看板

可视化

服务类别
在看板工作流中，每一类服务都有自己的优先顺序规则。所有类的服务都允许自组织，以及类的价值和风险评估。每一类服务都有自己的周期和周期时间规则。
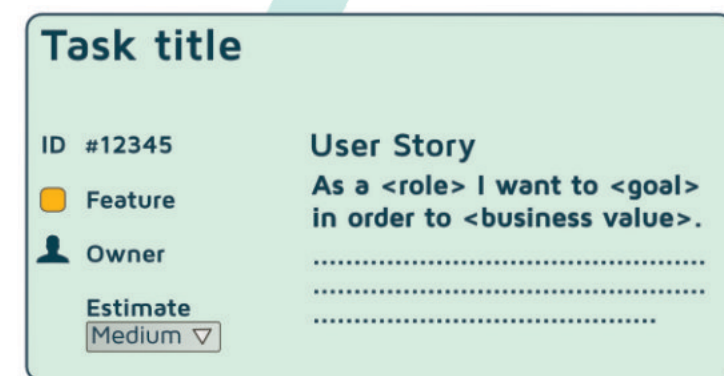
这些共同的服务种类是：

非常重要
这个类必须以最高的优先级处理，并且不允许被中断。工作流中只能存在此类的一个任务。

时间轴
时间轴类的任务必须在一个确定日期完成。应该有少于20%的课程分配给一个版本。

Bug
bug是当前系统中的错误实现，必须尽快纠正。bug没有特定的发布分配。

特性
该类包含由FIFO(先进先出)原则处理的普通任务。他们没有时间表，可能会达到发行的50%。

家务事
家务类是辅助任务，没有优先级，也没有发布任务(例如，系统更新)。这些任务可能会占到发行版的30%。

优先次序

看板图

Backlog	Analysis	Coding	Testing	Deploy	Done

人物结构

Task title

ID #12345
🟧 Feature
👤 Owner

User Story
As a <role> I want to <goal>
in order to <business value>.
....
....

Estimate
Medium ▽
....
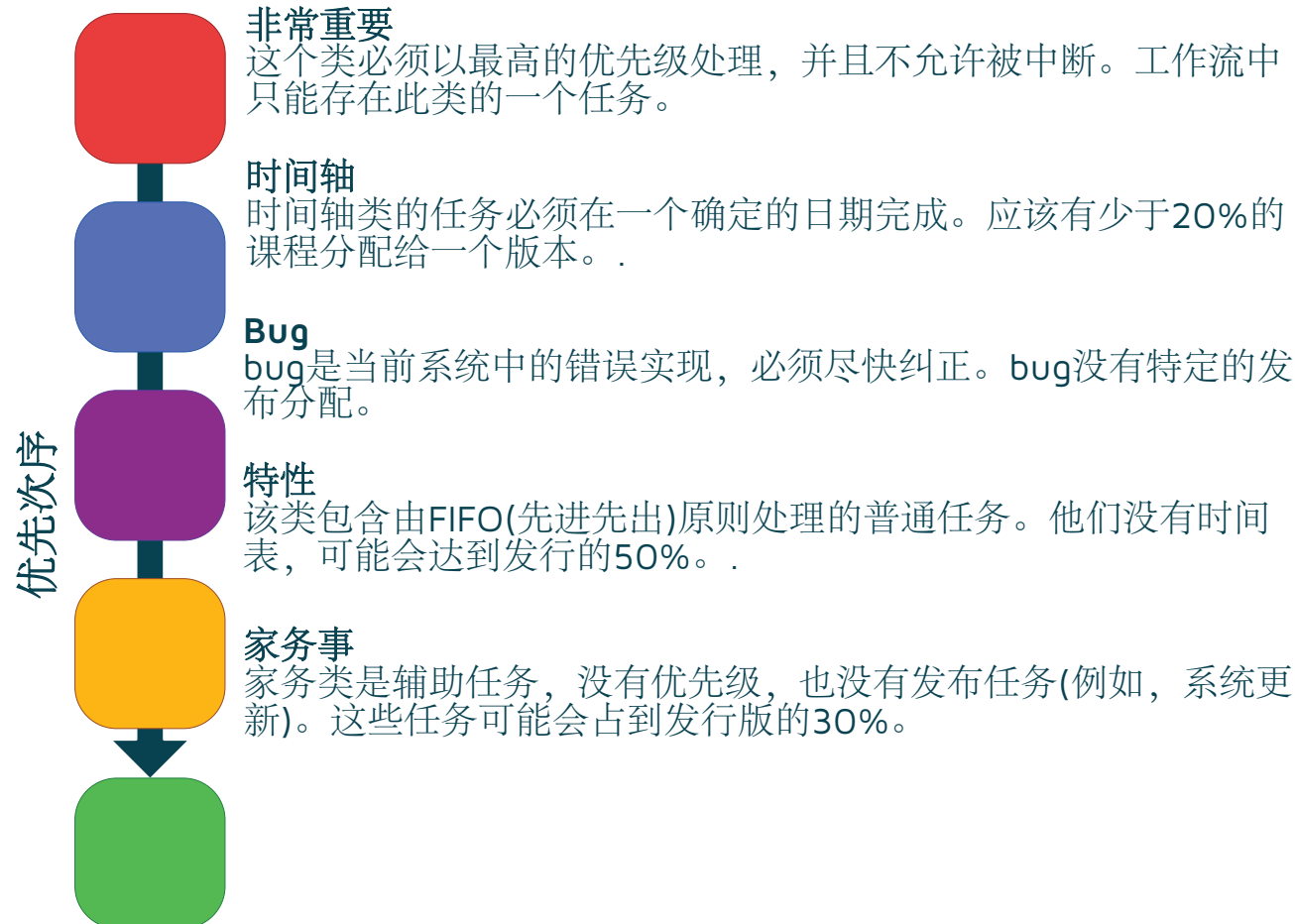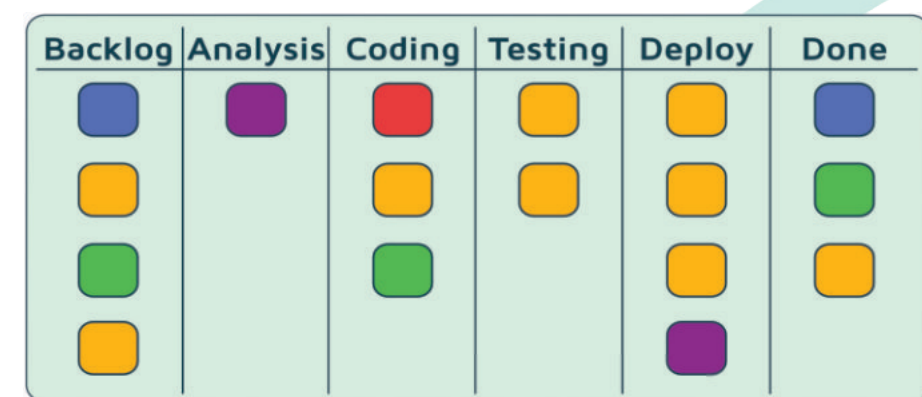
可视化的过程
看板 - 列
看板的结构是单独定义的，可以根据需要进行优化。常用的列有：
代办 I 分析 I 编码 I 测试 I 部署 I 完成
许多列都受到工作量(正在进行的工作-在制品)的限制。

任务结构
任务的结构对于任务的透明性和顺利运行是非常重要的。该结构需要以下属性：
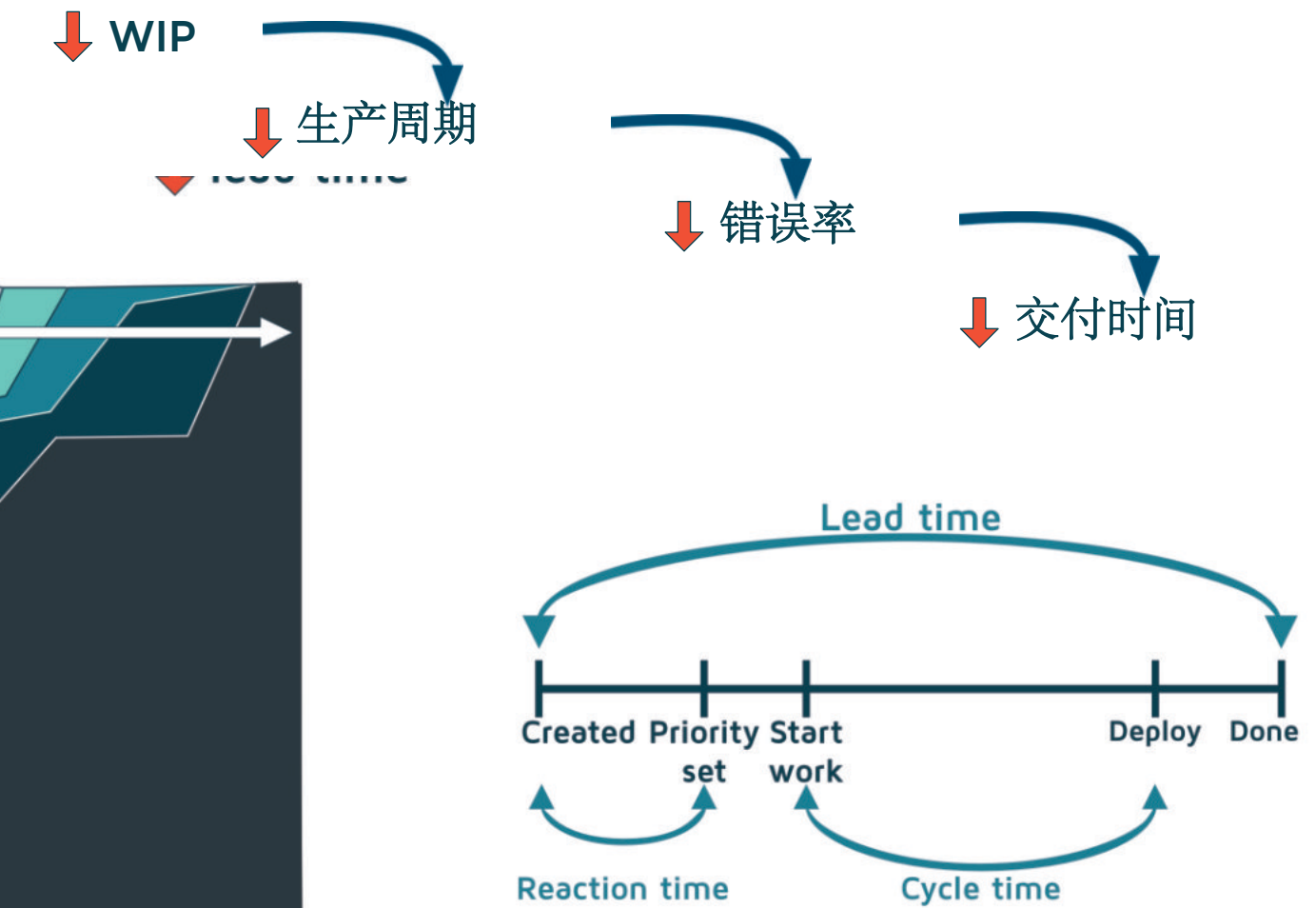
o 标题及描述(用户描述及验收准则)
o 任务数量
o 所有者
o 服务类别
o 时间表 (可选)
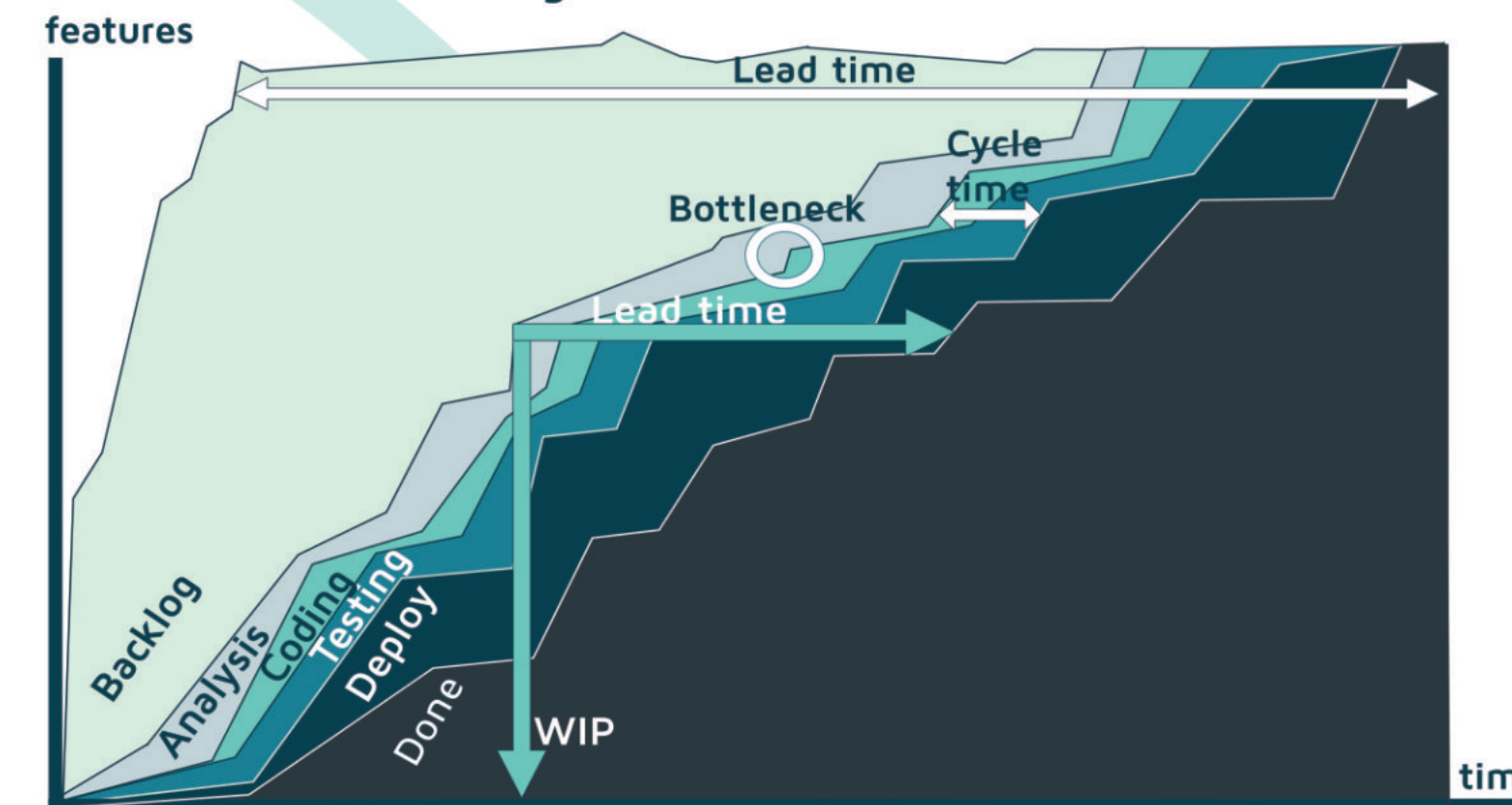o 评估(仅用于任务的优先级)

有了这些信息，每个人都可以根据风险和服务别对任务的处理做出独立的决定。明确的规则在看板策略中定义。
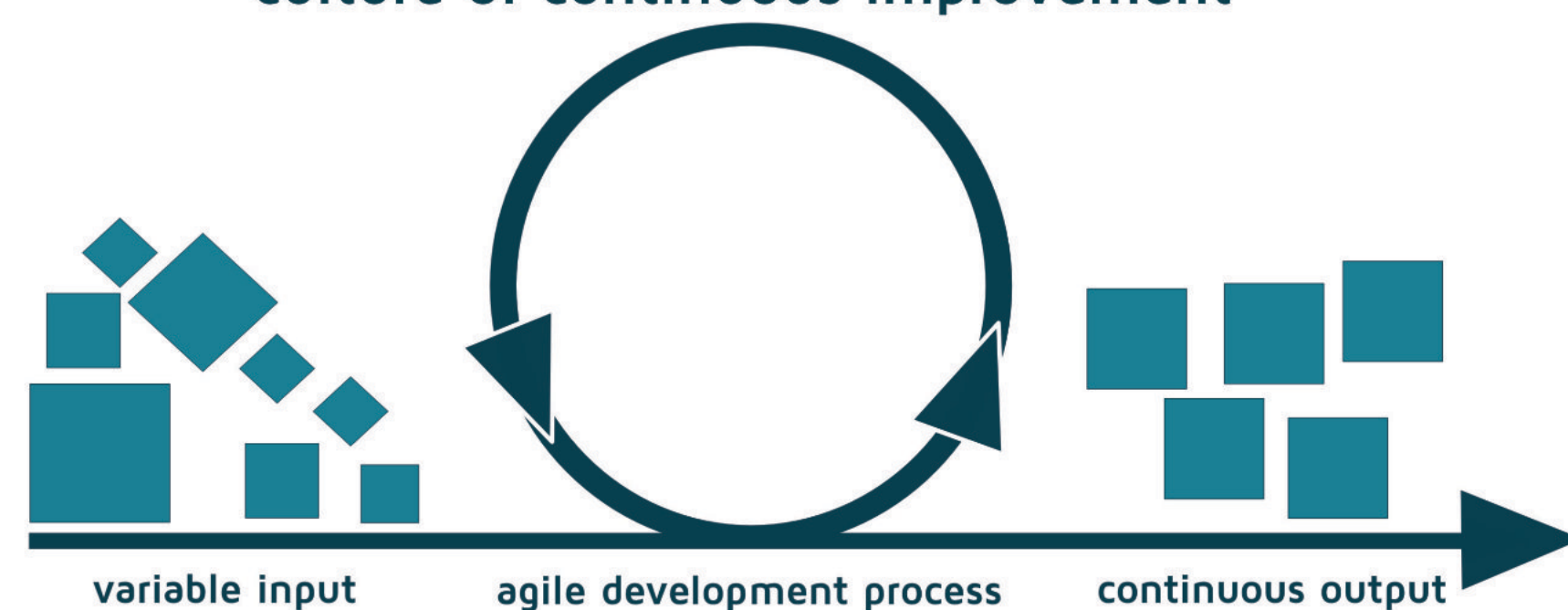
可量化

在看板系统中可以测量区域，它提供了关于过程质量的信息。

相互关系: ⬇ WIP ⬇ 生产周期 ⬇ lead time ⬇ 错误率 ⬇ 交付时间

Cumulative Flow Diagram
features

累计流程图
The Cumulative Flow Diagram shows the amount of Work In Progress (WIP) for a specified period and condition.
From the diagram can be read the number of tasks, **bottlenecks** and **lead times**.

瓶颈
Bottlenecks are stations in the Kanban system where too many tasks are accumulated.
They arise when too many tasks vary the processing times of tasks between the stations. Bottlenecks caused by blockers or temporal events and are fixed with the **theory of constraints**.

在制品 (WIP)
The WIP limits the number of begun work for each column, person and the whole board.
The WIP should be kept as low as possible. Exceeding the WIP points out problems in the system that need to be immediately examined and treated.
A tool for optimization is the consideration of **source of variability**.

生产周期
Kanban aims at a short lead time. This can be achieved by high quality. The condition is a low error.
The **lead time** begins with the backlog and ends with the done column.
The pure coding time is called **cycle time**.
Target: lead time has to be kept **constant** over time.

持续改进
持续改进的文化

culture of continuous improvement

variable input · agile development process · continuous output

优化

Kaizen - the culture of **continuous improvement -** is the main component of the Kanban system.
There is no clearly defined procedure for the optimization. There are several options to optimize the Kanban system.

Meetings
Daily standup
A daily brief analysis of the project process. Problems are identified faster, discussed in detail and dissolved in the connecting meeting.

Kanban meeting
The Kanban meeting can be conducted weekly or as needed. It includes a detailed view on the board, dissolving problems and prioritization of the current and future tasks of the next releases. Customer involvement is always aspired. The meetings support the continuous improvement for the work, quality and keep up the focus.

There are other meeting types: follow-up meeting, release planning meeting, operation meeting and many more.

Source of variability
External variations with assignable cause can be managed, reduced and eliminated by using the **Root Cause Analysis**. Irregular incoming and varying requirements can be handled.
Internal (random) **variations** can be defined by rules control, e.g. with classes of service and their rules.
High variability reduces the predictability.

Theory of constraints
To optimize the bottlenecks use the five **focusing steps**:
1. identify the constraint
2. decide how to exploit the constraint
3. subordinate everything else in the system to the decision made in step 2
4. elevate the constraint
5. avoid inertia, identify the next constraint and return to step 2

综述

Key features of Kanban
o visualize the workflow
o limit the Work In Progress
o measure and manage flow
o make process policies explicit
o use models to recognize improvement opportunities

Values of Kanban
o optimize predictability
o creation of transparency
o flexible reaction to incoming variability
o focus of the current work
o significant and continuous quality improvement

综述

Kanban policy
Make process policies explicit!
The Kanban policy includes the responsibilities and rules for the classes of service, board and columns and the WIP. The policy has to be kept up to date.

Template for Kanban meetings
A template is used to ensure continuous improvement of the workflow:
o view the tasks, dissolve blocker and bottlenecks
o analyze the risks
o measure improvement
o keep-watch-change