**北京沃丰时代数据科技有限公司**

**Beijing Wofeng Times Data Technology Co. Ltd.**

**软件开发生命周期（2019）**

**Software Development Lifecycle (2019)**

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2. 目的 PURPOSE

本规程是北京沃丰对于软件生命周期制定的标准规程，目的是规范软件开发生命周期内的各项活动，确保各阶段计划的活动按照预期完成，最大程度地满足业务需要。

This procedure is the standard procedure for software life cycle in Beijing Wofeng Times Data Technology Co., Ltd (hereinafter referred to as "Wofeng Times" or "Company "). The purpose of this procedure is to standardize the activities in the software development life cycle, to ensure that the planned activities in each stage are completed as expected and to meet the business needs to the maximum extent.

1. 范围 SCOPE

本文档的范围适用于软件开发整个生命周期中各阶段的流程管理。

The scope of this document applies to process management at all stages of the software development lifecycle.

1. 定义和缩写 ARREVIATIONS AND DEFINIATIONS

|  |  |
| --- | --- |
| 定义和缩写Definitions & Abbreviations | 描述 Description |
| GxP | 良好的**X**规范，其中**X**可为：  Good **x** Practice, where **x** can be:  M=生产 (Manufacturing)  L=实验室 (Laboratory)  C=临床 (Clinical)  D=流通 (Distribution) |
| SDLC | 软件开发生命周期  Software Development Life Cycle |

1. 角色和职责ROLES AND RESPONSIBILITIES

|  |  |
| --- | --- |
| 角色Roles | 职责 Responsibilities |
| 运维人员  Operator | 运维人员负责对系统的运行和维护  Operators are responsible for system operation and maintenance |
| 测试人员  Tester | 测试人员负责在上线之前对系统的测试活动的执行和记录  Testers are responsible for the execution and record of the testing activities before system go live |
| 产品经理  Product Manager | 产品经理负责对产品（软件）进行规划和管理，进行开展产品的研发、制造、营销等工作  Product Manager is responsible for planning and managing the product (software) and carrying out the R & D, manufacturing and marketing of the product |
| 发版负责人  Release Owner | 发版负责人负责系统发布和上线的计划和批准  Release Owner is responsible for the related activities of system release and go live |
| 质量负责人 | 质量负责人对GXP软件的生命周期中产生的相应活动提供质量保证  Responsible for providing quality assurance throughout the whole Software Development Life Cycle |

1. 正常流程 Normal Process

5.1 需求评审（关键节点） Requirement Evaluation (Key Nodes)

产品内部原型评审完成后，再对外进行需求评审

Conduct product internal prototype review, then proceed on requirements evaluation.

**准备**：

Preparation:

1. 产品经理向开发、测试和设计人员发布需求文档

1) Product Manager issues requirement document to developers and testers.

        2） 文档内容包含产品功能、页面流转、标准业务流程

2) Document contains product functionality, page flow, standard business processes

3） 风险分析，内容包括：风险场景、受影响的信息安全属性、控制措施参考、现有控制措施、基于现有控制措施仍然存在的风险、风险定级、风险责任部门、风险应对、残余风险预估、风险处置结果与残余风险跟踪；

3) Risk analysis, including: risk scenario, affected information security attributes, control measures reference, existing control measures, risk based on existing control measures still exist, risk rating, risk responsibility department, risk response, residual risk prediction, risk disposal results and residual risk tracking;

4）确定紧急变更审批流程，一般为：发邮件给项目负责人、相关研发总监或CTO审批, 见本文档附件1；

4) Emergency change procedure is general determined as: email to the project owner, relevant R & D director or CTO approval, for Emergency Change procedure and Application Form, see Enclosure 1 of this document.

1. 评估GxP影响，评估依据包括：

5) Assess GxP impact, based on the questions listed below:

1，系统是否生成、处理或控制用于支持法规安全性和功效提交文件的数据？

1. Does the system generate, process or control data used to support regulatory security and efficacy submissions?

2，系统是否控制临床前、临床、开发或生产相关关键参数和数据;

2. Whether the system controls key parameters and data related to preclinical, clinical, development or production;

3，系统是否控制或提供有关产品放行的数据或信息;

3. Whether the system controls or provides data or information on product release;

4，系统是否控制与产品召回相关要求的数据或信息;

4. Whether the system controls data or information related to product recall requirements;

5，系统是否控制不良事件或投诉的记录或报告;

5. Whether the system controls the recording or reporting of adverse events or complaints;

6，系统是否支持药物安全监视;

6. Whether the system supports drug safety surveillance;

7，系统是否用于与药物安全相关的生产流程？

7. Is the system used in drug safety-related production processes?

8，系统是否用于与药物安全相关的生产流程？

8. Is the system used in drug safety-related production processes?

9，系统是否以电子格式生成、修改、维护、归档、恢复或传输符合监管机构要求的GxP监管信息？

9. Does the system generate, modify, maintain, file, restore or transmit GxP regulatory information format that meets regulatory requirements?

10，系统是否属于负责外部（如FDA、EMA、MHRA或其他国家卫生医疗当局）审计或检查中的一部分？

10. Is the system part of an external audit or inspection (e.g. FDA、EMA、MHRA or other national health authorities)?

(其中以上条目有一项回答为‘是’， 则评估结果为GxP相关的需求。)

(If the response of any statement in Q1 ~ Q10 is yes, the requirement(s) of the product/system is (are) GxP related requirement.)

6）标识更改类型（次要、主要、修补程序、紧急更改）；

6) Identify the type of change (minor, major, patch, emergency change);

7）识别受影响的验证交付物 (living document) ，对living document的判定请见本文档章节5.5.4。

7) Identify the impacted validation deliverables (living documents) that requires to be revised other than user requirement specification, for the identification of living document refer to Section 5.5.4 of this document.

        8）西安杨森GxP相关的需求，在开发期间BWDT将提前2周通知进行确认。如果可以，请继续进行开发和发布。如果否，则重新开发和交付。

8）For Xi'an Jansen GxP related requirements, Wofeng Times will notify Xi'an Jansen 2 weeks in advance for confirmation during the development process. If OK, then continue with development and release. If NO, re-design the switch for new release.

        9） 开发、测试和设计人员了解文档，争取提前发现问题

9） Developers and testers read document to identify is there is any potential problems.

**发起时间**：由产品经理发起会议 ，每月最后一周

Launch time: product manager initiates meeting, last week of each month

**评审参与人**：产品经理、开发、测试、设计

Review participants: Product Manager, Developer, Tester, Designer

**会议方式**：集中会议的形式，由产品讲解每个任务的需求，需求宣讲后不明确的点可以找产品单独沟通

Meeting mode: The form of centralized meeting, by the product to explain the needs of each task, after the demand is not clear points can find the product to communicate separately

1. 产品需要展示高保真原型

1) Products need to show high fidelity prototypes

        2） 进行需求明确，包括本期功能、功能详细约定、标准流程规范等内容

2）Clarify requirements, including the functions, detailed function agreement, standard process specification, etc.

        3） 产品的设计需求一经批准，不能进行非授权的更改。

3) Design requirements of the product cannot be unauthorized changes once approved.

        4） 新需求对GXP影响处理

4) Activities to be performed due to GxP related requirement(s)

* 评估新需求是否对GXP有影响
* Assess whether the requirement(s) is(are) GxP related
* 如果有影响，执行以下流程
* If there is GxP impact, follow the process below:
* 标记该需求对GXP的影响
* List out the GxP impact
* 填写影响级别字段：较低、普通、较大、严重
* Fill in impact level fields: low, normal, high, severe
* 填写影响的功能点和产品文档
* Fill in impacted function points and impacted product documentation
* 填写和GXP相关客户的沟通记录
* Fill in and GXP communication records to related customers
* 填写保证GXP客户可用性的解决方案
* Fill in GXP solutions for system/product availability to customer
* 要求产品总监审批
* Approval by Product Director

1. 开发、测试和设计人员有疑问的当场提问，产品人员解答

5) developer, tester, and designer raise questions if any

**输出结果**：

Output:

1. 修正后的需求文档，需要及时更新到confluence

1) The updated requirement documentation should be updated to the confluence System.

       2）产品经理进行需求拆解，对任务排优先级，同时在TB上面创建研发任务

2) Product manager to analyze and split the requirements, prioritize tasks, and create R & D tasks in TB.

5.2 设计 Design

        产品需求讲解完后，设计人员可以启动工作

After the product requirement is explained, the designer can start the work

**交付原则及流程**：

Delivery principles and processes:

1. 设计人员预估设计成果交付时间，UI需要在前端正式开发前完成设计
2. Designers estimate the time to deliver design results UI need to complete the design before the front end is formally developed

  2）设计出现变更，需要与产品经理及前端开发人员确认

2) Design changes require confirmation with product manager and front-end developer.

5.3  开发阶段Development phase

**5.3.1 开发计划制定（关键节点） Development planning (key nodes)**

1. 开发人员根据需求优先级、任务依赖关系评估个人的开发工时和任务的启动、提测时间

1) Developers assess individual development hours and task start-up and test time based on requirements priorities, task dependencies

     2）测试人员根据开发预估的工期、需求优先级和任务依赖关系，预估测试的工时和上线时间

2) Testers estimate test hours and on-line times based on development estimates, requirements priorities and task dependencies

     3）评估工作量时不明确的需求需与产品确认，涉及到需求修改的，产品经理需要更新confluence

3) The product manager needs to update the 3) when it is necessary to confirm the unclear requirements when assessing confluence workload.

     4）开发接口人review开发和测试的工时及各任务上线时间

4) Working hours review development and testing by 4) development interface person and on-line time

     5）制定好的开发计划交与对应产品经理确认

5) Product manager to confirm the development plan

      6）需求讲解完后，2-3天时间制定出开发计划，不明确的需求点也需要在此期间与产品确认完毕

6）After the explanation of requirements is completed, make the development plan within 2-3 days. The unclear requirement points also need to be confirmed during this period

      7）产品经理确认开发计划后由开发接口人把开发计划交与运营开发组人员统一导入TB，只有在月初做计划时可以批量导入TB一次，后续插入任务或修改任务信息只能手动操作

7）After confirming the development plan, the product manager will hand over the development plan to the Operational Development Team for importing the development plan into TB. The TB can be imported in batch only once at the beginning of the month. The subsequent insertion of tasks or modification tasks can only be operated manually.

       8）生成TB任务完整信息后，本月内不允许修改“月发版计划”字段，可以根据任务的实际发版日期修改“发版日期”字段

8）After task information is generated in TB, the modification of the "Monthly Release Schedule" field is not allowed within this month. The "Release Date" field can be modified based on the actual release date.

**5.3.2 概要设计 Summary Design**

**设计内容包括**：系统架构 、部署架构 、 外围系统关系 、系统流程、数据库结构 、 接口定义 、非功能技术指标（性能、容量、数据时效性等）

**Design content includes:** system architecture, deployment architecture, peripheral system relationship, system flow, database structure, interface definition, non-functional technical indicators (performance, capacity, data timeliness, etc.)

**评审方式**：集中会议，由项目接口人发起评审

**Review method:** meeting initiated by related responsible

**评审参与人**：架构师、产品、开发、测试

**Review participants:** architect, product, development, testing

**说明**：**Description:**

1. 需要对内部使用或对外开放内容进行约定

1) Agree on internal use or open content

       2）产品需要参与评审，对架构的可扩展性相关内容等提出需求

2) Products need to participate in the review, to the framework scalability related content requirements

**5.3.3详细设计 Detailed design**

      **设计内容包括**：所有的package、 类、接口、方法、参数、类注释、方法注释 、 核心代码注释

**Design content includes:** all packages, classes, interfaces, methods, parameters, class annotations, method annotations, core code annotations

**评审方式**：集中会议，由项目接口人发起评审

**Review method:** meeting initiated by related responsible

**评审参与人**：架构师、开发  （产品无需参与）

**Review participants:** architect, developer (no product responsible participation required)

**5.3.4 编码（关键节点） Coding (key nodes)**

**（1）编码 Coding**

         开发人员根据分配的功能模块开始进行编码

Developers begin coding based on assigned functional modules

         编码过程中需要进行代码review，不限于形式，可以工位可以会议室

Coding process requires code review, code review is not limited to how it is performed, and it can be at seat or held in the conference room.

**（2）开发自测 Development of self-testing**

         开发编码完成后， 开发需要集成自测，确认冒烟测试通过才能提交给测试人员

After coding is complete, the development needs to integrate self-test to confirm that the smoke test submit to tester

**（3）编写文档Documentation**

         开发编码完成后，开发人员开始编写《对外API接口文档》

After coding is complete, the developer starts writing the External API Interface Document

5.4  测试阶段Test phase

**5.4.1 测试用例评审 Test case review**

**目的**：判断测试用例是否覆盖了完整需求，影响范围是否完全覆盖

**Objective:** To determine whether the test case covers the full requirements and whether the impact scope is fully covered

**评审准备**：

Review preparation:

          测试接口人向产品、开发 发布测试用例，现在用禅道统一管理各业务的测试用例

The tester interface person releases test cases to the product personnel and development personnel, and uses Zen Tao to manage the test cases.

          评审人员阅读测试用例，提前发现问题

Reviewers read test cases and identify problems in advance

**发起方式**：测试用例编写完成后，由测试接口人发起，评审时间不能晚于开发最早功能点提测时间

**Initiation:** After the test case is written, the review is initiated by the test personnel person, and the review time cannot be later than the test time of the earliest functional point of development

**评审人员**：项目组内产品、开发、测试

**Reviewers:** product, development, testing within the project team

**评审方式**：集中会议的形式，由测试人员讲解

**Review method:** Meeting held by tester

**评审结果**：

**Results:**

1. 确定开发提测标准的冒烟用例，执行此用例时如果存在bug，则可以打回给开发

1) Determine the smoke test case, if there is bug when executing the test case, assign it back to developer

         2）评审过程中反馈的问题及时修正并更新禅道上的测试用例，再次同步给项目组相关人员

2) Issues and corrections of the test cases in the review process should be updated in ZenTao and keep relevant personnel informed.

**5.4.2  测试环境Test environment**

          测试接口人负责提前准备好测试环境，测试环境可以由开发、运维协助搭建

The tester is responsible for preparing the test environment in advance. The test environment can be built in cooperation with development personnel and operation personnel.

**5.4.3  执行测试（关键节点） Perform tests (key nodes)**

1. 开发提测后，测试人员先对任务进行showcase流程，showcase通过后，则认为正式交付给测试人员进行测试。如果showcase不通过，则打回给开发重新修改，达到提测状态后再重新走showcase流程
2. After developer submits test cases for testing, the tester follow the showcase flow first on the task, after the showcase passed, hand it over the testing to testers to perform tests. If the showcase does not pass, assign back to the developer to make modifications then repeat the showcase process.
3. 测试人员发现bug提交到TB，由TB统一管理缺陷或任务

2) Identified bugs should be registered in the TB System.

        3） 版本上线前需要进行封版操作，测试人员进行回归测试

3) The tester performs regression testing, and version needs to be sealed before go live.

        4） 测试完成后测试人员需要把TB任务状态变更为“完成”，表示等待上线

4) After testing complete, the tester needs to change the status of the TB task to "finish ", meaning it is ready to go live.

**5.4.4 回归测试确定的过程和要求 Regression testing requirements and testing identification process**

在软件生命周期中的任何一个阶段, 只要软件发生了改变，就可能给软件带来问题，软件的改变，可能是源于在集成或维护阶段加入了新的模块，也可能是源于发现了错误并做了修改。在测试过程中，要不断的进行回归测试，以确定本来已经存在的功能没有引入新的bug。

At the related phases in the software life cycle process, once the software is altered, new issues may occur in the software due to the change. The change may be initiated by adding new modules, or caused by making modifications during bug fix process. Hence the regression test should be continuously performed to make sure that the existing functions do not introduce new bugs.

1. 新的产品需求 (系统要发布的新版本) 的分类：对新需求的内容进行在线分类，判断新需求属于新特性、功能优化、还是BUG修复。分类的结果需提交领导进行批准，并保留记录。
2. The classification identification of the new product requirement(s), i.e. the new system release: classify the content of the new product requirement(s) on line, and identify the change of the system is for new features, or for optimization, or for the bug fix. The classification results will be submitted to the management for signature and approval, and records are stored.

2）回归测试确定的过程: 判断新的产品需求引发的变更，会影响哪些已存在的系统配置和功能，进行影响分析（可建立影响分析矩阵），并确定影响范围，为后续的测试提供测试范围。

2) The regression testing identification process: identify the change to the system (caused by the new requirement) may affect which part(s) of configurations of the existing system, conduct impact analysis and the affected range (an impact analysis matrix can be set up), and the subsequent regress testing should be performed in accordance with the affected range.

5.5  上线阶段 Release Phase

**5.5.1  发布准备 Release Preparation**

         开发接口人组织项目组相关人员进行上线前评审

Developers organize project team related personnel to review before going online

1. 评审人员：产品、开发、测试

a) Reviewer: personnel of product, development, testing

         b)  评审内容：具体上线时间，上线任务内容，可能存在的风险及预案（包括回滚方案），涉及到相关团队配合操作

b) Review content: specific go live time, on-line task content, potential risks and plans (including roll back plan).

**5.5.2  发布通知Release Notification**

       正式发布前在企业微信进行正式通知，进行人员签到

Prior to the official release notify in the enterprise WeChat official, personnel must sign in

**5.5.3  发布执行（关键节点） System Release（Key Nodes）**

* 当发布可以开始执行时，首先由运维人员将代码发布到测试环境1）
* When the release can be initiated, the code is firstly released to the test environment1）
* 在测试环境中，测试人员开始对代码进行测试，并将测试结果记录在测试报告中，发布并批准测试报告
* In the test environment, the tester performs testing and records the test results in the test report, have the test report completed and approved.
* 发版负责人组织会议，跟据测试报告，决定是否发版，决定发版后制定具体的发版计划，并将发版计划发至相关的执行人和负责人
* The release owner is responsible for holding meetings to determine whether to release the version based on the result of the test report. If it is OK to release the version, the release owner is responsible for making release plan and sending it to the related responsibles.
* 发版计划批准后，由运维团队开始按照发版计划进行灰度发版2）
* After the approval of the release plan, the operation and maintenance team will start the grayscale release2） according to the release plan
* 发版成功后，由发版负责人向相关执行人和责任人宣布发版结束
* After the release is successful, the release owner announce the release complete to all relevant executors and responsibles

注：

Note:

1）测试环境和生产环境必须是隔离的，测试环境的变更不能影响到生产环境。

1）The test environment and the production environment must be isolated, and the change of the test environment must not affect the production environment.

2）灰度发版的流程和计划如下：

2）The grayscale release process is described as below:

1. 沃丰有多个服务器集群。

a) Wofeng Times has multiple server clusters.

b) 按照1%-100%的比例进行持续放量。

b) Grayscale release will be performed by continuous releasing to servers at the rate of 1% to 100%.

c) 先从第一个集群开始发布，在第一个集群发布之后，再持续更新其它集群。

c) The release starts with the first cluster, and after the first cluster is released, the other clusters are continuously updated.

d) 在发布过程中, 如果发现功能验证失效的情况，测试工程师根据定级判断是否需要回滚，不需要回滚的情况进行正常修复；需要回滚的情况按照回滚的流程处理，回滚详细流程参见本文档章节5.5.5。

d) If failure occurs during the process of grayscale release, the test engineer determines whether a rollback is required according to the assessed impact level of the actual functional failure. If a roll back is not required, the failure part will be fixed by a normal repair; if a roll back is required according to the assessment result, it will be handled according to the rollback process, please refer to section 5.5.5 ‘Roll Back’ of this document.

注：在本节的发版过程中可以明确，系统首先在其他服务器上发布，当版本稳定后，再进行全面发布，从而确保在预发布版本操作过程中不会对客户（如：西安扬森）的域名服务器造成影响。

Note: Based on the system release and grayscale release process described in this section, it can be seen that the system is released on other servers first, when the version is stable, it will be continued to comprehensive release. By implementing this process, it can be ensured that no effect on the server of Xi'an Janssen domain name during the pre-release version operation.

**5.5.4  线上验证** **Online Validation**

       上线完成后，测试人员进行线上环境验证

After go live, the tester performs the online environment verification.

       验证通过的任务，测试人员在TB对应任务上面打“上线”标签，表示此任务上线成功

A validated task, the tester on the TB corresponding task on the "on-line" label, indicating that the task on-line success.

验证后的交付物清单及相关负责人见下表：

Validation deliverables and responsibles are listed in the table below:

**Validation Deliverables:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 交付物  Deliverables | 作者  Responsible | 审核人  Reviewers | 批准人  Approvers | Living Document 是☑/否□ |
| 验证计划(VP)  Validation Plan(VP) | 开发工程师  Developer | 研发经理, 研发总监  R&D Manager,  R&D Director | 首席技术官，质量保证部  CTO, QA | ☑ |
| 用户需求说明(URS)  User Requirements Specification(URS) | 开发工程师  Developer | 研发经理, 研发总监  R&D Manager,  R&D Director | 首席技术官，质量保证部  CTO, QA | ☑ |
| 风险分析(RA)  Risk Assessment (RA) | 开发工程师, 测试工程师  Developer, Tester | 研发经理, 研发总监  R&D Manager,  R&D Director | 首席技术官，质量保证部  CTO, QA | ☑ |
| 功能说明(FS)  Functional Specifications (FS) | 开发工程师  Developer | 研发经理, 研发总监  R&D Manager,  R&D Director | 首席技术官  CTO | ☑ |
| 设计说明(DS)  Design Specifications (DS) | 开发工程师  Developer | 研发经理, 研发总监  R&D Manager,  R&D Director | 首席技术官  CTO | ☑ |
| 配置说明(CS)  Configuration Specifications (CS) | 开发工程师  Developer | 研发经理, 研发总监  R&D Manager,  R&D Director | 首席技术官  CTO | ☑ |
| 测试计划  Test Plan | 测试工程师  Tester | 研发经理, 研发总监  R&D Manager,  R&D Director | 首席技术官，质量保证部  CTO, QA | □ |
| 测试报告  Test Report | 测试工程师  Tester | 研发经理, 研发总监  R&D Manager,  R&D Director | 首席技术官，质量保证部  CTO, QA | □ |
| 追溯矩阵(TRM)  Traceability Matrix (TRM) | 开发工程师, 测试工程师  Developer, Tester | 研发经理, 研发总监  R&D Manager,  R&D Director | 首席技术官，质量保证部  CTO, QA | ☑ |
| 验证报告(VR)  Validation Plan(VR) | 开发工程师, 测试工程师  Developer, Tester | 研发经理, 研发总监  R&D Manager,  R&D Director | 首席技术官，质量保证部  CTO, QA | □ |

**5.5.5 上线回滚** **Roll Back**

* 发版过程中，如果发现某个功能验证失败，则需要根据实际情况判断是否需要回滚。
* If failure occurs during the release process, it must be assessed and determined whether a rollback is required.
* 测试工程师就失效部分依据严重程度和影响进行定级，定级之后判断是否需要回滚，具体评估方法见本文档附件2。
* The level the failure parts based on severity and impact must be assessed and approved by related responsible and QA, for impact level and assessment method please refer to Enclosure 2 ‘Roll Back Assessment Form’.
* 如果需要回滚，由测试工程师发起回滚申请。回滚申请表见本文档附件3。
* If rollback is required based on the assessment result, test engineer initiate roll back request by filling in a request form, please refer to Enclosure 3 ‘Roll Back Request Form’.
* 发版负责人检查回滚申请，评估影响，并由质量保证团队进行评估，确认是否需要回滚，根据结果批准回滚申请。
* The roll back request will be evaluated by release owner and QA. The roll back will be approved based on the assessment result. The roll back cannot be carried out until it is approved.
* 如果回滚申请审批通过，由运维工程师执行回滚。
* If the rollback request is approved, the operation and maintenance engineer performs the rollback.
* 如果此次回滚对GXP有影响，发版负责人必须通知相关客户。
* If this rollback has an impact on the GXP, relevant customer must be notified.

****5.6 月度总结会（复盘） Monthly Summary Meeting (Review)****

 **目的**：对当月研发工作进行复盘

**Objective:** To review the research and development work during the month

**参会人员：**CEO、CTO、VP、研发总监、产品总监、项目总监、售后服务经理

**Participants:** CEO, CTO, VP, R&D director, product director, project director, after-sales service manager

**总结内容**：1. 研发月计划任务整体完成情况，任务延期上线原因

              2. 研发质量，每个产品线当月出现的bug数、工单数、故障数

              3. 当月关键任务进度、下月关键任务

4. 人才储备与流动

**Summary :** 1. The overall completion of the R & D monthly planning task, the reasons for the extension of the task online

2. R & D quality, number of bug, number of work orders, number of failures per product line during the month

3. key tasks for the month, key tasks for next month

4. talent reserve and mobility

6.特殊流程 Special Process

****6.1 需求变更**** **Requirement Change**

**变更流程**： Change process

1. 产品需与开发、测试共同讨论变更影响的范围、重要紧急程度、影响版本计划等信息，开发和测试可以提供自己的建议供产品参考

1) the product needs to discuss the scope of change impact, critical urgency, impact version plan and so on with development and testing, development and testing can provide their own suggestions for product reference

     2）确认需要变更的任务，需要产品通知项目组相关人员，并及时更新需求文档

2) confirm the need to change the task, need to inform the project team related personnel, and timely update the requirements document

     3）需求变更造成计划改变的，需要开发接口人对版本计划进行重新评估，变更的任务计划需要更新TB“发版日期”字段，并写明延期原因

3) the change of requirement causes the change of plan, the developer needs to re-evaluate the version plan, the change of task plan needs to update the TB "date of release" field and state the reason for the delay

****6.2 插入任务 Insert task****

      插入任务流程：

Insert task flow:

1. 产品需与开发、测试共同讨论插入任务影响的范围、重要紧急程度、影响版本计划等信息，开发和测试可以提供自己的建议供产品参考

1) products need to discuss with development and testing the scope of the insertion task impact, critical urgency, impact version plan and other information, development and testing can provide their own suggestions for product reference

      2） 确认需要插入的任务，需要产品通知项目组相关人员，并及时更新需求文档

2）Confirmation of tasks to be inserted, product notification to project team and timely update of requirement documents

      3） 插入任务需要由产品在TB手动创建任务，指定给开发接口人，开发接口人再填写任务开发信息，一定要填写“月计划”和“月计划发版日期”2个字段

3) insert tasks need to be manually created by the product in the TB, assigned to the development interface person, the development interface person to fill in the task development information, must fill in "monthly plan" and "monthly plan release date "2 fields

      4） 插入任务造成原计划任务改变的，需要开发接口人对版本计划进行重新评估，变更的任务计划需要更新TB“发版日期”字段，并写明延期原因

4) insert task causes the original planned task to change, the development interface person needs to re-evaluate the version plan, the change task plan needs to update the TB "release date" field, and specify the reasons for the delay

6.3 优化任务  Optimization tasks

6.3.1 功能优化 Functional optimization

         项目组干系人都可以对系统提出优化建议，但需要与产品确认

Project team stakeholders can make system optimization recommendations but need to confirm with product

         提出的优化建议与产品确认后，由产品统一规划到版本计划里

After the proposed optimization proposal is confirmed with the product, the product plan is unified into the version plan

6.3.2 技术优化Technical optimization

         开发团队提出的技术优化

Technical optimization proposed by the development team

       只通知产品，无需产品排入版本计划，由开发接口人来定，制定好计划后交与产品确认

Only inform the product, no product into the version of the plan, by the development interface to decide, make a good plan to submit to the product confirmation

1. 参考文件References

N/A

1. 附件Enclosures

附件1: 紧急变更申请表 (WF-DM003.Enclosure01)

Enclosure 1: Emergency Change Request Form (WF-DM003.Enclosure01)

附件2: 回滚评估表WF-DM003.Enclosure02)

Enclosure 2: Roll Back Assessment Form (WF-DM003.Enclosure02)

附件3: 回滚申请表WF-DM003.Enclosure03)

Enclosure 3: Roll Back Application Form (WF-DM003.Enclosure03)