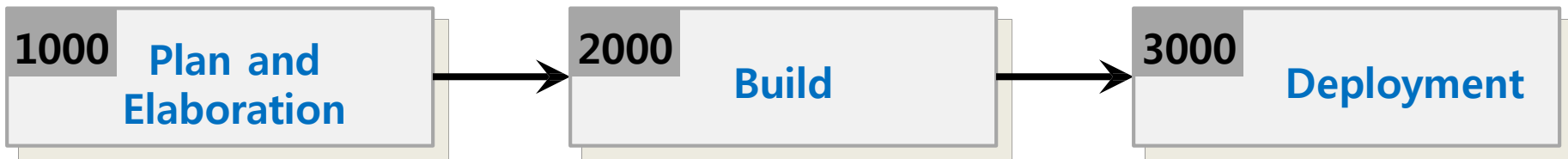
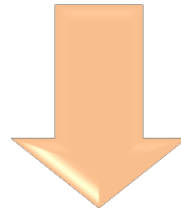
- Description
 - Open source project 의 System Architecture 을 확인 하는 과정.
 - Input : open source project System Architecture
 - Output : System Architecture report
- Steps
 1. 참여 하기로 한, 혹은 부분적으로 사용하는 open source project 의 System Architecture 을 확인.
 2. 확인 한 내용을 report 로 작성.

Activity 100x. Setup Environments for open source project

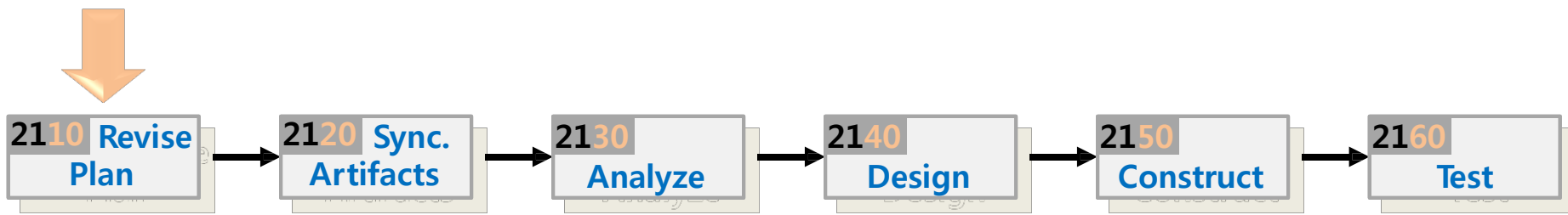
100x Setup Environments for open source project

- Description
 - Open source project 를 위한 환경을 구축 하는 과정
 - IRC, mailing, community 등을 생성.
 - Input : all knowledge for open source project environment
 - Output : an open source project development environment
- Steps
 1. 가진 지식을 총 동원하여 open source project devolvement environments 구축 (구성)

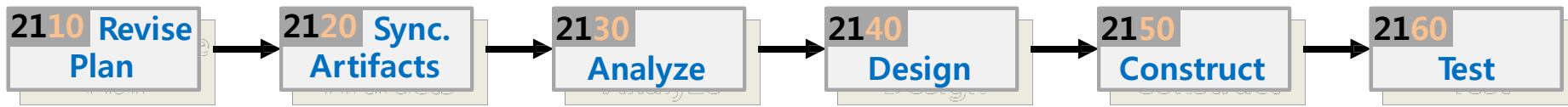
Stage 2000. Build



Phase 2010. Revise Plan



Phase 2020. Synchronize Artifacts



Phase 2020. Synchronize Artifacts

2120

Synchronize
Artifacts

- Description
 - Configure and manage various types of artifacts (Project Repository)
 - Control versions and variations
 - Input :
 - Output :
- Steps

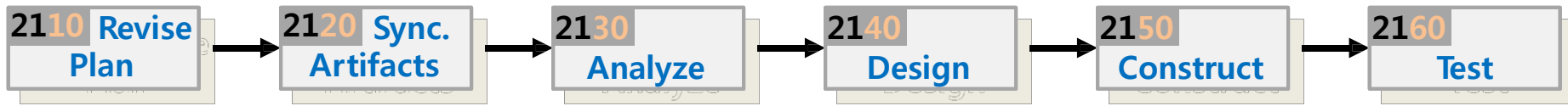
Activity 2021. Branching from Repository

2121

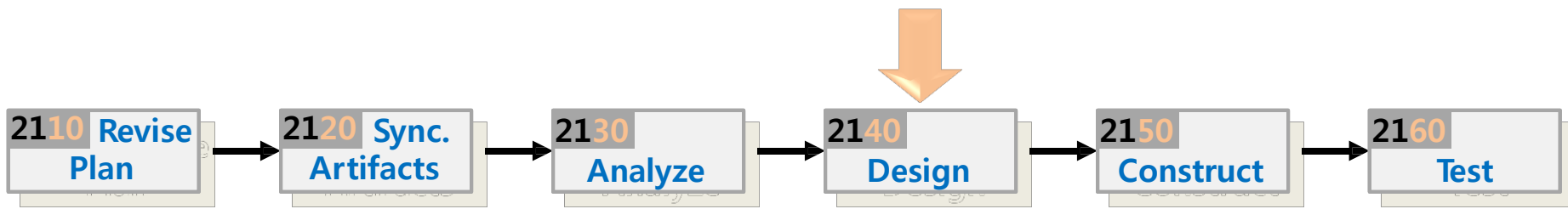
Branching from Repository

- Description
 - 개발을 위해 기존 코드 저장소에서 코드를 가져오고 새로운 기능을 위해 일종의 분기를 만드는 개념 (Git)
 - 개발을 마친 후 2070 단계의 2071 단계에서 merge 를 통해 기존 코드와 합치는 과정을 가지게 됨.
 - Input :
 - Output :
- Steps

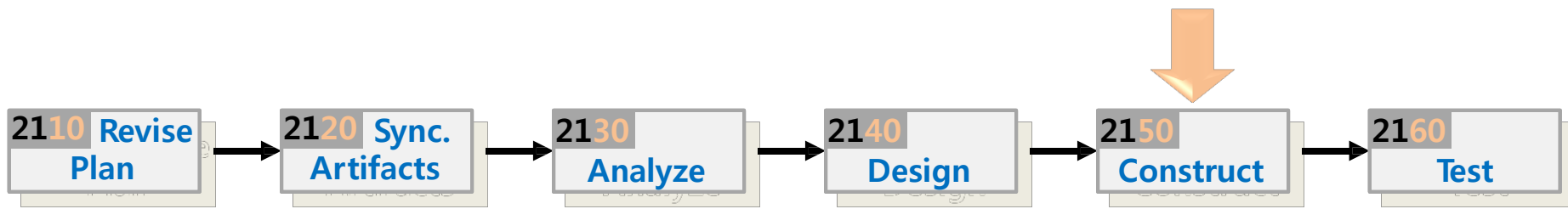
Phase 2030. Analyze



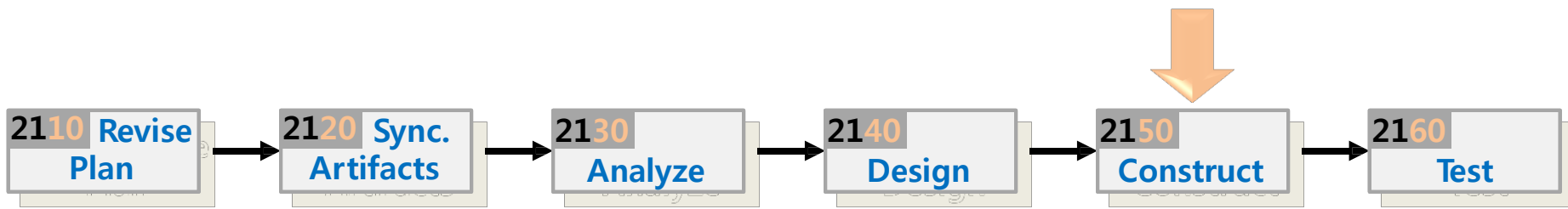
Phase 2040. Design



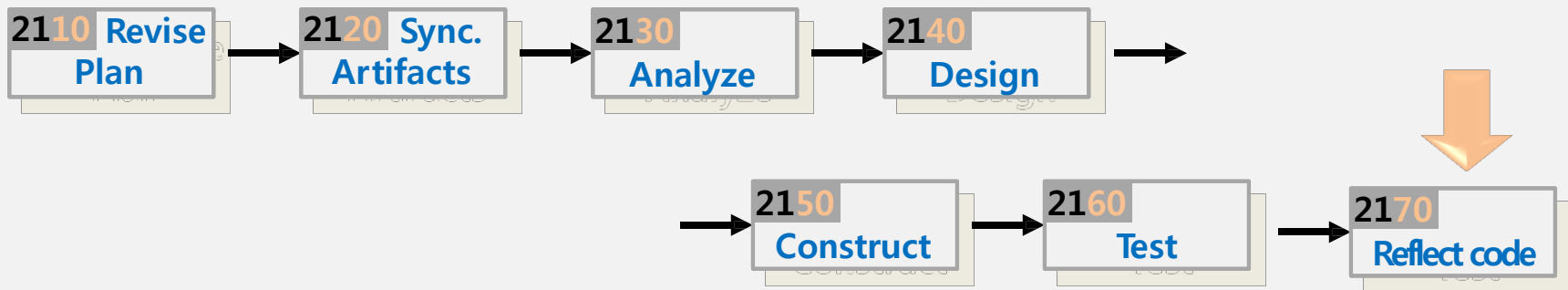
Phase 2050. Construct



Phase 2060. Test

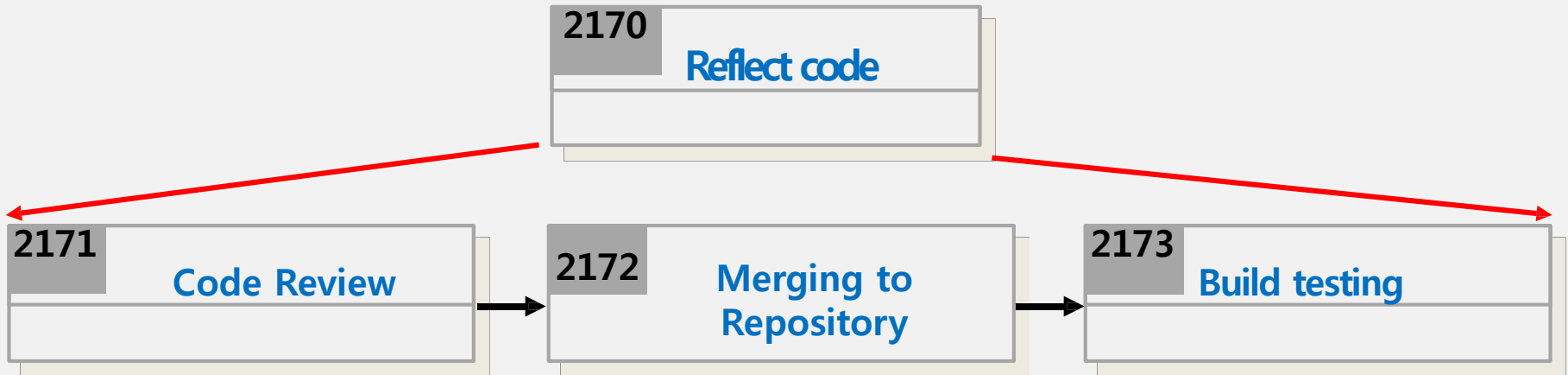


Phase 2070. Reflect code



Phase 2070. Reflect code

- Phase 2070 Activities



Activity 2071. Code Review

2171 Code Review

- Description
 - 코드 리뷰를 통해 개발한 내용을 설명하고 해당 기능을 main branch 에 추가 혹은 merge 를 요청.
 - 요청에 대한 승낙이 떨어질 경우 다음 activity 로 넘어감.
 - 요청이 거부될 경우 거부된 원인을 찾아 다시 development 수행
 - Input :
 - Output :
- Steps

Activity 2072. Merging to Repository

2172

Merging to Repository

- Description
 - 개발을 위해 기존 코드 저장소에서 코드를 가져오고 새로운 기능을 위해 일종의 분기를 만드는 개념 (Git)
 - 개발을 마친 후 2070 단계에서 merge 를 통해 기존 코드와 합치는 과정을 가지게 됨.
 - Input :
 - Output :
- Steps

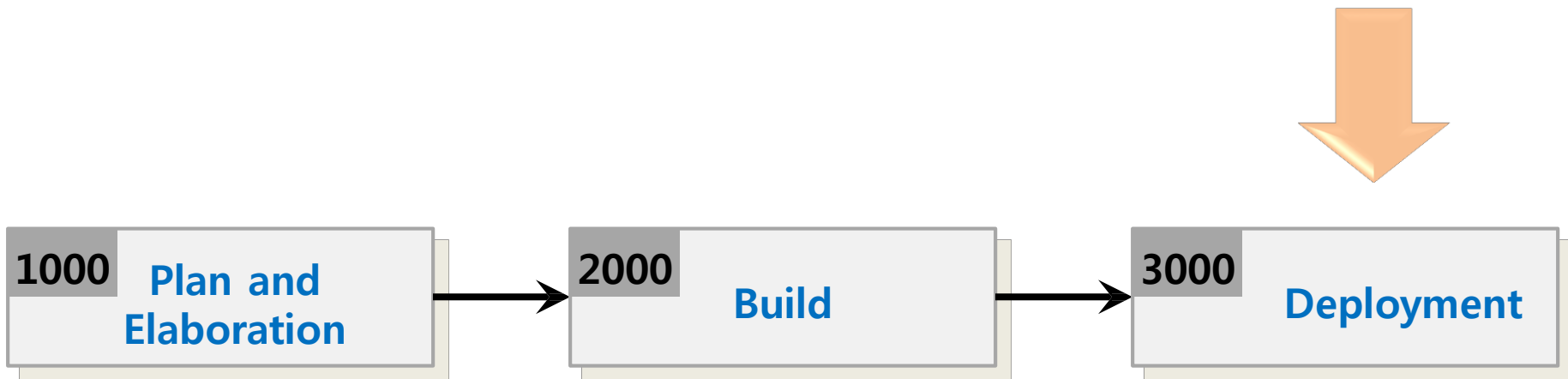
Activity 2073. Build testing

2173

Build testing

- Description
 - Merge 된 code 를 포함하여 시스템 혹은 소프트웨어 전체에 대해 build 수행
 - Input : all code
 - Output : build results
- Steps

Stage 3000. Deployment

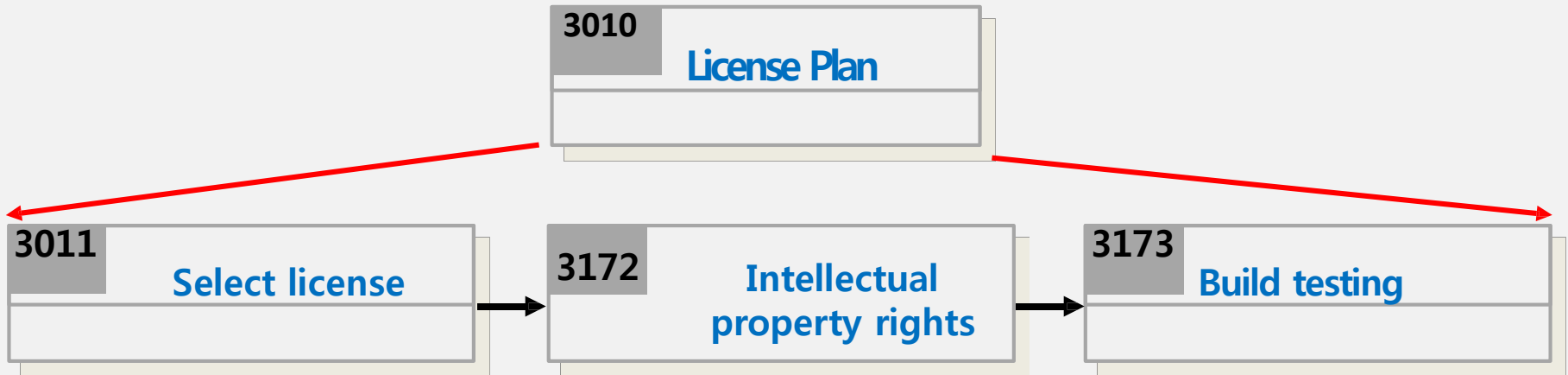


Phase 3010. License Plan



Phase 3010. License Plan

- Phase 3010 Activities



Activity 3011. Select license

3011

Select license

- Description
 - 오픈소스SW를 무단으로 상업적인 SW를 개발하는데 사용하고 해당 소스코드를 공개하지 않을 수 있기 때문에 법의 테두리안에서 소스코드의 공개를 강제할 수 있도록 하기 위한 것
 - Input :
 - Output :
- Steps
 1. 사용할 license 를 선택한다
 - GPL: 자유 소프트웨어 재단(OSF)에서 만든 자유 소프트웨어 라이선스
 - GPL: 라이브러리는 공유하되 개발된 제품에 대해서는 소스를 공개하지 않고 상용 SW 판매가 가능한 GPL 보다 완화된 라이선스
 - MIT: 매사추세츠 공과대학교(MIT)에서 해당 대학의 소프트웨어 공학도들을 돕기 위해 개발한 라이선스
 - BSD3: 유닉스(Unix) 의 양대 뿌리 중 하나인 버클리의 캘리포니아 대학에서 배포 하는 공개 소프트웨어의 라이선스

Activity 3012. Intellectual property rights

3012 Intellectual property rights

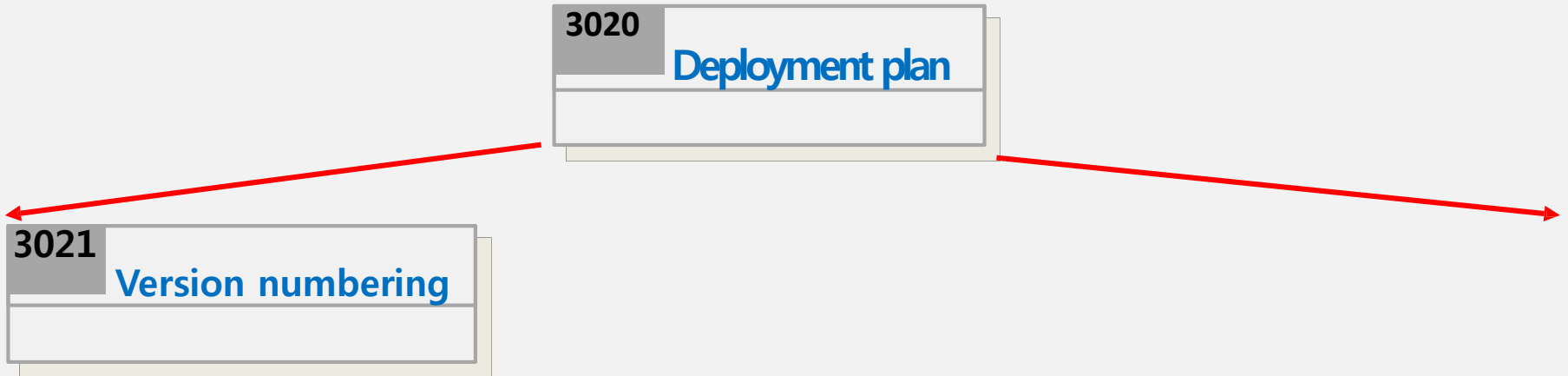
- Description
 - 저작권, 특허권, 상표권과 같은 지적 재산권을 침해 하는지 혹은 침해 당하는지 알아야함.
 - Input :
 - Output :
- Steps

Phase 3020. Deployment Plan



Phase 3020. Deployment plan

- Phase 3020 Activities

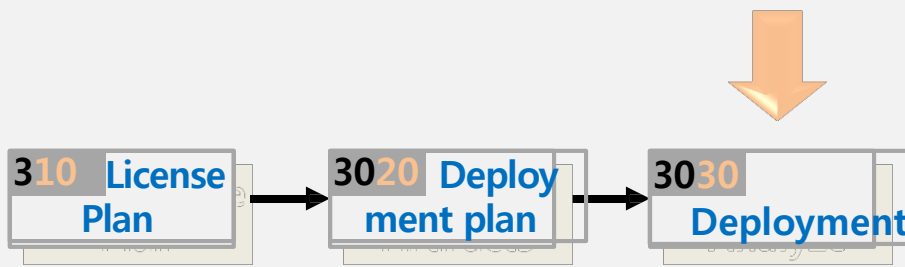


Activity 3021. Version numbering

3021 Version numbering

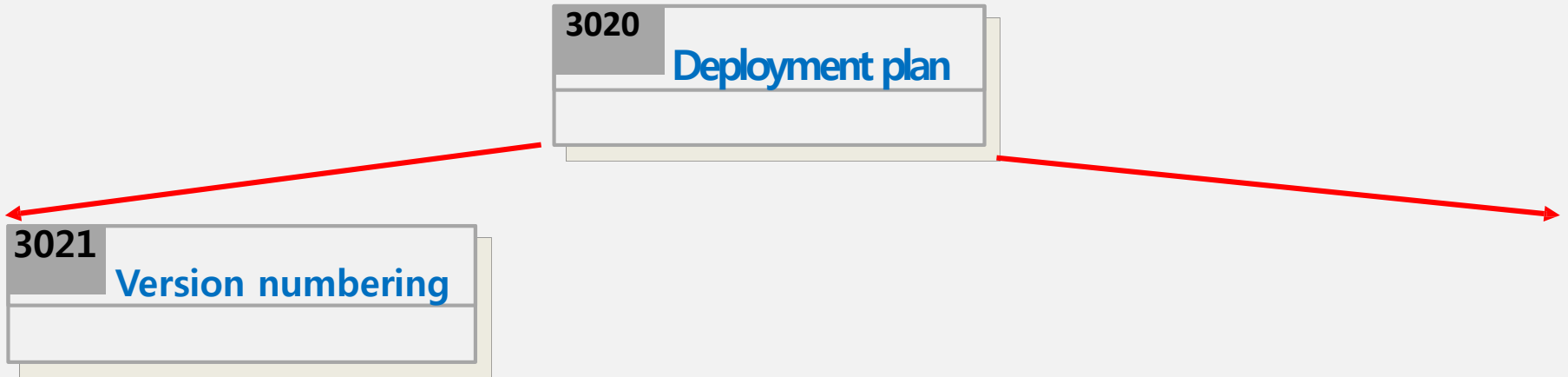
- Description
 - 배포 계획에 대한 프로세스로 일반적인 소프트웨어 버전 업그레이드 단계를 따름
 - X.yz → x = 메인 버전, y = 중소 규모, z = 소규모
 - Alpha, beta, RC 등의 이름도 존재.
 - Input :
 - Output :
- Steps

Phase 3030. Deployment



Phase 3020. Deployment plan

- Phase 3020 Activities



Activity 3021. Version numbering

3021 Version numbering

- Description
 - 배포 계획에 대한 프로세스로 일반적인 소프트웨어 버전 업그레이드 단계를 따름
 - X.yz → x = 메인 버전, y = 중소 규모, z = 소규모
 - Alpha, beta, RC 등의 이름도 존재.
 - Input :
 - Output :
- Steps

Q&A