



**考试样卷**

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# 目录

考试说明	4
考试样卷	5
答案解析	46
试题评分	113



# 考试说明

本试卷是 EXIN DevOps Master™ (DEVOPSM.CH) 模拟考试。EXIN 考试准则适用于该考试。

本试卷由 40 道单项选择题组成。每道选择题有多个选项，但这些选项中只有一个正确答案。

本试卷的总分是 40 分。每道题的分数是 1 分。您需要获得 26 分或以上通过考试。

考试时间为 90 分钟。

祝您好运!

# 考试样卷

1 / 40

自动化迁移数据的最有效机制是什么？

What is the **most** effective mechanism for migrating data in an automated way?

- A) 创建较小的数据集以保持迁移可管控  
Create smaller datasets to keep migrations manageable
- B) 制定迁移失败时的回滚程序  
Develop a rollback procedure for when the migration fails
- C) 确保在迁移数据前的脚本测试正确性  
Ensure proper testing of scripts before migrating the data
- D) 设置数据库版本控制并保持严格的版本控制  
Set up database versioning and keep strict version control

## 2 / 40

某团队已经实现了持续部署，一切都在版本控制中。团队认为这是快速发现错误或必要时进行回滚的必要之举。

但是，团队负责人并不建议将二进制输出也保留在版本控制中。

团队负责人为什么这么说？

A team has implemented continuous deployment and everything is version controlled. The team feels this is necessary to find errors quickly or roll back whenever necessary.

However, the team lead argues that it is not recommended to keep binary output in version control as well.

Why does the team lead say this?

- A)** 因为重新编译必须始终作为正常构建过程的常规环节执行  
Because a recompilation must be always be done as a regular part of the normal build process
- B)** 因为二进制输出是大文件，每次构建都会改变，可以从源代码重新创建  
Because binary output are large files that change every build and can be recreated from source code
- C)** 因为多个团队成员处理二进制输出会导致版本控制困难  
Because multiple team members work on the binary output which makes version control difficult
- D)** 因为二进制输出是编译器的输入，不能正确保存在版本控制中  
Because the binary output is the input for compilers and cannot be kept in version control properly

### 3 / 40

某团队一直在创建部署流水线。他们已经成功实现了流程的单件流，并拥有一些基本的自动化构建和部署流程，但单元测试和验收测试仍然由人工执行。目前的发布频率是每月一次。

团队讨论改进部署流水线的下一步措施。

- **Aki**表示：“我们应该先进一步提高发布的频率。由此遇到的问题可以推断出其他缺失的要素。”
- **Em**表示：“我们应该将其余的测试自动化。一旦单元测试和验收测试实现了自动化，我们就可以开始自动化发布了。”
- **Ken**表示：“部署流水线是组织价值链的一部分。因此，在执行其他事项前，我们应该先限制在制品（WIP）。”
- **Mart**表示：“现在进展顺利，我们已经实现了单件流。现在没理由采取任何行动，所以我们应该等待组织成熟。”

在这种情况下，谁的建议**最好**？

A team has been working on creating a deployment pipeline. They have achieved single-piece flow of their process successfully and have some basic automated build and deployment processes, but the unit and acceptance tests are still manual. They currently release every month.

The team discusses what to do next to improve their deployment pipeline.

- **Aki** states: " We should increase the frequency of the releases further first. The other missing elements will follow from the problems that we will run into by doing that."
- **Em** states: "We should automated the rest of the tests. Once we have automated unit tests and acceptance tests, we can start automating releases."
- **Ken** states: "The deployment pipeline is part of the value chain of the organization. Therefore, we should first limit the work-in-progress (WiP) before we do anything else."
- **Mart** states: "It is going well right now and we have achieved single-piece flow. There is no reason to take any action right now, so we should wait for the organization to mature."

Whose suggestion is **best** in this scenario?

(题目未完，接下一页)

- A) Aki  
Aki
- B) Em  
Em
- C) Ken  
Ken
- D) Mart  
Mart



#### 4 / 40

团队需要为一个新产品开发部署流水线。团队讨论部署流水线的提交阶段。他们正在努力实现持续集成。

一位团队成员表示：“完成的定义（DoD）应该在提交阶段或之前定义。如果代码在提交时不符合 DoD，工作应该中止。”

这种说法是否正确？

For a new product, a team needs to develop a deployment pipeline. The team discusses the commit stage of the deployment pipeline. They are working towards continuous integration.

One team member says: "The definition of done (DoD) should be defined during or before the commit stage. When code does not adhere to the DoD when it is committed, the work should be stopped."

Is this true?

**A) 是，因为团队成员的工作不当，必须立即予以训斥。**

Yes, because the team member is not doing their work correctly and must be reprimanded immediately.

**B) 是，因为工作不符合DoD则无法增加价值，不应予以提交。**

Yes, because work that does not adhere to the DoD does not add value and should not be committed.

**C) 不是，因为DoD是在客户会议期间定义，在提交阶段前尚未就绪。**

No, because the DoD is defined during customer meetings and is not ready before the commit stage.

**D) 不是，因为部署流水线中的工作必须始终运转，工作永远不会突然中止。**

No, because work in the deployment pipeline must always flow and work may never be stopped suddenly.

## 5 / 40

某团队在部署应用软件升级后，遇到了许多应用和硬件故障。他们试图恢复已知的正常状态，中间耗费了很长时间。这些故障导致了关键应用停机时间的延长。管理层要求团队在后续部署中降低中断的风险。

团队正在讨论如何解决这个问题。

团队应该**首先**做什么？

A team experiences many application and hardware failures after deploying application software upgrades. When they were trying to recover a known good state, this took a long time. The failures resulted in extended downtime for critical applications. Management has asked the team to reduce the risk of disruption for the next deployments.

The team discusses how to solve this problem.

What should this team do **first**?

- A) 将所有测试以及构建、部署和发布过程完全自动化  
Automate all tests and the build, deploy, and release processes fully
- B) 确保一切都在版本控制中，以实现快速恢复  
Ensure that everything is in version control to enable quick recoveries
- C) 让开发团队与运维团队进行沟通  
Get the Development team to communicate with the Operations team
- D) 对开发团队进行培训以了解部署过程  
Train the Development team to understand the deployment process

6 / 40

某组织正在计划实施持续集成。组织的开发团队赞同这种新的工作方式，并已选择了从命令行构建软件的自动化工具。

还有哪项活动是持续集成的先决条件？

An organization is planning to implement continuous integration. The organization's development team agrees with this new way of working and has already selected automation tools, which will build software from the command line.

Which other activity is a prerequisite for continuous integration?

- A)** 应该去除绝对路径，因为这是与第三方库集成的必要条件。  
Absolute paths should be eliminated, because this is necessary for integration with third-party libraries.
- B)** 应该控制基础架构访问权，因为这样可以防止擅自更改。  
Infrastructure access should be controlled, because this ensures no one can make unapproved changes.
- C)** 应该记录价值流，因为这有助于识别需要改进的方面。  
Value streams should be documented, because this helps identify areas that are in need of improvement.
- D)** 应该建立版本控制，因为这样可以明确具体的操作时间、操作人和操作原因。  
Version control should be established, because this makes it clear what was done when, by whom, and why.

## 7 / 40

某团队正在讨论他们的用户验收测试。目前，他们在人工验收测试上耗费了大量时间、精力和金钱。管理层询问他们是否有更好的选择。通常，管理层会倾向于生产中断风险最低的解决方案。

团队得出结论，内部具备将所有用户验收测试自动化的能力。但是，这样会耗费一些时间并增加成本。一位团队成员表示，竞争对手已用自动化单元和组件测试取代了所有验收测试。

在这种情况下，团队是否应该将用户验收测试自动化？

A team is discussing their user acceptance tests. Currently they are spending a large amount of time, effort, and money on manual acceptance testing. Management has asked them if there is a better alternative. As a rule, management will favor the solution with the lowest risk to production disruptions.

The team concludes that they have the ability in-house to automate all user acceptance tests. However, this would take some time and increase the costs. One team member remarks that a competitor has replaced all acceptance testing with automated unit and component tests.

Should the team automate the user acceptance tests in this scenario?

- A)** 是，因为从长远来看，自动化的成本将低于人工测试，并且自动化将降低生产中断的风险。  
Yes, because automation will be cheaper than manual testing in the long run and this keeps the risk of production disruptions low.
- B)** 是，因为这可以将人工验收测试的次数降至每月一次，从而降低生产中断的风险。  
Yes, because this reduces the number of manual acceptance tests to once a month to keep the risk of production disruptions low.
- C)** 不是，因为人工验收测试可以确保在发布前发现所有缺陷，从而降低生产中断的风险。  
No, because manual acceptance tests ensure that all defects are found before releasing to keep the risk of production disruptions low.
- D)** 不是，因为单元和组件测试取代了验收测试，竞争对手证明了这可以降低生产中断的风险。  
No, because unit and component tests replace acceptance tests and the competitor proves that this keeps the risk of production disruptions low.

8 / 40

某初创公司为宠物主人开发了一款应用程序。通过该应用程序，客户能够找到一日宠物保姆。公司老板正与一位大客户洽谈，希望公司能够快速发展。

目前，开发团队的测试过程由人工执行。到目前为止，人工测试效果非常好。

开发团队接下来应该做什么？

A start-up company created an app for pet owners. The app lets customers find a pet sitter for a day. The company owner is talking to a large customer and expects that the company will grow fast.

Currently, the Development team has a manual process in place for testing. So far, this has worked very well.

What should the Development team do next?

- A) 为运维团队创建新的测试以实现自动化部署  
Create new tests for the Operations team to automate deployment
- B) 保持人工测试，必要时增加新的人工测试  
Keep the manual tests and add new manual tests if necessary
- C) 等待直到确定如何为新的客户创造价值  
Wait until they know how to create value for the new customers
- D) 与运维团队合作编写自动化测试  
Work together with the Operations team to write automated tests

9 / 40

某DevOps团队在软件开发测试期间使用自有数据库中的数据。

该团队的**最大**潜在问题是什么？

A DevOps team uses the data in their databases during software development testing.

What is the **largest** potential problem for this team?

- A) 从测试数据库所在地的外部访问数据  
The access to data from locations outside of the testing database
- B) 居家办公时生产数据的可访问性  
The accessibility of production data when working from home
- C) 用于自动化测试的代表性测试数据的可用性  
The availability of representative test data for automated testing
- D) 现有安全控制措施在测试数据上的安全性  
The security of the available security controls on the test data

## 10 / 40

Kamala是一名信息安全分析师，负责改进一家开放式金融公司的当前软件开发过程。她的主要目标之一是提高编码阶段的信息安全意识。

Kamala建议团队应该在信息安全上进行“左移”，即将信息安全集成于从编码到运维的整个软件交付生命周期中。

她的经理Rob不赞同这一提议，他建议聘请专家，在产品准备部署时将信息安全性构建到产品中。他认为开发工程师不是安全专家，应该专注于开发。

谁是对的？

Kamala is an information security analyst responsible for improving the current software development process of an open finance company. One of her main goals is to increase awareness of information security during coding phases.

Kamala has advised that teams should 'shift left' on information security, which means that it should be integrated into the entire software delivery lifecycle from code to operations.

Her manager Rob disagrees with this proposal and suggests hiring specialists to build information security into the products once they are ready for deployment. He argues that the developers are no security experts and should be able to focus on developing.

Who is correct?

- A)** Kamala, 因为及早集成可确保遵守相关法律法规，从长远来看，可以降低构建安全软件的成本。  
Kamala, because an earlier integration ensures compliance with relevant laws and regulations and will make building secure software cheaper in the long run.
- B)** Kamala, 因为团队成员可以通过培训自己成为安全专家，由此可以节省安全专家的工资成本。  
Kamala, because the team members can get trained to become security experts themselves and this will save the salary costs of a security expert.
- C)** Rob, 因为最好的方法是基于信息安全最佳实践制定一套策略，并聘请专家在产品中实施策略。  
Rob, because it works best to create a set of policies based on information security best practices and hire an expert to implement them in the products.
- D)** Rob, 因为开发工程师确实应该专注于开发软件这一核心任务，而不是成为安全专家。  
Rob, because Developers should indeed be able to focus on their core task of developing software and not be burdened with becoming security experts.

11 / 40

持续交付的**最大**好处是什么？

What is the **largest** benefit of continuous delivery?

- A) 以透明的方式实现软件开发的一致性和效能。  
It enables conformance and performance of software development in a transparent manner.
- B) 确保在软件交付团队中实施公司治理流程。  
It ensures that corporate governance processes are enacted in software delivery teams.
- C) 关注部署的上市时间和增强的业务绩效。  
It focuses on the time to market of deployment and enhanced business performance.
- D) 引入自动化以降低对软件合规和质保的需求。  
It introduces automation to reduce the need for compliance and assurance of software.



## 12 / 40

某团队正在开发一款应用程序，并想要开始采用持续交付。在一次流程改进会议上，团队讨论应该采用哪种实践来实现持续交付。

团队应该怎么做？

A team is working on an application and wants to start working with continuous delivery. During a process improvement session, the team discusses what practice they should use to achieve continuous delivery.

What should the team do?

- A)** 团队应该开始使用Scrum作为管理实践，并结合季度发布计划，以提高敏捷性。  
The team should start using Scrum as its management practice along with quarterly release planning to increase agility.
- B)** 团队应该开始致力于改进各分支的持续集成及其应用的自动化测试。  
The team should start working on improving continuous integration of branches and automated testing of their application.
- C)** 团队应该利用敏捷变革管理实践和反馈环来进行文化变革。  
The team should work on cultural change using Agile change management practices and feedback loops for reporting.
- D)** 团队应该在团队层面采用看板（Kanban），同时创建一个松耦合架构。  
The team should work on Kanban implementation on the team level while creating a loosely coupled architecture.

### 13 / 40

某公司对开发过程实施了彻底变革，由瀑布式变成了DevOps。团队想要缩短发布的间隔时间，但在这方面遇到了一些问题。

团队在过程分析中发现了以下问题：

- 由于每个人都在不同代码分支工作，所以移植代码占用了五分之一的冲刺时间。
- 一旦发现破坏构建的问题时，生产环境就必须回滚。
- 团队有一个版本控制系统，但并不监控关键绩效指标（KPI）。
- 随着发布次数增加，收到了越来越多的客户反馈（包括投诉）。

要缩短发布的间隔时间，哪一项对团队的帮助**最大**？

A company has radically changed the development process from waterfall to DevOps. The team wants to reduce the time between releases, but is experiencing some problems doing that.

The team has found the following problems during their process analysis:

- A fifth of the sprint time is spent on porting code, because everyone works on separate code branches.
- Whenever issues are found that break the build, the production environment must be rolled back.
- The team has a version control system in place, but does not monitor key performance indicators (KPIs).
- With the increased number of releases more customer feedback, including complaints, comes in.

What will help this team **most** to reduce the time between releases?

- A) 采用基于主干的开发，无需移植代码**  
Adopt trunk-based development to make porting code unnecessary
- B) 重现测试失败，以免回滚生产环境**  
Reproduce test failures to prevent rolling back the live environment
- C) 利用金丝雀发布来减少客户投诉量**  
Use canary releases to reduce the number of customer complaints
- D) 加大遥测技术利用，监控体现业务价值的关键绩效指标**  
Use more telemetry to monitor KPIs that show the business value

14 / 40

哪一项**不是**松耦合架构的优点？

What is **not** a benefit of a loosely coupled architecture?

- A) 开发工程师可以独立进行软件变更。  
Developers can work independently on software changes.
- B) 系统可以独立变更和验证。  
Systems can be changed and validated independently.
- C) 最大限度减少项目管理监督。  
There is a minimum of project management oversight.
- D) 单元和集成测试自动化。  
Unit and integration tests are run automatically.

15 / 40

Tina负责改进产品的架构和应用环境。在对应用程序的第一次评估中，她注意到以下几点：

- 只要团队通知受影响服务的所有者，就可以随时运行部署。
- 应用程序可以通过独立的组件进行部署。
- 尽管所有团队成员都可以部署应用程序，但仅有一个开发工程师有权限执行此操作。
- 团队需要运行少量脚本才能连接应用程序所依赖的邻近服务。

Tina如何才能**最好地**帮助团队准备更佳的基础架构环境？

Tina is responsible for improving a products' architecture and application environments. During her first assessment of the applications, she notices the following:

- Deploys could be run at any time by the team as long they notify the service owners of affected services.
- The applications could be deployed using independent components.
- Even though all team members could deploy the applications, only one developer has the access and permission to do it.
- The team needs to run a handful of scripts to connect with the adjacent services that the applications depend on.

How can Tina **best** help her team to prepare a better infrastructure environment?

- A)** 帮助团队创建松耦合架构，这样他们部署代码或发布应用程序时可以不受代码或应用程序所依赖的其他服务影响。  
Help the team to create a loosely coupled architecture so they deploy code or release the application independently of other services it depends on.
- B)** 组织所有技术负责人和高级开发工程师参加黑客马拉松，进行技术创新，并以新的紧耦合架构取代当前的基础架构。  
Organize a hackathon with all tech leaders and senior developers to innovate and replace the current infrastructure with a new tightly coupled architecture.
- C)** 重新创建邻近应用程序以消除依赖关系，这样团队可以更快地运行脚本，并独立于其他应用程序进行应用程序部署。  
Recreate the adjacent applications to remove dependencies so the team can run scripts faster and deploy their applications independently of other applications.
- D)** 对团队成员进行应用程序安全部署的培训，授予相应的权限，将他们纳入变更咨询委员会（CAB）。  
Train the team members on deploying the applications safely, give them the appropriate privileges, and make them a part of the change advisory board (CAB).

16 / 40

部署流水线通常由多个反馈环组成。

反馈环的**主要**优点是什么？

A deployment pipeline typically consists of multiple feedback loops.

What is the **main** benefit of using feedback loops?

- A) 改善开发团队与运维团队间的沟通。  
Communication between the Development and Operations teams is improved.
- B) 更频繁、更可靠地向用户交付更高质量的软件。  
High-quality software gets delivered to users more frequently and more reliably.
- C) 客户参与到开发过程中的多个环节。  
The customers are involved at multiple steps during the development process.
- D) 定期执行用户验收测试（UAT），收集利益相关者的意见。  
User acceptance testing (UAT) is performed regularly to gather stakeholder opinions.

17 / 40

某软件开发团队因部署了不符合客户期望的功能而遭受批评。

哪一项是该团队改善这种情况的**最佳**方法？

A software development team has been criticized for deploying features which do not meet customer expectations.

What is the **best** way for this team to improve this situation?

- A) 在部署前创建独立的用户验收测试循环  
Creating a standalone user acceptance testing cycle prior to deployment
- B) 降低其他利益相关者需求的优先级或将其完全取消  
Lowering the priority of other stakeholder requirements or fully removing them
- C) 在每个开发项目开始时将需求静态化或固定化  
Making requirements static or fixed at the start of each development project
- D) 在整个开发生命周期内积极寻求利益相关者的见解  
Seeking stakeholder insights actively throughout the development lifecycle

18 / 40

DevOps、敏捷、Scrum、精益和看板（Kanban）都能以各自的方式为组织增加价值。

DevOps能给组织带来什么**独特**价值？

DevOps, Agile, Scrum, Lean and Kanban can all add value to an organization in their own way.

What **unique** value does DevOps bring to an organization?

- A) DevOps通过设置可持续的开发节奏，实现客户的定期反馈环。  
DevOps allows regular feedback loops from customers by setting a sustainable development cadence.
- B) DevOps确保开发团队和运维团队使用相同的任务板来协调任务。  
DevOps ensures the Development and Operations teams use the same task board to coordinate tasks.
- C) DevOps专注于持续发布，以高效的流程快速向客户交付价值。  
DevOps focuses on releasing continuously to deliver value to the customer quickly in an efficient process.
- D) DevOps及时提供新服务，同时通过消除浪费工作以专注于效率。  
DevOps provides the new services just-in-time while focusing on efficiency by eliminating wasteful work.

19 / 40

DevOps的目的是通过专注于增加价值来提升客户满意度和客户体验。

做到这点的**主要**途径是什么？

DevOps aims at increasing customer satisfaction and the customer experience by focusing on adding value.

How is this **primarily** done?

- A) 实现测试和部署自动化  
By automating testing and deployment
- B) 更频繁地交付产品  
By delivering products more frequently
- C) 开发功能性强的产品  
By developing well-functioning products
- D) 采用技术熟练的开发工程师  
By using highly skilled developers

20 / 40

许多DevOps团队采用可视化（例如卡片墙）引导开发过程。卡片墙加强了团队的可视化控制。

可视化如何促进DevOps实践？

Many DevOps teams use visualization, such as card walls, to steer their development process. Card walls increase the team's visual control.

How does visualization facilitate DevOps practices?

- A) 优化办公环境从而提升生产效率和员工幸福感  
By brightening up the office environment to stimulate productivity and employee happiness
- B) 为各负责人提供一种让团队承担各项活动责任和进行分工的方式  
By giving leaders a way to hold the team accountable for their activities and divide work
- C) 帮助管理层获得对团队和必须完成的工作的控制  
By helping management to gain control over the team and the work that must be done
- D) 加强工作进度的清晰度，对团队文化和绩效产生积极影响  
By positively impacting team culture and performance by making work progress clearer

21 / 40

开发团队可以在要求的时间内构建新的功能，但通常不能按时交付。一项调查显示了以下问题：

- 回归错误不断重复出现。
- 尽管花费了时间修复错误，但仍不断有客户投诉生产环境中存在错误。
- 一旦新的功能需求出现，开发团队就感到压力很大。

根本问题是团队的测试策略无效。

团队应该如何解决这个问题？

The Development team can build new features within the requested time, but they are not often delivered on time. An investigation shows the following problems:

- Regression bugs keep recurring.
- Although time is spent on fixing bugs, customers keep complaining about bugs in the live environment.
- The Development team gets really stressed if a new feature is requested.

The underlying problem is that the team's testing strategy is not effective.

What should the team do to solve this?

- A)** 团队应将所有测试以及提交阶段自动化，并通过培训提高团队成员对持续集成过程的认识。  
The team should automate all tests and the commit stage, and increase the team members' understanding of the continuous integration process through training.
- B)** 团队应将所有单元测试、组件测试和集成测试自动化，并加强测试人员和开发团队之间的协作。  
The team should automate all unit tests, component tests, and integration tests, and increase collaboration between testers and the Development team.
- C)** 团队应将测试和部署过程自动化，并在必要时升级硬件或更新系统的配置管理。  
The team should automate testing and the deployment process, and if necessary upgrade hardware or update the system's configuration management.
- D)** 团队应通过增加监控和日志记录以及利用虚拟化技术，加强开发团队和运维团队之间的协作。  
The team should increase the collaboration between the Development and Operations teams, by increasing monitoring and logging, and by using virtualization.
- E)** 团队应确保开发团队了解部署过程，并加强与运维团队的协作。  
The team should make sure the Development team understands the deployment process, and increase the collaboration with the Operations team.



22 / 40

DevOps的一方面是确保相关信息能直观地展示给开发工程师。

哪一项是应向开发工程师展示的主要数据类型？

Part of DevOps is making sure relevant information is visually displayed for the Developers.

What is the **main** type of data that should be displayed for the Developers?

- A) 当天的客户反馈（包括投诉和功能需求），以促进开发工程师快速失败  
Customer feedback of the day, including complaints and feature requests, to allow developers to fail fast
- B) 个人开发工程师的生产效率（包括工作小时数），以促进开发工程师之间的竞争  
Individual developer productivity, including number of hours worked, to allow developers to compete
- C) 项目的整体进度（包括预算信息），以促进开发工程师进行战略决策  
Overall project progress, including budget information, to allow developers to make strategic decisions
- D) 产品质量数据（包括故障率和缺陷率），以促进开发工程师进行明智决策  
Product quality data, including failures and defect rates, to allow developers to make informed decisions

## 23 / 40

某公司已经同意采用DevOps工作方式。他们正在寻找一种与之相契合的方法来管理整个项目范围。

哪一项是管理DevOps项目范围的**最佳**方法？

A company has agreed to work in a DevOps way. They are searching for a way to manage the entire scope of their projects that fits with that way of working.

What is the **best** way to manage the scope of a DevOps project?

- A) 完成迭代计划，在每次迭代开始时就待工作项达成一致  
Complete an iteration planning to agree on the items to work at every iteration's start
- B) 针对功能创建完整的发布计划，向客户预告将发布的内容  
Create a full release plan for features, forecasting to customers what will be released
- C) 定义最小可用产品（MVP），并根据需要经常回顾  
Define what the minimum viable product (MVP) is and review as often as necessary
- D) 在每次迭代之前设定工作优先级，帮助团队成员选择工作  
Set the work priorities before each iteration to help the team members pick work

## 24 / 40

软件开发中的单件流是指聚焦于单一功能，持续推进工作直至完成。

为什么单件流对DevOps重要？

Single-piece flow in software development means that the focus is on a single feature that is continuously worked on until it is done.

Why is single-piece flow important for DevOps?

- A) 实现团队的工作节奏可持续、可预测，并保持恒定的速率。  
It allows the team to work at a sustainable and predictable pace with a constant velocity.
- B) 通过交付相关的高优先级功能，帮助团队增加价值。  
It helps the team to add value by delivering high-priority features when they are relevant.
- C) 增加了所有团队成员承担任务的共同责任。  
It increases the shared responsibility of picking up tasks among all team members.
- D) 通过限制涉及某个功能的团队成员数量，减少瓶颈。  
It reduces bottlenecks by limiting the number of team members that work on a feature.

25 / 40

Tool公司正忙于开发一个电商网站，这个项目属于高风险项目。客户对电商网站不满意，投诉网站未达到预期效果。

业务侧的高级经理认为，敏捷工作方式只会增加风险，而IT侧的高级经理则认为它是快速交付价值的唯一途径。IT经理想要将敏捷与DevOps相结合：频繁发布并征求反馈意见。

Tool公司聘请了一位顾问以确保他们会做正确的事。

顾问应该给出什么建议？

The Tool Company is busy developing an e-commerce site, and this project is a high-stakes project. Customers are dissatisfied and complain about the e-commerce site not working as expected.

Senior managers on the business side argue that working in an Agile way will only increase the risk, while the IT senior managers argue that it is the only way to deliver value fast. The IT managers want to combine Agile with DevOps: releasing often and asking for input.

The Tool Company hires a consultant to make sure they do the right thing.

What advice should the consultant give?

- A)** 不采用敏捷工作方式，也不转变为DevOps工作方式，因为客户已经在投诉电商网站未能达到预期效果。  
Do not work in an Agile way or change to a DevOps way of working because customers are already complaining about the e-commerce site not working as expected.
- B)** 采取敏捷工作方式，增加DevOps实践，让开发工程师可以在未经外部批准的情况下尽快完成部署，并不断收集客户反馈。  
Work in an Agile way, add DevOps practices, give developers the freedom to deploy without external approval and as soon as they can, and gather constant customer feedback.
- C)** 采取敏捷和DevOps工作方式创建电商网站，但在发布前要增加人工用户验收测试和变更批准委员会（CAB）流程。  
Use Agile and DevOps ways of working to create the e-commerce site but add manual user acceptance testing and a change approval board (CAB) process before releasing.
- D)** 软件开发采取敏捷和DevOps工作方式，但只向客户发布成品，以防止客户投诉和不满。  
Use Agile and DevOps ways of working within software development but only release finished products to customers to prevent complaints and dissatisfaction from the customers.

26 / 40

某团队一直协同合作融洽，但仍有客户投诉。团队希望增加实验并引入DevOps。

管理层将允许团队进行实验并改变工作方式，但前提是风险可以接受。公司的方针是尽可能降低风险。团队讨论了这个问题。

- **Hichem**表示，团队现在不应进行实验或改变工作方式，因为这可能会招致更多客户不满。相反，团队应该建立一个客户反馈表。
- **Kira**表示，将变更与大型版本发布捆绑总是好事，可以尽量减少运行环境中的中断和停机。加大版本发布规模应该能够提高生产产品质量。
- **Nazim**表示，在提高表现、减少客户投诉之前，不能转变为DevOps工作方式。增加人工测试应该能够帮助减少投诉。
- **Rose**表示，尽管听起来可能有悖直觉，但采取DevOps工作方式并进行实验将能最大程度地降低风险。如果团队成功完成测试和版本控制自动化，这将会是最佳方法。

在该场景中，谁的建议最有效？

A team has been working well together, but customers are still complaining. The team would like to experiment more and introduce DevOps.

Management will allow the team to experiment and change their way of working, but only if the risks are acceptable. The company policy is to minimize risks as much as possible. The team discusses this problem.

- **Hichem** states that the team should not experiment or change its way of working right now, because this may lead to more dissatisfaction with the customers. Instead, the team should build a customer feedback form.
- **Kira** states that it is always good to bundle changes into large releases to minimize disruptions and outages in the operations environment. Larger releases should keep the quality of the live product higher.
- **Nazim** states that they cannot change to a DevOps way of working until they are performing well and have reduced customer complaints. Additional manual tests should be able to help reduce the complaints.
- **Rose** states that it may sound counterintuitive but working in a DevOps way and experimenting will reduce the risks most. If the team has automated the tests and version control well, this is the best way to go.

Whose suggestion would work best in this scenario?

(题目未完，接下一页)

- A)** Hichem  
Hichem
- B)** Kira  
Kira
- C)** Nazim  
Nazim
- D)** Rose  
Rose

## 27 / 40

某网店专门经营70年代和80年代的服装。这家网店经营状况良好，现有客户群由爱好具有时代特色服装的客户和服装租赁公司组成。公司想要扩张。

一个团队讨论如何扩张，他们决定采用假设驱动开发。这家网店的一个可能性假设是，如果网店的内容能在网页端之外再在移动端上展示，将会吸引更多客户。

团队应该做什么？

A web shop specializes in 70's and 80's clothing. The web shop is doing well. Their current customer base consists of people that seek period costumes, and clothing rental companies. The company wants to expand.

A team discusses how to expand, and they decide to use hypothesis-driven development. An example of a possible hypothesis for this web shop is that more customers will be attracted to the web shop if its content is presented in a mobile app instead of just on the website.

What should be done?

(题目未完，接下一页)

- A)** - 客户定义一个假设，团队决定具体的测试或实验项目。
- 然后，团队构建一个支持拟定假设的最小可用产品（MVP），并检验客户的反应。
  - 在与客户进行简短反馈后，对MVP进行返工，确保客户价值最大化。
  - The customer defines a hypothesis, and the team determines what test or experiment should be done.
  - Then the team builds an MVP that supports the formulated hypothesis and tests the customers' response.
  - The MVP is reworked after a short feedback round with the customers to ensure the most customer value.
- B)** - 客户根据自己的需求提出假设，团队与客户沟通交流。
- 然后，团队构建原型并进行测试，确定最终的最小可用产品（MVP）。
  - 将原型重新开发为MVP，并向客户展示以检验假设。
  - The customer develops a hypothesis based on their needs and the team talks to the customers.
  - Then the team builds and tests a prototype and determines the final minimal viable product (MVP).
  - The prototype is redeveloped as an MVP and the customer is presented with it to test the hypothesis.
- C)** - 团队收集客户的信息并根据信息形成假设。
- 然后，团队确定证明或反驳该假设的具体实验或测试项目。
  - 进行实验并进行分析，然后告知客户并征求更多反馈。
  - The team gathers information from customers and formulates a hypothesis based on that information.
  - Then the team determines which experiment or test can be done to prove or disprove the hypothesis.
  - The experiment is conducted and analyzed, and the customer is informed and asked for more feedback.
- D)** - 团队收集利益相关者的信息，并根据信息形成备选假设。
- 然后，团队构建MVP并进行测试，再向组织的高管展示。
  - 根据验收测试结果和经理的反应形成最终假设。
  - The team gathers information from stakeholders and formulates alternative hypotheses from this.
  - Then the team builds and tests an MVP and presents it to the organization's upper management.
  - The final hypothesis is formed based on the results from acceptance tests and the manager's reaction.

28 / 40

哪一项**不是**精益管理实践很可能带来的效果？

What is **not** a likely effect of Lean management practices?

- A) 组织形成更具生机的文化。  
The organization gets a more generative culture.
- B) 软件交付效能提高。  
The software delivery performance is increased.
- C) 团队成员不容易工作倦怠。  
The team members are less likely to burn out.
- D) 管理者会更加关注利润。  
The managers will pay more attention to profits.



## 29 / 40

某团队在识别并解决基础架构中部署的应用程序存在的问题上遇到了挑战。这个问题导致了事件频发和服务中断。客户经常致电服务台投诉，服务台必须将许多问题转发给团队，这给他们带来了时间压力。

团队不清楚问题的根本原因，尽管他们已经绘制了工作流并按流程执行。团队目前在使用看板，似乎已经实现了流动。

从长远来看，哪种解决方案将**最**有助于减少问题数量？

A team has challenges identifying issues and troubleshooting applications that are deployed into their infrastructure. This is a problem because there are many incidents and outages. Customers call the service desk often with complaints and the service desk must reroute many questions to the team, which puts them under time pressure.

The team has no idea what the root cause of the issues is, even though they have mapped their workflow and follow these processes. The team is working with a Kanban board and seems to have achieved flow.

In the long term, which solution will help **most** to reduce the number of issues?

- A)** 聘请顾问重新绘制工作流，并在团队的看板上设置新流程  
Hire a consultant to remap the workflow and set up new processes on the team's Kanban board
- B)** 指示服务台停止将问题转发给团队，从而腾出宝贵的工作时间  
Free up valuable work time by instructing the service desk to stop rerouting questions to the team
- C)** 度量各团队成员的问题数量，并设立一个竞争机制以改进  
Measure the team members' individual numbers of issues and set up a competition to improve
- D)** 通过存储数据、创建仪表板和设置通知，建立监控策略  
Set up a monitoring strategy by storing data, creating a dashboard, and setting up notifications

30 / 40

某团队正在努力按时完成工作。他们尽力向客户如期交付产品。

设置在制品（WIP）限制如何帮助团队建立 workflow？

A team is struggling to get work done on time. They struggle to get the products to the customers on time.

How does imposing work-in-progress limits (WIP-limits) help this team to establish flow?

- A)** 改变参与团队的所有利益相关者和团队成员的角色  
By changing the roles of all stakeholders and team members involved with the team
- B)** 帮助识别瓶颈，从而助力团队改进和优化工作  
By helping to identify bottlenecks that help the team to improve and optimize the work
- C)** 改进应用程序和通信工具的生命周期管理  
By improving the lifecycle management of applications and communication tools
- D)** 限制团队工作所需的工具 and 应用程序数量  
By limiting the number of tools and applications that the team needs to use to work

### 31 / 40

某团队在负责多个项目，管理层对所有项目都给予相同的优先级。这给团队带来了压力，每天都要处理所有项目，每周还要汇报每个项目的进度。

团队需要一种方法来确保团队效率的最优化和高质量的交付。他们希望实现客户价值和业务价值的最大化。

团队应该怎么做？

A team works on several projects and management puts the same priority on all their projects. This leads to pressure on the team to do work on all projects daily and report progress on each project weekly.

The team needs a way to ensure maximum team efficiency and high-quality deliverables. They want to deliver the highest customer value and business value.

What should the team do?

- A)** 指定一名团队成员作为联络人，防止管理者直接与团队交流。缺点是团队不能再收到直接的客户反馈。  
Appoint one team member as a liaison to stop managers from directly talking to the team.  
The disadvantage is that the team no longer receives direct customer feedback.
- B)** 只要能设法让每个人都满意，就继续目前的工作方式。缺点是部分团队成员要经常转换任务。  
Keep working in the current way for as long as they can manage to keep everyone satisfied.  
The disadvantage is that some team members are switching tasks often.
- C)** 限制在制品（WIP）并向团队引入可视化管理技术。缺点是团队需要适应新的工作方式。  
Limit the work in progress (WIP) and introduce a visual management technique to the team.  
The disadvantage is that the team needs to adapt to the new way of working.
- D)** 拆分成由两到三名团队成员组成的小团队，分别负责每个项目。缺点是并非所有团队都具备在团队内开展工作的技能。  
Split up into smaller teams of two or three team members to work on each project separately.  
The disadvantage is that not all teams possess the skills to do the work within the team.

## 32 / 40

BigBlue Software是一家为其他企业开发软件的小公司。该公司拥有一个开发团队和一个运维团队。两个团队都有各自的经理，但他们合作融洽。由于公司规模小，而首席执行官又目标远大，两个团队有时会有时间压力。

时间紧迫时，两个团队都会犯错，导致软件出现错误和中断。在这种情况下，团队会齐心协力解决中断问题，或者集中某个问题以尽快解决。团队成员公开分享所犯错误、合作解决错误并交付客户价值，经理们为他们感到自豪。

变革Westrum组织文化类型是否能让该组织受益？

BigBlue Software is a small company that creates software for other businesses. The company has a Development team and an Operations team. These teams both have their own managers, but they work well together. Because the company is small, and the CEO is ambitious, the teams sometimes experience time pressure.

Under time pressure, both teams make errors that have led to bugs in the software and outages. The teams have pulled together on these occasions to solve the outages, or to swarm on a problem to solve it as quickly as possible. The managers are proud of the team members for openly sharing mistakes they made, cooperating to solve it, and delivering customer value.

Would this organization benefit from a change in its Westrum organizational culture typology?

**A) 是，从设立经理的团队结构可以看出，该组织文化为官僚型，应该实施变革。**

Yes, the organizational culture is bureaucratic as can be seen from the team structures with a manager and should be changed.

**B) 是，从压力下犯错可以看出，该组织文化为病态型，应该实施变革。**

Yes, the organizational culture is pathological as can be seen from the mistakes made under pressure and should be changed.

**C) 否，从合作和分享错误可以看出，该组织文化为生机型，不应该实施变革。**

No, the organizational culture is generative as can be seen from the cooperation and sharing mistakes and should not be changed.

**D) 否，从需要客户价值可以看出，该组织文化为市场导向型，不应该实施变革。**

No, the organizational culture is market oriented as can be seen from the call for customer value and should not be changed.

33 / 40

一位团队成员表示，组织需要组织级学习（又称为生机型文化），因为组织级学习能够帮助客户，确保质量，创造竞争优势，并打造一支忠诚的员工队伍。

为什么这是对的？

A team member states that the organization needs organizational learning, sometimes called a generative culture, because it enables helping the customers, ensures quality, and creates competitive advantage and a committed workforce.

Why is this true?

- A)** 因为组织级学习意味着发现错误，让团队成员个人担责并从中吸取教训  
Because organizational learning means identifying mistakes and holding individual team members accountable to learn from them
- B)** 因为组织级学习意味着让团队不断学习最新的敏捷和精益方法，以增加流动  
Because organizational learning means keeping the team educated on the latest Agile and Lean methods to increase the flow
- C)** 因为组织级学习需要一种使员工感受到支持而他们的判断受到重视的思维方式  
Because organizational learning requires a mindset that makes employees feel supported, and values their judgments
- D)** 因为组织级学习需要一种研究文化，能够自动形成假设以做出明智决策  
Because organizational learning requires a research culture that automatically creates hypotheses to make informed decisions

34 / 40

某人力资源团队被要求编制一份关于招聘DevOps团队成员的新政策。

哪一项是招聘DevOps团队成员的**最佳**政策？

A human resource team is asked to write a new policy for hiring DevOps team members.

What is the **best** policy for hiring DevOps team members?

- A) 允许应聘者在简历上不署名，并优先考虑能为团队带来多样性的应聘者，因为多样性有利于创造更好的团队成果  
Allowing applicants to apply without a name on their resume and preferring applicants that bring diversity to the team, because this leads to better team results
- B) 允许经理调查哪个别家公司的职员表现最好，并努力挖走他们，因为这样可以帮助团队吸纳最优秀的人才  
Allowing managers to research which employee performs best at another company and trying to buy them away, because this makes the best people part of the team
- C) 仅招募认为自己不完全契合组织或其他团队成员的应聘者，因为这样最能促进多样性  
Allowing only those applicants who do not fully feel that they fit in with the organization or with the other team members, because this fosters diversity the most
- D) 允许现有团队成员选择自己最认同的团队成员，因为这进一步促进整个团队的和谐和平等  
Allowing the team members to select the team member that they identify with most, because this brings more harmony and equality to the entire team

35 / 40

某组织将管理实践转变为精益领导力。这是对旧有工作方式的一次巨大变革，原先管理层会定期公开羞辱犯错的同事。

其中一个团队是分布式团队。尽管团队对新的领导风格更满意，但他们的沟通并不理想。团队成员不讨论所造成的错误，也不合作来快速解决问题。

团队经理引入了大多数团队成员私下在用的聊天工具的商业版本，但这似乎并没有达到预期效果。

团队是怎么回事，经理应该如何解决问题？

An organization has changed its management practices to Lean leadership. This is a big change from the old way of doing things, when management would regularly publicly shame coworkers for mistakes they made.

One of the teams is a distributed team. Although the team is much happier with the new leadership style, their communication is not optimal. The team members are not discussing bugs that they create or cooperating to solve problems quickly.

The team manager has introduced a business version of the chat tool that most team members were already using privately, but this does not seem to have the desired result.

What is happening in this team and how should the manager solve this?

- A)** - 团队成员对聊天工具还不够熟练。
  - 经理应促进内部或外部培训来解决这个问题。
  - The team members are not skilled enough with the chat tool yet.
  - The manager should facilitate internal or external training to solve this.
- B)** - 团队成员仍处于原先领导风格的调整适应期。
  - 经理不需要干预这个临时过程。
  - The team members are still adjusting from the former leadership style.
  - The manager does not need to intervene in this temporary process.
- C)** - 团队成员还不信任新的领导风格。
  - 经理必须考虑周全并表达对团队的自豪感。
  - The team members do not trust the new leadership style yet.
  - The manager must be thoughtful and express his pride in the team.

36 / 40

确保团队成员工作有意义的**最大**直接好处是什么？

What is the **largest** direct benefit of making sure team members have meaningful work?

- A) 有助于减少工作倦怠，提高员工的忠诚度和敬业度。  
It helps to decrease burnout and increases employee loyalty and engagement.
- B) 有助于在预算范围内按时交付团队的所有DevOps项目。  
It helps to deliver all DevOps projects from the team on time and within budget.
- C) 有助于增强团队对能够完成DevOps工作的信心。  
It helps to increase the confidence of the team that they can accomplish DevOps work.
- D) 有助于留住团队成员，因为没有人愿意离职。  
It helps to retain the team members because no one wants to leave their job.



37 / 40

某公司在过去两年中呈指数级增长。因此，开发团队面临着时间压力。每个团队成员都觉得需要休假，甚至有团队成员考虑辞职。团队请病假的次数高于往年。

团队经理招募了几名新的团队成员，但大家仍然认为工作量大，尽管最后期限似乎全都及时完成。为了解决这个问题，团队经理想要更直接地解决关于工作倦怠的抱怨与压力问题。

哪些行动**最能**解决对工作倦怠的抱怨与压力问题？

A company has grown exponentially in the last two years. As a consequence, the Development team is experiencing time pressure. Every team member feels like they could use a vacation and some team members are even thinking about quitting their jobs. The team has been calling in sick more than in other years.

The team manager has hired several new team members, but the workload is still perceived as high, although all deadlines seem to be made just in time. To solve the problem, the team manager wants to address the burnout complaints and stress more directly.

Which actions **best** address burnout complaints and stress?

(题目未完，接下一页)

- A)** - 与分包商签订合同，委托管理一年中高峰期增加的工作量
  - 让团队有机会接受公费的专业心理辅导项目
  - Contract subcontractors for managing the increased workload during peak periods of the year
  - Give the team members access to professional mental help programs paid for by the company
- B)** - 给所有团队成员一个月的假期，确保他们复工时能焕发新生
  - 要求经理在团队复工前找出所有可能导致工作倦怠的因素
  - Give all team members a month-long vacation to ensure a fresh start when they return to work
  - Ask the managers to identify all factors that might be contributing to burnout before the team returns
- C)** - 让团队成员讨论过程中的所有任务，以发现哪些任务有意义
  - 移除无意义的任务并确保团队能够自行做出大部分决策
  - Have the team members discuss all tasks in the process to discover which tasks are meaningful
  - Remove tasks that are not meaningful and ensure the team can make most decisions on their own
- D)** - 聘请更称职的经理，能够知道如何帮助团队成员平衡工作与生活
  - 让团队成员有更多时间适应新的环境，找到新的平衡
  - Hire a more competent manager who knows how to create work-life balance for the team members
  - Allow more time for the team members to settle into the new environment and find a new balance

38 / 40

变革领导力被认为是DevOps中最容易被忽视的方面之一。

为什么变革领导力对于整个组织的DevOps成功至关重要？

Transformational leadership is said to be one of the most overlooked aspects of DevOps.

Why is transformational leadership essential for DevOps success across the organization?

- A)** 因为来自高级管理层的承诺促使他们变革流程以抵消阻力  
Because commitment from upper management allows them to change processes to counteract resistance
- B)** 因为如果不是所有员工（包括高级管理层）都了解DevOps，DevOps将会失败  
Because DevOps will fail if not all employees, including upper management, understand DevOps well
- C)** 因为持续交付所必要的变革必须由高级管理层强制要求  
Because the changes that are necessary for continuous delivery must be mandated by upper management
- D)** 因为高级管理层必须信任员工，并鼓励他们在免惩罚下进行实验  
Because upper management must trust employees and encourage them to experiment without punishment

39 / 40

对组织中DevOps的成熟度进行持续监测是一项关键能力。它支持跨IT专业的协作，减少或消除在有业务孤岛的组织中频繁出现的非生产性行为。持续监测不同于常规监测。

持续监测的**主要**要求是什么？

Continuous monitoring of the maturity of DevOps in an organization is a critical capability. It enables collaboration across IT specialties, and reduces or eliminates unproductive behaviors that all too frequently appear in organizations with operational silos. Continuous monitoring is different from conventional monitoring.

What is the **main** requirement of continuous monitoring?

- A) 使组件完全自动地达到预期状态  
Bringing a component to the desired status in a fully automated way
- B) 让开发团队和运维团队在每个价值流中协同工作  
Getting Development and Operations to work together in each value stream
- C) 保持组织协调并关注生产环境  
Having organizational alignment and a focus on the production environment
- D) 对组织的复杂应用环境进行全面了解  
Taking a holistic view of the organization's complex application environment

40 / 40

在考察组织的DevOps成熟度时，重要的是要从多维角度看待组织、组织的能力及其在各维度的成熟度。DevOps持续评估架构可以表示为一个立方体。

DevOps立方体的六个面分别代表什么？

When looking at an organization's DevOps maturity, it is important to have a multidimensional perspective of the organization, its capabilities, and its maturity in each of these dimensions. The DevOps continuous assessment architecture can be represented as a cube.

What is represented on the sides of the DevOps cube?

- A) 流动、反馈、学习和实验、治理、部署及质量保证**  
Flow, feedback, learning and experimentation, governance, deployment, and quality assurance
- B) 监测、信息、沟通、评估、控制及活动**  
Monitoring, information, communication, assessment, control, and activities
- C) 人员、流程、合作伙伴、技术、质量保证及文化**  
People, process, partners, technology, quality assurance, and culture
- D) 需求、流程、资源、组织、成熟度及能力**  
Requirements, processes, resources, organization, maturity, and capability

# 答案解析

1 / 40

自动化迁移数据的最有效机制是什么？

What is the **most** effective mechanism for migrating data in an automated way?

- A) 创建较小的数据集以保持迁移可管控  
Create smaller datasets to keep migrations manageable
  - B) 制定迁移失败时的回滚程序  
Develop a rollback procedure for when the migration fails
  - C) 确保在迁移数据前的脚本测试正确性  
Ensure proper testing of scripts before migrating the data
  - D) 设置数据库版本控制并保持严格的版本控制  
Set up database versioning and keep strict version control
- 
- A) 错误。实现版本控制比自动化更为重要，数据集大小无关紧要。  
Incorrect. Implementing version control is more important for automation. The size of the dataset should not matter.
  - B) 错误。这主要针对迁移失败时要采取的恢复操作。实现版本控制比自动化更为重要，它可以防止迁移失败。  
Incorrect. This is focused on recovery actions to take if the migration fails. Implementing version control is more important for automation because it prevents migration fails.
  - C) 错误。尽管测试很重要，但实现版本控制比自动化更为重要。  
Incorrect. Although testing is important, implementing version control is more important for automation.
  - D) 正确。对数据库进行版本控制是自动迁移数据的最佳机制。（文献：B，第12章）  
Correct. Versioning the database is the best mechanism to migrate data in an automated fashion. (Literature: B, Chapter 12)

## 2 / 40

某团队已经实现了持续部署，一切都在版本控制中。团队认为这是快速发现错误或必要时进行回滚的必要之举。

但是，团队负责人并不建议将二进制输出也保留在版本控制中。

团队负责人为什么这么说？

A team has implemented continuous deployment and everything is version controlled. The team feels this is necessary to find errors quickly or roll back whenever necessary.

However, the team lead argues that it is not recommended to keep binary output in version control as well.

Why does the team lead say this?

- A)** 因为重新编译必须始终作为正常构建过程的常规环节执行  
Because a recompilation must be always be done as a regular part of the normal build process
- B)** 因为二进制输出是大文件，每次构建都会改变，可以从源代码重新创建  
Because binary output are large files that change every build and can be recreated from source code
- C)** 因为多个团队成员处理二进制输出会导致版本控制困难  
Because multiple team members work on the binary output which makes version control difficult
- D)** 因为二进制输出是编译器的输入，不能正确保存在版本控制中  
Because the binary output is the input for compilers and cannot be kept in version control properly

(题目未完，接下一页)

- A)** 错误。尽管重新编译会创建二进制输出，但不建议将重新编译作为正常构建过程的常规环节执行。  
Incorrect. Although recompilation would create binary output, it is not advisable to do recompilation as a regular part of the normal build process.
- B)** 正确。二进制输出是大文件，每次编译和通过自动化测试的签入都会重新创建。通过重新运行保存在版本控制中的构建脚本，可以从源代码中重新创建二进制输出，所以不需要一起保留这些大文件。（文献：B，第2章）  
Correct. The binary output are large files and recreated for every check-in that is compiled and passes the automated tests. They can be recreated from source code by rerunning the build script which is kept in version control, so there is no need to keep these large files as well.  
(Literature: B, Chapter 2)
- C)** 错误。二进制输出的版本控制并不困难，只是不切实际。  
Incorrect. Version control for the binary output is not difficult, just impractical.
- D)** 错误。二进制输出是编译器的输出，而不是输入。它可以保存在版本控制中，但没有必要。  
Incorrect. Binary output is the output of compilers, not the input. It could be kept in version control, but that is unnecessary.



### 3 / 40

某团队一直在创建部署流水线。他们已经成功实现了流程的单件流，并拥有一些基本的自动化构建和部署流程，但单元测试和验收测试仍然由人工执行。目前的发布频率是每月一次。

团队讨论改进部署流水线的下一步措施。

- **Aki**表示：“我们应该先进一步提高发布的频率。由此遇到的问题可以推断出其他缺失的要素。”
- **Em**表示：“我们应该将其余的测试自动化。一旦单元测试和验收测试实现了自动化，我们就可以开始自动化发布了。”
- **Ken**表示：“部署流水线是组织价值链的一部分。因此，在执行其他事项前，我们应该先限制在制品（WIP）。”
- **Mart**表示：“现在进展顺利，我们已经实现了单件流。现在没理由采取任何行动，所以我们应该等待组织成熟。”

在这种情况下，谁的建议**最好**？

A team has been working on creating a deployment pipeline. They have achieved single-piece flow of their process successfully and have some basic automated build and deployment processes, but the unit and acceptance tests are still manual. They currently release every month.

The team discusses what to do next to improve their deployment pipeline.

- **Aki** states: " We should increase the frequency of the releases further first. The other missing elements will follow from the problems that we will run into by doing that."
- **Em** states: "We should automated the rest of the tests. Once we have automated unit tests and acceptance tests, we can start automating releases."
- **Ken** states: "The deployment pipeline is part of the value chain of the organization. Therefore, we should first limit the work-in-progress (WiP) before we do anything else."
- **Mart** states: "It is going well right now and we have achieved single-piece flow. There is no reason to take any action right now, so we should wait for the organization to mature."

Whose suggestion is **best** in this scenario?

(题目未完，接下一页)

- A) Aki  
Aki
- B) Em  
Em
- C) Ken  
Ken
- D) Mart  
Mart

- A)** 错误。在发布过程自动化或实现单件流之前增加发布次数毫无意义。

Incorrect. It does not make sense to increase the number of releases before the release process is automated or single-piece flow is achieved.

- B)** 正确。首要任务应该是实现流水线的单件流。一旦达成单件流，就如这种情况下，应实现自动化，直到发布完全自动化。（文献：B，第5章）

Correct. The first priority should be getting the single-piece flow of the pipeline in place. Once that is done, as it is in this scenario, automation should be implemented until releases are fully automated. (Literature: B, Chapter 5)

- C)** 错误。由于团队目前正在使用单件流，因此很可能已经在限制在制品，或者没有必要这么做。自动化将推进部署流水线。

Incorrect. Since the team is working with a single-piece flow it is very likely that they are already limiting WiP, or there is no need to do that. Automation will move the deployment pipeline forward.

- D)** 错误。不做任何改变，坐等组织的其他部分成熟并无多大帮助。自动化将推进部署流水线。

Incorrect. Not changing anything and waiting for the rest of the organization to mature is not very helpful. Automation will move the deployment pipeline forward.

#### 4 / 40

团队需要为一个新产品开发部署流水线。团队讨论部署流水线的提交阶段。他们正在努力实现持续集成。

一位团队成员表示：“完成的定义（DoD）应该在提交阶段或之前定义。如果代码在提交时不符合 DoD，工作应该中止。”

这种说法是否正确？

For a new product, a team needs to develop a deployment pipeline. The team discusses the commit stage of the deployment pipeline. They are working towards continuous integration.

One team member says: "The definition of done (DoD) should be defined during or before the commit stage. When code does not adhere to the DoD when it is committed, the work should be stopped."

Is this true?

**A) 是，因为团队成员的工作不当，必须立即予以训斥。**

Yes, because the team member is not doing their work correctly and must be reprimanded immediately.

**B) 是，因为工作不符合DoD则无法增加价值，不应予以提交。**

Yes, because work that does not adhere to the DoD does not add value and should not be committed.

**C) 不是，因为DoD是在客户会议期间定义，在提交阶段前尚未就绪。**

No, because the DoD is defined during customer meetings and is not ready before the commit stage.

**D) 不是，因为部署流水线中的工作必须始终运转，工作永远不会突然中止。**

No, because work in the deployment pipeline must always flow and work may never be stopped suddenly.

(题目未完，接下一页)

- A)** 错误。工作应该中止，因为工作无法增加价值，不应予以提交。但是，这并不总是意味着团队成员的工作不当，或者团队成员必须受到训斥。

Incorrect. The work should be stopped because the work adds no value and should not be committed. However, this does not always mean that the team member is not doing their work properly or that the team member must be reprimanded.

- B)** 正确。当工作不符合DoD时，从客户角度来看，没有足够的价值将其放入部署管道中。鉴于单件流，这会延迟更有价值工作的流动。（文献：B，第3章）

Correct. When work does not adhere to the DoD, there is not enough value for the customer to put it in the deployment pipeline. Considering single-piece flow, this would delay the flow of more valuable work. (Literature: B, Chapter 3)

- C)** 错误。DoD是项目中首先达成一致的事项之一。不是在客户会议期间定义的。当编码开始时，DoD应该准备就绪。

Incorrect. The DoD is one of the first things that is agreed upon in a project. It is not defined during customer meetings. When coding starts, the DoD should be ready.

- D)** 错误。当提交的代码出现错误时，中止部署流水线是合理的。不符合DoD的工作无法增加价值，也不应该在流水线中。

Incorrect. Stopping the deployment pipeline is reasonable when there is something wrong with the committed code. Work that does not adhere to the DoD does not add value and should not be in the pipeline.

## 5 / 40

某团队在部署应用软件升级后，遇到了许多应用和硬件故障。他们试图恢复已知的正常状态，中间耗费了很长时间。这些故障导致了关键应用停机时间的延长。管理层要求团队在后续部署中降低中断的风险。

团队正在讨论如何解决这个问题。

团队应该**首先**做什么？

A team experiences many application and hardware failures after deploying application software upgrades. When they were trying to recover a known good state, this took a long time. The failures resulted in extended downtime for critical applications. Management has asked the team to reduce the risk of disruption for the next deployments.

The team discusses how to solve this problem.

What should this team do **first**?

- A) 将所有测试以及构建、部署和发布过程完全自动化  
Automate all tests and the build, deploy, and release processes fully
- B) 确保一切都在版本控制中，以实现快速恢复  
Ensure that everything is in version control to enable quick recoveries
- C) 让开发团队与运维团队进行沟通  
Get the Development team to communicate with the Operations team
- D) 对开发团队进行培训以了解部署过程  
Train the Development team to understand the deployment process

(题目未完，接下一页)

- A) 错误。** 尽管这总体而言是一个好主意，但问题是要降低中断的风险。将一切都纳入版本控制中，可以通过回滚到已知正常状态解决该问题，即使其余工作仍是人工操作。  
Incorrect. Although this is a good idea in general, the problem is to reduce risk of disruption. Getting everything in version control will solve the problem with rolling back to a known good state, even if the rest of the work is manual.
- B) 正确。** 将一切都纳入版本控制中，可以通过回滚到已知正常状态解决问题。（文献：B，第1章）  
Correct. Getting everything in version control will solve the problem with rolling back to a known good state. (Literature: B, Chapter 1)
- C) 错误。** 尽管这总体而言是一个好主意，但问题是要降低中断的风险。将一切都纳入版本控制中，可以通过回滚到已知正常状态解决该问题，即使团队并没有彼此交流。  
Incorrect. Although this is a good idea in general, the problem is to reduce the risk of disruption. Getting everything in version control will solve the problem with rolling back to a known good state, even if the teams are not talking to each other.
- D) 错误。** 尽管培训可以帮助团队减少故障的次数，但无法降低故障发生时中断的风险。版本控制是当下场景中的关键。  
Incorrect. Even though training may help the team reduce the number of failures, it will not reduce the risk of disruption when a failure occurs. Version control is key in this scenario.

6 / 40

某组织正在计划实施持续集成。组织的开发团队赞同这种新的工作方式，并已选择了从命令行构建软件的自动化工具。

还有哪项活动是持续集成的先决条件？

An organization is planning to implement continuous integration. The organization's development team agrees with this new way of working and has already selected automation tools, which will build software from the command line.

Which other activity is a prerequisite for continuous integration?

- A)** 应该去除绝对路径，因为这是与第三方库集成的必要条件。  
Absolute paths should be eliminated, because this is necessary for integration with third-party libraries.
- B)** 应该控制基础架构访问权，因为这样可以防止擅自更改。  
Infrastructure access should be controlled, because this ensures no one can make unapproved changes.
- C)** 应该记录价值流，因为这有助于识别需要改进的方面。  
Value streams should be documented, because this helps identify areas that are in need of improvement.
- D)** 应该建立版本控制，因为这样可以明确具体的操作时间、操作人和操作原因。  
Version control should be established, because this makes it clear what was done when, by whom, and why.

(题目未完，接下一页)

- A)** 错误。这并不是启动持续集成的特定先决条件。此外，尽管绝对路径并不可取，但某些情况下确实有需要，例如与依赖硬编码路径的第三方库集成。

Incorrect. This is not a specific prerequisite for starting continuous integration. In addition, although absolute paths are not desirable, they are sometimes needed, for example, when integrating with third-party libraries that rely on hard-coded paths.

- B)** 错误。这是一项重要的DevOps活动，但并不是启动持续集成的特定先决条件。

Incorrect. This is an important DevOps activity, but it is not a specific prerequisite for starting continuous integration.

- C)** 错误。价值流确实应该建模，但这不是启动持续集成的特定先决条件。

Incorrect. Value streams should be modeled, but this is not a specific prerequisite for starting continuous integration.

- D)** 正确。持续集成前必须做好三件事：版本控制、自动构建以及团队达成一致意见。在本场景中缺少版本控制。（文献：B，第3章）

Correct. There are three things that must be in place: version control, an automated build, and agreement of the team. Version control was missing from the scenario. (Literature: B, Chapter 3)



7 / 40

某团队正在讨论他们的用户验收测试。目前，他们在人工验收测试上耗费了大量时间、精力和金钱。管理层询问他们是否有更好的选择。通常，管理层会倾向于生产中断风险最低的解决方案。

团队得出结论，内部具备将所有用户验收测试自动化的能力。但是，这样会耗费一些时间并增加成本。一位团队成员表示，竞争对手已用自动化单元和组件测试取代了所有验收测试。

在这种情况下，团队是否应该将用户验收测试自动化？

A team is discussing their user acceptance tests. Currently they are spending a large amount of time, effort, and money on manual acceptance testing. Management has asked them if there is a better alternative. As a rule, management will favor the solution with the lowest risk to production disruptions.

The team concludes that they have the ability in-house to automate all user acceptance tests. However, this would take some time and increase the costs. One team member remarks that a competitor has replaced all acceptance testing with automated unit and component tests.

Should the team automate the user acceptance tests in this scenario?

- A) 是，因为从长远来看，自动化的成本将低于人工测试，并且自动化将降低生产中断的风险。**  
Yes, because automation will be cheaper than manual testing in the long run and this keeps the risk of production disruptions low.
- B) 是，因为这可以将人工验收测试的次数降至每月一次，从而降低生产中断的风险。**  
Yes, because this reduces the number of manual acceptance tests to once a month to keep the risk of production disruptions low.
- C) 不是，因为人工验收测试可以确保在发布前发现所有缺陷，从而降低生产中断的风险。**  
No, because manual acceptance tests ensure that all defects are found before releasing to keep the risk of production disruptions low.
- D) 不是，因为单元和组件测试取代了验收测试，竞争对手证明了这可以降低生产中断的风险。**  
No, because unit and component tests replace acceptance tests and the competitor proves that this keeps the risk of production disruptions low.

(题目未完，接下一页)

- A) 正确。**如果团队能将验收测试阶段自动化，将减轻项目结束时的压力，同时仍能发现用户场景中出现的缺陷。这可以降低生产中断的风险，并且从长远来看，自动化成本总是低于人工成本。（文献：B，第8章）

Correct. If the team can automate the acceptance testing stage, this will take pressure off the end of the projects, while still finding the defects that show up in user scenarios. This keeps the risk to production disruptions low and in the long run, automation is always cheaper than manual labor. (Literature: B, Chapter 8)

- B) 错误。**尽管团队应该实现自动化，但目的不是要减少人工测试的数量，而是要完全取代人工测试。  
Incorrect. Although the team should automate, this is not to reduce the number of manual tests, but to replace them completely.

- C) 错误。**从长远来看，自动化成本总是低于人工成本，而且一旦测试实施得当，准确性并不会降低。  
Incorrect. In the long run, automation is always cheaper than manual labor and no less accurate if the tests are implemented well.

- D) 错误。**单元和组件测试并不能准确捕捉整个用户场景体验。这会增加生产中断的风险，与竞争对手的举措无关。

Incorrect. Unit and component testing do not accurately capture the entire user scenario experience. This heightens the risk to production disruptions, no matter what the competitor does.

## 8 / 40

某初创公司为宠物主人开发了一款应用程序。通过该应用程序，客户能够找到一日宠物保姆。公司老板正与一位大客户洽谈，希望公司能够快速发展。

目前，开发团队的测试过程由人工执行。到目前为止，人工测试效果非常好。

开发团队接下来应该做什么？

A start-up company created an app for pet owners. The app lets customers find a pet sitter for a day. The company owner is talking to a large customer and expects that the company will grow fast.

Currently, the Development team has a manual process in place for testing. So far, this has worked very well.

What should the Development team do next?

- A) 为运维团队创建新的测试以实现自动化部署**  
Create new tests for the Operations team to automate deployment
- B) 保持人工测试，必要时增加新的人工测试**  
Keep the manual tests and add new manual tests if necessary
- C) 等待直到确定如何为新的客户创造价值**  
Wait until they know how to create value for the new customers
- D) 与运维团队合作编写自动化测试**  
Work together with the Operations team to write automated tests

(题目未完，接下一页)

- A)** 错误。各团队应该合作编写测试。开发团队不应该为运维团队编写测试。  
Incorrect. The teams should work together to write tests. Development should not write tests for Operations.
- B)** 错误。在发展过程中，保持人工测试存在很大风险。人工操作容易出错，扩展性不佳。  
Incorrect. Keeping manual tests is a large risk when growing. Doing anything manual is error prone and does not scale well.
- C)** 错误。没有必要等待新客户，许多标准化的自动化测试在没有客户的情况下也可以执行。  
Incorrect. There is no need to wait for the new customers. Many of the standardized, automated tests should be doable even without a customer.
- D)** 正确。各团队应该合作编写自动化测试。这有助于在快速发展期保持较高的测试效能，因为自动化测试具有可扩展性。（文献：B，第8章）  
Correct. The teams should work together to write automated tests. This will help keep the performance of testing high even when growing fast, because automated testing is scalable. (Literature: B, Chapter 8)

9 / 40

某DevOps团队在软件开发测试期间使用自有数据库中的数据。

该团队的**最大**潜在问题是什么？

A DevOps team uses the data in their databases during software development testing.

What is the **largest** potential problem for this team?

**A)** 从测试数据库所在地的外部访问数据

The access to data from locations outside of the testing database

**B)** 居家办公时生产数据的可访问性

The accessibility of production data when working from home

**C)** 用于自动化测试的代表性测试数据的可用性

The availability of representative test data for automated testing

**D)** 现有安全控制措施在测试数据上的安全性

The security of the available security controls on the test data

**A)** 错误。数据库中的数据始终可以并发访问。

Incorrect. Data in databases can always be accessed concurrently.

**B)** 错误。在开发测试期间从不使用生产数据。

Incorrect. Production data is never used during development testing.

**C)** 正确。测试数据需要能够代表生产数据。（文献：A，第4章）

Correct. Test data needs to be representative of the production data. (Literature: A, Chapter 4)

**D)** 错误。在测试期间，通常不需要对测试数据进行安全控制。

Incorrect. During testing, security controls on test data are not usually required.

## 10 / 40

Kamala是一名信息安全分析师，负责改进一家开放式金融公司的当前软件开发过程。她的主要目标之一是提高编码阶段的信息安全意识。

Kamala建议团队应该在信息安全上进行“左移”，即将信息安全集成于从编码到运维的整个软件交付生命周期中。

她的经理Rob不赞同这一提议，他建议聘请专家，在产品准备部署时将信息安全性构建到产品中。他认为开发工程师不是安全专家，应该专注于开发。

谁是对的？

Kamala is an information security analyst responsible for improving the current software development process of an open finance company. One of her main goals is to increase awareness of information security during coding phases.

Kamala has advised that teams should 'shift left' on information security, which means that it should be integrated into the entire software delivery lifecycle from code to operations.

Her manager Rob disagrees with this proposal and suggests hiring specialists to build information security into the products once they are ready for deployment. He argues that the developers are no security experts and should be able to focus on developing.

Who is correct?

- A)** Kamala, 因为及早集成可确保遵守相关法律法规，从长远来看，可以降低构建安全软件的成本。  
Kamala, because an earlier integration ensures compliance with relevant laws and regulations and will make building secure software cheaper in the long run.
- B)** Kamala, 因为团队成员可以通过培训自己成为安全专家，由此可以节省安全专家的工资成本。  
Kamala, because the team members can get trained to become security experts themselves and this will save the salary costs of a security expert.
- C)** Rob, 因为最好的方法是基于信息安全最佳实践制定一套策略，并聘请专家在产品中实施策略。  
Rob, because it works best to create a set of policies based on information security best practices and hire an expert to implement them in the products.
- D)** Rob, 因为开发工程师确实应该专注于开发软件这一核心任务，而不是成为安全专家。  
Rob, because Developers should indeed be able to focus on their core task of developing software and not be burdened with becoming security experts.

(题目未完，接下一页)

- A)** 正确。信息安全是DevOps的必修课，应成为公司文化的一部分。此外，开发期间考虑安全性问题的成本要低于开发后再构建安全性。（文献：A，第4章和第6章）

Correct. Information security is a mandatory subject for DevOps and should be a part of the company's culture. In addition, developing with security in mind will be cheaper than building security in once it has been developed. (Literature: A, Chapter 4 and 6)

- B)** 错误。培训可以帮助团队理解这一课题，但不足以改变整个环境。节省之处不在于安全专家的工资成本，而在于坚固性加强、符合法律法规且无需返工的软件。

Incorrect. A training can help teams to understand the subject, but it is not enough to change the entire environment. The savings are not in the salary costs of a security expert, but in more rugged software that complies with laws and regulations and does not need rework.

- C)** 错误。自上而下的方法可能对需要在文化层面解决信息安全问题的团队影响不大。此外，打造符合法律法规且无需返工的坚固软件，成本更低，效果更好。

Incorrect. A top-down approach might have little effect on teams that need to address information security on a cultural level. In addition, creating rugged software that complies with laws and regulations and does not need rework will be cheaper and better.

- D)** 错误。信息安全是DevOps的必修课，应成为公司文化的一部分。打造符合法律法规且无需返工的坚固软件，成本更低，效果更好。

Incorrect. Information security is a mandatory subject for DevOps and should be a part of the company's culture. Creating rugged software that complies with laws and regulations and does not need rework will be cheaper and better.

11 / 40

持续交付的**最大**好处是什么？

What is the **largest** benefit of continuous delivery?

**A)** 以透明的方式实现软件开发的一致性和效能。

It enables conformance and performance of software development in a transparent manner.

**B)** 确保在软件交付团队中实施公司治理流程。

It ensures that corporate governance processes are enacted in software delivery teams.

**C)** 关注部署的上市时间和增强的业务绩效。

It focuses on the time to market of deployment and enhanced business performance.

**D)** 引入自动化以降低对软件合规和质保的需求。

It introduces automation to reduce the need for compliance and assurance of software.

**A)** 正确。同时实现一致性和效能的原则是持续交付的核心。（文献：B，第15章）

Correct. The principle of achieving both conformance and performance is at the heart of continuous delivery. (Literature: B, Chapter 15)

**B)** 错误。持续交付平衡了公司治理和业务治理，并不只关注一种类型的治理。

Incorrect. Continuous delivery balances corporate governance with business governance and does not focus on only one type of governance.

**C)** 错误。上市时间很重要，可以通过持续交付实现，但最大的好处是实现一致性和效能。

Incorrect. Time to market is important, and may be achieved using continuous delivery, but the largest benefit is achieving conformance and performance.

**D)** 错误。自动化不会使公司治理或合规变得不必要。

Incorrect. Automation does not make corporate governance or compliance unnecessary.



## 12 / 40

某团队正在开发一款应用程序，并想要开始采用持续交付。在一次流程改进会议上，团队讨论应该采用哪种实践来实现持续交付。

团队应该怎么做？

A team is working on an application and wants to start working with continuous delivery. During a process improvement session, the team discusses what practice they should use to achieve continuous delivery.

What should the team do?

- A)** 团队应该开始使用Scrum作为管理实践，并结合季度发布计划，以提高敏捷性。  
The team should start using Scrum as its management practice along with quarterly release planning to increase agility.
- B)** 团队应该开始致力于改进各分支的持续集成及其应用的自动化测试。  
The team should start working on improving continuous integration of branches and automated testing of their application.
- C)** 团队应该利用敏捷变革管理实践和反馈环来进行文化变革。  
The team should work on cultural change using Agile change management practices and feedback loops for reporting.
- D)** 团队应该在团队层面采用看板（Kanban），同时创建一个松耦合架构。  
The team should work on Kanban implementation on the team level while creating a loosely coupled architecture.

(题目未完，下一页)

- A)** 错误。尽管Scrum可以帮助团队提高敏捷性，但在DevOps工作方式下敏捷性并非必需。相反，团队应该专注于持续集成和自动化。

Incorrect. Even though Scrum can help teams to increase agility, it is not necessary when working in a DevOps way. Instead, the team should focus on continuous integration and automation.

- B)** 正确。持续集成、版本控制和测试例行化是帮助团队发现提高交付频率和质量的更好方式的实践。（文献：B，第3章和第5章）

Correct. Continuous integrations, version control and test routines are practices that help teams to discover better ways to improve delivery rate and quality. (Literature: B, Chapter 3 and 5)

- C)** 错误。这些实践与组织变革管理有关，与持续交付无关。相反，团队应该专注于持续集成和自动化。
- Incorrect. These practices are related to organizational change management, not to continuous delivery. Instead, the team should focus on continuous integration and automation.

- D)** 错误。松耦合架构是有用的，但其与DevOps并无必然联系。相反，团队应该专注于持续集成和自动化。

Incorrect. Loosely coupled architectures are useful, but it is not necessarily connected with DevOps. Instead, the team should focus on continuous integration and automation.

### 13 / 40

某公司对开发过程实施了彻底变革，由瀑布式变成了DevOps。团队想要缩短发布的间隔时间，但在这方面遇到了一些问题。

团队在过程分析中发现了以下问题：

- 由于每个人都在不同代码分支工作，所以移植代码占用了五分之一的冲刺时间。
- 一旦发现破坏构建的问题时，生产环境就必须回滚。
- 团队有一个版本控制系统，但并不监控关键绩效指标（KPI）。
- 随着发布次数增加，收到了越来越多的客户反馈（包括投诉）。

要缩短发布的间隔时间，哪一项对团队的帮助**最大**？

A company has radically changed the development process from waterfall to DevOps. The team wants to reduce the time between releases, but is experiencing some problems doing that.

The team has found the following problems during their process analysis:

- A fifth of the sprint time is spent on porting code, because everyone works on separate code branches.
- Whenever issues are found that break the build, the production environment must be rolled back.
- The team has a version control system in place, but does not monitor key performance indicators (KPIs).
- With the increased number of releases more customer feedback, including complaints, comes in.

What will help this team **most** to reduce the time between releases?

- A) 采用基于主干的开发，无需移植代码**  
Adopt trunk-based development to make porting code unnecessary
- B) 重现测试失败，以免回滚生产环境**  
Reproduce test failures to prevent rolling back the live environment
- C) 利用金丝雀发布来减少客户投诉量**  
Use canary releases to reduce the number of customer complaints
- D) 加大遥测技术利用，监控体现业务价值的关键绩效指标**  
Use more telemetry to monitor KPIs that show the business value

(题目未完，接下一页)

- A)** 正确。基于主干的开发意味着不允许分支，因此消除了各独立主干的合并过程。这样可以节省时间，并有助于缩短发布的间隔时间。（文献：A，第4章）  
Correct. Trunk-based development means no branching is allowed and, therefore, the merging of separate trunks is eliminated. This will save time and help reduce the time between releases. (Literature: A, Chapter 4)
- B)** 错误。问题在于分支会在合并时引发问题。测试并不能解决这个问题。  
Incorrect. The problem is the branching, which causes problems while merging. Testing does not solve this.
- C)** 错误。尽管从持续部署的角度来看，金丝雀发布可以产生积极影响，但最大的问题是移植代码所耗费的时间。  
Incorrect. Although canary releases could have a positive impact from the continuous deployment perspective, the largest problem is the time spent on porting code.
- D)** 错误。虽然引入遥测技术是个好主意，但最大的问题是移植代码所耗费的时间。  
Incorrect. Although introducing telemetry is a good idea, the largest problem is the time spent on porting code.

14 / 40

哪一项**不是**松耦合架构的优点？

What is **not** a benefit of a loosely coupled architecture?

- A) 开发工程师可以独立进行软件变更。  
Developers can work independently on software changes.
  - B) 系统可以独立变更和验证。  
Systems can be changed and validated independently.
  - C) 最大限度减少项目管理监督。  
There is a minimum of project management oversight.
  - D) 单元和集成测试自动化。  
Unit and integration tests are run automatically.
- 
- A) 错误。这是松耦合架构带来的结果，也是它的优点，因为它加快了工作速度。  
Incorrect. This is a result of a loosely coupled architecture and a benefit because it speeds up the work.
  - B) 错误。这是松耦合架构的定义，具有诸多优点。  
Incorrect. This is the definition of a loosely coupled architecture and has many benefits.
  - C) 正确。这是敏捷工作的一个方面，与松耦合架构无关。（文献：A，第5章）  
Correct. This is an aspect of Agile working and unrelated to loosely coupled architectures.  
(Literature: A, Chapter 5)
  - D) 错误。这是松耦合架构带来的结果，也是它的优点，因为它节省了工作量，有助于实现持续集成和持续开发。  
Incorrect. This is a result of a loosely coupled architecture and a benefit because it saves work and helps to achieve continuous integration and continuous development.

15 / 40

Tina负责改进产品的架构和应用环境。在对应用程序的第一次评估中，她注意到以下几点：

- 只要团队通知受影响服务的所有者，就可以随时运行部署。
- 应用程序可以通过独立的组件进行部署。
- 尽管所有团队成员都可以部署应用程序，但仅有一个开发工程师有权限执行此操作。
- 团队需要运行少量脚本才能连接应用程序所依赖的邻近服务。

Tina如何才能**最好地**帮助团队准备更佳的基础架构环境？

Tina is responsible for improving a products' architecture and application environments. During her first assessment of the applications, she notices the following:

- Deploys could be run at any time by the team as long they notify the service owners of affected services.
- The applications could be deployed using independent components.
- Even though all team members could deploy the applications, only one developer has the access and permission to do it.
- The team needs to run a handful of scripts to connect with the adjacent services that the applications depend on.

How can Tina **best** help her team to prepare a better infrastructure environment?

- A)** 帮助团队创建松耦合架构，这样他们部署代码或发布应用程序时可以不受代码或应用程序所依赖的其他服务影响。  
Help the team to create a loosely coupled architecture so they deploy code or release the application independently of other services it depends on.
- B)** 组织所有技术负责人和高级开发工程师参加黑客马拉松，进行技术创新，并以新的紧耦合架构取代当前的基础架构。  
Organize a hackathon with all tech leaders and senior developers to innovate and replace the current infrastructure with a new tightly coupled architecture.
- C)** 重新创建邻近应用程序以消除依赖关系，这样团队可以更快地运行脚本，并独立于其他应用程序进行应用程序部署。  
Recreate the adjacent applications to remove dependencies so the team can run scripts faster and deploy their applications independently of other applications.
- D)** 对团队成员进行应用程序安全部署的培训，授予相应的权限，将他们纳入变更咨询委员会（CAB）。  
Train the team members on deploying the applications safely, give them the appropriate privileges, and make them a part of the change advisory board (CAB).

(题目未完，接下一页)

- A) 正确。**松耦合架构可实现高效能和可测试性。（文献：A，第5章）  
Correct. A loosely coupled architecture enables high performance and testability. (Literature: A, Chapter 5)
- B) 错误。**黑客马拉松有助于人员集聚或解决特定问题，而不是创建更佳的基础架构环境。此外，架构不应紧耦合。  
Incorrect. Hackathons are useful to bring people together or solve a specific problem, not to create a better infrastructure environment. In addition, the architecture should not be tightly coupled.
- C) 错误。**重新创建邻近应用程序将会耗费大量时间，并增加应用程序的整体成本。  
Incorrect. Recreating the adjacent applications would take too much time and increase the overall application cost.
- D) 错误。**变更咨询委员会会议可能会与持续交付相悖。变更咨询委员会应被废除，并尽可能地用健壮测试和自动化将其取代。  
Incorrect. CAB meetings might go in the opposite direction of continuous delivery. The CAB should be abolished and replaced by robust testing and automation as much as possible.

16 / 40

部署流水线通常由多个反馈环组成。

反馈环的**主要**优点是什么？

A deployment pipeline typically consists of multiple feedback loops.

What is the **main** benefit of using feedback loops?

A) 改善开发团队与运维团队间的沟通。

Communication between the Development and Operations teams is improved.

B) 更频繁、更可靠地向用户交付更高质量的软件。

High-quality software gets delivered to users more frequently and more reliably.

C) 客户参与到开发过程中的多个环节。

The customers are involved at multiple steps during the development process.

D) 定期执行用户验收测试（UAT），收集利益相关者的意见。

User acceptance testing (UAT) is performed regularly to gather stakeholder opinions.

A) 错误。团队沟通不依靠使用反馈环。

Incorrect. Team communication is independent of using feedback loops.

B) 正确。使用反馈环可以更频繁、更可靠地交付软件。（文献：A，第4章）

Correct. Feedback loops are used to deliver software more frequently and reliably. (Literature: A, Chapter 4)

C) 错误。客户参与固然是好事，但不是反馈环的主要优点。

Incorrect. Customer involvement is good, but not the main benefit of using feedback loops.

D) 错误。用户验收测试是一种反馈形式，不是反馈环的核心优点。

Incorrect. UAT is a form of feedback; not a core benefit of feedback loops.



17 / 40

某软件开发团队因部署了不符合客户期望的功能而遭受批评。

哪一项是该团队改善这种情况的**最佳**方法？

A software development team has been criticized for deploying features which do not meet customer expectations.

What is the **best** way for this team to improve this situation?

- A) 在部署前创建独立的用户验收测试循环  
Creating a standalone user acceptance testing cycle prior to deployment
  - B) 降低其他利益相关者需求的优先级或将其完全取消  
Lowering the priority of other stakeholder requirements or fully removing them
  - C) 在每个开发项目开始时将需求静态化或固定化  
Making requirements static or fixed at the start of each development project
  - D) 在整个开发生命周期内积极寻求利益相关者的见解  
Seeking stakeholder insights actively throughout the development lifecycle
- 
- A) 错误。这项活动的时间太迟且过于割裂，无法改善开发团队与客户期望的一致性。  
Incorrect. This activity is too late and segregated to improve the alignment between the development team and the customers' expectations.
  - B) 错误。需求的优先级排序应依据各项标准，而非哪个利益相关方团体最近发起投诉。  
Incorrect. Requirements should be prioritized based on a variety of criteria, not on which stakeholder group has made recent complaints.
  - C) 错误。固定需求后，将失去应对不断变化的客户或业务情况的机会。  
Incorrect. By fixing the requirements, there would not be any opportunity to respond to changing customer or business situations.
  - D) 正确。如果反馈不是自动送达团队，团队应该积极寻求提高产品质量的意见。（文献：A，第8章）  
Correct. If feedback does not come to the team automatically, the team should actively seek that input to increase the quality of the product. (Literature: A, Chapter 8)

18 / 40

DevOps、敏捷、Scrum、精益和看板（Kanban）都能以各自的方式为组织增加价值。

DevOps能给组织带来什么**独特**价值？

DevOps, Agile, Scrum, Lean and Kanban can all add value to an organization in their own way.

What **unique** value does DevOps bring to an organization?

- A) DevOps通过设置可持续的开发节奏，实现客户的定期反馈环。  
DevOps allows regular feedback loops from customers by setting a sustainable development cadence.
- B) DevOps确保开发团队和运维团队使用相同的任务板来协调任务。  
DevOps ensures the Development and Operations teams use the same task board to coordinate tasks.
- C) DevOps专注于持续发布，以高效的流程快速向客户交付价值。  
DevOps focuses on releasing continuously to deliver value to the customer quickly in an efficient process.
- D) DevOps及时提供新服务，同时通过消除浪费工作以专注于效率。  
DevOps provides the new services just-in-time while focusing on efficiency by eliminating wasteful work.

(题目未完，接下一页)

- A)** 错误。开发速度越快，反馈周期越频繁，但这通常归因于Scrum或其他敏捷方法，并非DevOps所特有。  
Incorrect. Feedback cycles are more frequent when development speed is higher, but this is usually due to Scrum or another Agile methodology, and is not unique to DevOps.
- B)** 错误。使用同一个任务板是看板的增值体现。DevOps需要团队合作，而不仅仅是使用同一个任务板。  
Incorrect. Working on a single task board is what Kanban would add. DevOps would require the teams to cooperate, not just use the same task board.
- C)** 正确。增加价值和优化流程是提高业务连续性和公司敏捷性的关键。通过优化流程、允许实验和引入持续交付，可以加快给客户创造更多价值。（文献：A，第1章）  
Correct. Adding value and optimizing processes are the keys to improving business continuity and the Agility of the company. By optimizing processes, allowing experimentation, and introducing continuous delivery, more value can be released to the customer more quickly.  
(Literature: A, Chapter 1)
- D)** 错误。及时交付和消除浪费固然是好事，但这主要是归因于精益的引入，并非DevOps所特有。  
Incorrect. Delivering just-in-time and eliminating waste are great, but they are mostly due to introducing Lean and are not unique to DevOps.

19 / 40

DevOps的目的是通过专注于增加价值来提升客户满意度和客户体验。

做到这点的**主要**途径是什么？

DevOps aims at increasing customer satisfaction and the customer experience by focusing on adding value.

How is this **primarily** done?

- A) 实现测试和部署自动化  
By automating testing and deployment
  - B) 更频繁地交付产品  
By delivering products more frequently
  - C) 开发功能性强的产品  
By developing well-functioning products
  - D) 采用技术熟练的开发工程师  
By using highly skilled developers
- 
- A) 错误。客户不受自动化实践的影响。  
Incorrect. The customer is not affected by automation practices.
  - B) 正确。DevOps的目标是更频繁地交付高质量的软件，从而提升客户体验。（文献：A，第2章）  
Correct. The aim of DevOps is to deliver high-quality software more frequently and as such improving the customer experience. (Literature: A, Chapter 2)
  - C) 错误。客户会假定产品运行正常，因此这不会使客户体验超出基本水平。  
Incorrect. Customers assume the product works well, so this would not increase the customer experience beyond a basic level.
  - D) 错误。客户并不会注意到开发工程师的技术。  
Incorrect. Developer skills are not noticed by the customer.

20 / 40

许多DevOps团队采用可视化（例如卡片墙）引导开发过程。卡片墙加强了团队的可视化控制。

可视化如何促进DevOps实践？

Many DevOps teams use visualization, such as card walls, to steer their development process. Card walls increase the team's visual control.

How does visualization facilitate DevOps practices?

- A) 优化办公环境从而提升生产效率和员工幸福感**  
By brightening up the office environment to stimulate productivity and employee happiness
  - B) 为各负责人提供一种让团队承担各项活动责任和进行分工的方式**  
By giving leaders a way to hold the team accountable for their activities and divide work
  - C) 帮助管理层获得对团队和必须完成的工作的控制**  
By helping management to gain control over the team and the work that must be done
  - D) 加强工作进度的清晰度，对团队文化和绩效产生积极影响**  
By positively impacting team culture and performance by making work progress clearer
- 
- A) 错误。尽管可视化可以美化办公室，但美化环境并不能刺激生产效率或提升幸福感。**  
Incorrect. Even though visualizations can look good in the office, they do not stimulate productivity or happiness just by looking good.
  - B) 错误。分工和担责不受可视化的影响。**  
Incorrect. Work assignment and accountability are not influenced by visualization.
  - C) 错误。管理控制不是可视化的目的，它并不促进DevOps实践。**  
Incorrect. Management control is not the aim of visualization and it does not facilitate DevOps practices.
  - D) 正确。可视化提升工作进度清晰度，从而提高生产效率。（文献：A，第7章）**  
Correct. Visualization increases productivity by making the work progress clearer. (Literature: A, Chapter 7)

21 / 40

开发团队可以在要求的时间内构建新的功能，但通常不能按时交付。一项调查显示了以下问题：

- 回归错误不断重复出现。
- 尽管花费了时间修复错误，但仍不断有客户投诉生产环境中存在错误。
- 一旦新的功能需求出现，开发团队就感到压力很大。

根本问题是团队的测试策略无效。

团队应该如何解决这个问题？

The Development team can build new features within the requested time, but they are not often delivered on time. An investigation shows the following problems:

- Regression bugs keep recurring.
- Although time is spent on fixing bugs, customers keep complaining about bugs in the live environment.
- The Development team gets really stressed if a new feature is requested.

The underlying problem is that the team's testing strategy is not effective.

What should the team do to solve this?

- A)** 团队应将所有测试以及提交阶段自动化，并通过培训提高团队成员对持续集成过程的认识。  
The team should automate all tests and the commit stage, and increase the team members' understanding of the continuous integration process through training.
- B)** 团队应将所有单元测试、组件测试和集成测试自动化，并加强测试人员和开发团队之间的协作。  
The team should automate all unit tests, component tests, and integration tests, and increase collaboration between testers and the Development team.
- C)** 团队应将测试和部署过程自动化，并在必要时升级硬件或更新系统的配置管理。  
The team should automate testing and the deployment process, and if necessary upgrade hardware or update the system's configuration management.
- D)** 团队应通过增加监控和日志记录以及利用虚拟化技术，加强开发团队和运维团队之间的协作。  
The team should increase the collaboration between the Development and Operations teams, by increasing monitoring and logging, and by using virtualization.
- E)** 团队应确保开发团队了解部署过程，并加强与运维团队的协作。  
The team should make sure the Development team understands the deployment process, and increase the collaboration with the Operations team.

(题目未完，接下一页)

- A) 错误。**持续集成过程管理不当会导致每日部署不足一次，提交阶段中断，各版本发布间的集成阶段过长。  
Incorrect. Not managing the continuous integration process properly specifically leads to fewer than once-a-day deployments, broken commit stage, and long integration phase between releases.
- B) 正确。**无效的测试策略会导致错误重复出现，耗费大量时间修复错误，客户大量投诉，产品质量低下，开发工程师压力大。这些问题可以通过测试自动化以及与测试人员协作来解决。（文献：B，第15章）  
Correct. A non-effective testing strategy leads to recurring bugs, much time spent fixing bugs, many complaints from customers, a low quality product, and stressed developers. This can be solved by test automation and collaboration with testers. (Literature: B, Chapter 15)
- C) 错误。**部署不足会导致部署时间长，速率低，对发布日期怀疑不定，对持续集成环境失去信任，以及修复错误周期长。自动化和升级可以帮助解决这个问题。  
Incorrect. Not deploying enough leads to long deployment times, low velocity, skepticism about release dates, loss of trust in the continuous integration environment, and long turnaround time to fix bugs. Automation and upgrades can help solve this problem.
- D) 错误。**这是解决配置管理不善的方法。配置管理不善具体会导致生产中出现不明故障，部署事件无法管理，环境配置时间增长，故障恢复时间长。  
Incorrect. This is the way to solve poor configuration management. Poor configuration management specifically leads to unexplained failures in production, unmanageable deployment events, more time for environment configuration, and a long recovery time in the event of failure.
- E) 错误。**部署有缺陷的代码或部署不足会导致部署时间长、速率低，对发布日期怀疑不定，对持续集成环境不信任，修复错误周期延长，发现开发工程师早已修复过的错误，以及演示和展示少。  
Incorrect. Deploying buggy code or not deploying enough leads to long deployment times, low velocity, skepticism about release dates, loss of trust in the continuous integration environment, extended time to fix bugs, finding bugs that developers fixed a long time ago, and few demonstrations and showcases.

## 22 / 40

DevOps的一方面是确保相关信息能直观地展示给开发工程师。

哪一项是应向开发工程师展示的主要数据类型？

Part of DevOps is making sure relevant information is visually displayed for the Developers.

What is the **main** type of data that should be displayed for the Developers?

- A)** 当天的客户反馈（包括投诉和功能需求），以促进开发工程师快速失败  
Customer feedback of the day, including complaints and feature requests, to allow developers to fail fast
  - B)** 个人开发工程师的生产效率（包括工作小时数），以促进开发工程师之间的竞争  
Individual developer productivity, including number of hours worked, to allow developers to compete
  - C)** 项目的整体进度（包括预算信息），以促进开发工程师进行战略决策  
Overall project progress, including budget information, to allow developers to make strategic decisions
  - D)** 产品质量数据（包括故障率和缺陷率），以促进开发工程师进行明智决策  
Product quality data, including failures and defect rates, to allow developers to make informed decisions
- 
- A)** 错误。在开发期间会不断收到客户反馈，不需要公开展示。  
Incorrect. Customer feedback is received continually during development and does not need to be publicly displayed.
  - B)** 错误。个人生产效率数据不应该公开展示，竞争不是DevOps的方式。  
Incorrect. Individual productivity data should not be displayed publicly, and competition is not the DevOps way.
  - C)** 错误。此类数据对开发工程师来说并非必需，这属于管理数据，不需要公开展示。  
Incorrect. This type of data is not essential for the developers. It is management data and does not need to be publicly displayed.
  - D)** 正确。质量数据（包括故障率和缺陷率）与开发工程师相关，可以直观地展示。（文献：A，第7章）。  
Correct. Quality data, including failures and defect rates, are relevant for the developers to have visually displayed. (Literature: A, Chapter 7).



23 / 40

某公司已经同意采用DevOps工作方式。他们正在寻找一种与之相契合的方法来管理整个项目范围。

哪一项是管理DevOps项目范围的**最佳**方法？

A company has agreed to work in a DevOps way. They are searching for a way to manage the entire scope of their projects that fits with that way of working.

What is the **best** way to manage the scope of a DevOps project?

- A) 完成迭代计划，在每次迭代开始时就待工作项达成一致  
Complete an iteration planning to agree on the items to work at every iteration's start
  - B) 针对功能创建完整的发布计划，向客户预告将发布的内容  
Create a full release plan for features, forecasting to customers what will be released
  - C) 定义最小可用产品（MVP），并根据需要经常回顾  
Define what the minimum viable product (MVP) is and review as often as necessary
  - D) 在每次迭代之前设定工作优先级，帮助团队成员选择工作  
Set the work priorities before each iteration to help the team members pick work
- A) 错误。迭代计划定义了即将到来的迭代的工作，而不是整个项目范围。  
Incorrect. Iteration planning defines the work for a coming iteration, not for the entire scope of a project.
- B) 错误。发布计划主要用于预测将发布的内容，而不是管理整个项目范围。  
Incorrect. Release plans are mostly used to forecast what will be released, not to manage the scope of the entire project.
- C) 正确。最小可用产品管理用于管理整个项目范围，这与DevOps相契合，因为它非常以客户为中心。  
(文献：A，第8章)  
Correct. MVP management is used to manage the scope. This fits with DevOps because it is very customer focused. (Literature: A, Chapter 8)
- D) 错误。优先级可能有助于规划，但最小可用产品更为重要。此外，工作优先级主要用于定义即将到来的迭代的工作。  
Incorrect. Priorities may be helpful with planning, but the minimum viable product is more important. In addition, the work priorities are mostly used to define the work for the coming iteration.

24 / 40

软件开发中的单件流是指聚焦于单一功能，持续推进工作直至完成。

为什么单件流对DevOps重要？

Single-piece flow in software development means that the focus is on a single feature that is continuously worked on until it is done.

Why is single-piece flow important for DevOps?

- A)** 实现团队的工作节奏可持续、可预测，并保持恒定的速率。  
It allows the team to work at a sustainable and predictable pace with a constant velocity.
  - B)** 通过交付相关的高优先级功能，帮助团队增加价值。  
It helps the team to add value by delivering high-priority features when they are relevant.
  - C)** 增加了所有团队成员承担任务的共同责任。  
It increases the shared responsibility of picking up tasks among all team members.
  - D)** 通过限制涉及某个功能的团队成员数量，减少瓶颈。  
It reduces bottlenecks by limiting the number of team members that work on a feature.
- 
- A)** 错误。这是节奏的作用。单件流促使最高优先级的功能尽快完成。  
Incorrect. This is what rhythm does. Single-piece flow allows features with the highest priority to get done as quickly as possible.
  - B)** 正确。单件流促使最高优先级的功能尽快完成。（文献：A，第2章）  
Correct. Single-piece flow allows features with the highest priority to get done as quickly as possible. (Literature: A, Chapter 2)
  - C)** 错误。DevOps团队确实分担责任。但是，单件流很重要，因为它促使最高优先级的功能尽快完成。  
Incorrect. DevOps teams do share responsibility. However, single-piece flow is important because it allows features with the highest priority to get done as quickly as possible.
  - D)** 错误。单件流促使最高优先级的功能尽快完成。它并不限制某功能工作涉及的人数。  
Incorrect. Single-piece flow allows features with the highest priority to get done as quickly as possible. It does not limit the number of people that can work on that feature.

25 / 40

Tool公司正忙于开发一个电商网站，这个项目属于高风险项目。客户对电商网站不满意，投诉网站未达到预期效果。

业务侧的高级经理认为，敏捷工作方式只会增加风险，而IT侧的高级经理则认为它是快速交付价值的唯一途径。IT经理想要将敏捷与DevOps相结合：频繁发布并征求反馈意见。

Tool公司聘请了一位顾问以确保他们会做正确的事。

顾问应该给出什么建议？

The Tool Company is busy developing an e-commerce site, and this project is a high-stakes project. Customers are dissatisfied and complain about the e-commerce site not working as expected.

Senior managers on the business side argue that working in an Agile way will only increase the risk, while the IT senior managers argue that it is the only way to deliver value fast. The IT managers want to combine Agile with DevOps: releasing often and asking for input.

The Tool Company hires a consultant to make sure they do the right thing.

What advice should the consultant give?

- A)** 不采用敏捷工作方式，也不转变为DevOps工作方式，因为客户已经在投诉电商网站未能达到预期效果。  
Do not work in an Agile way or change to a DevOps way of working because customers are already complaining about the e-commerce site not working as expected.
- B)** 采取敏捷工作方式，增加DevOps实践，让开发工程师可以在未经外部批准的情况下尽快完成部署，并不断收集客户反馈。  
Work in an Agile way, add DevOps practices, give developers the freedom to deploy without external approval and as soon as they can, and gather constant customer feedback.
- C)** 采取敏捷和DevOps工作方式创建电商网站，但在发布前要增加人工用户验收测试和变更批准委员会（CAB）流程。  
Use Agile and DevOps ways of working to create the e-commerce site but add manual user acceptance testing and a change approval board (CAB) process before releasing.
- D)** 软件开发采取敏捷和DevOps工作方式，但只向客户发布成品，以防止客户投诉和不满。  
Use Agile and DevOps ways of working within software development but only release finished products to customers to prevent complaints and dissatisfaction from the customers.

(题目未完，接下一页)

- A) 错误。**尽管在客户投诉的情况下这种方法看似安全，但却会加剧问题。及早失败和经常失败是快速进步并为客户提供预期价值的唯一途径。

Incorrect. Although this may seem safe because customers are already complaining, it will make the problem worse. Failing soon and often is the only way to make quick progress and give the customers the value they want.

- B) 正确。**尽管这样似乎会招致更多的不满和投诉，但收集反馈并快速解决相关痛点是让客户满意的最快途径。（文献：A，第8章）

Correct. Although this seems to invite more dissatisfaction and complaints, gathering feedback and quickly resolving these pain points is the fastest way to satisfied customers. (Literature: A, Chapter 8)

- C) 错误。**敏捷和DevOps工作方式不应被人工测试和CAB流程放慢的发布速度所抵消。

Incorrect. Agile and DevOps ways of working should not be counteracted by slowing down releases with manual testing and CAB processes.

- D) 错误。**敏捷和DevOps工作方式不应被仅发布成品和放慢的客户价值与反馈速度所抵消。  
Incorrect. Agile and DevOps ways of working should not be counteracted by releasing only finished products and slowing down the rate of customer value and feedback.

26 / 40

某团队一直协同合作融洽，但仍有客户投诉。团队希望增加实验并引入DevOps。

管理层将允许团队进行实验并改变工作方式，但前提是风险可以接受。公司的方针是尽可能降低风险。团队讨论了这个问题。

- **Hichem**表示，团队现在不应进行实验或改变工作方式，因为这可能会招致更多客户不满。相反，团队应该建立一个客户反馈表。
- **Kira**表示，将变更与大型版本发布捆绑总是好事，可以尽量减少运行环境中的中断和停机。加大版本发布规模应该能够提高生产产品质量。
- **Nazim**表示，在提高表现、减少客户投诉之前，不能转变为DevOps工作方式。增加人工测试应该能够帮助减少投诉。
- **Rose**表示，尽管听起来可能有悖直觉，但采取DevOps工作方式并进行实验将能最大程度地降低风险。如果团队成功完成测试和版本控制自动化，这将会是最佳方法。

在该场景中，谁的建议最有效？

A team has been working well together, but customers are still complaining. The team would like to experiment more and introduce DevOps.

Management will allow the team to experiment and change their way of working, but only if the risks are acceptable. The company policy is to minimize risks as much as possible. The team discusses this problem.

- **Hichem** states that the team should not experiment or change its way of working right now, because this may lead to more dissatisfaction with the customers. Instead, the team should build a customer feedback form.
- **Kira** states that it is always good to bundle changes into large releases to minimize disruptions and outages in the operations environment. Larger releases should keep the quality of the live product higher.
- **Nazim** states that they cannot change to a DevOps way of working until they are performing well and have reduced customer complaints. Additional manual tests should be able to help reduce the complaints.
- **Rose** states that it may sound counterintuitive but working in a DevOps way and experimenting will reduce the risks most. If the team has automated the tests and version control well, this is the best way to go.

Whose suggestion would work best in this scenario?

(题目未完，接下一页)

- A) Hichem  
Hichem
- B) Kira  
Kira
- C) Nazim  
Nazim
- D) Rose  
Rose

**A)** 错误。在该场景中，不做任何改变且不进行实验是错误的做法。实验是势在必行的，确保让客户有机会看到他们也许会喜欢的不同内容。

Incorrect. Not changing anything and not experimenting would be a mistake in this scenario. Experimentation is necessary to ensure customers get the chance to see something different that they might like.

**B)** 错误。尽管听起来是一种合乎逻辑的方法，但大型版本发布的风险要高于发布小型实验和收集快速反馈。如果发布和测试成功自动化且可以轻松回滚，则风险要低于大型发布。

Incorrect. Although this sounds like a logical approach, large releases are riskier than releasing small experiments and gathering quick feedback. If releases and tests are automated well and can be rolled back easily, they should be less risky than large releases.

**C)** 错误。尽管实验似乎存在风险，但应该有助于提高客户满意度，因为通过实验可以反馈风险较小的小幅变更。坐等客户满意度提高是错误的解决方案。

Incorrect. Although experimentation sounds risky, it should help increase customer satisfaction by allowing them to give feedback to small, less risky changes. Waiting for customer satisfaction to increase would be the wrong solution here.

**D)** 正确。并非每一次变更都会带来更多风险。当发布规模大、记录不完整或者测试未自动化且引入人为错误时，发布存在风险。频繁的小幅变更风险更小，容易回滚时更是如此。（文献：A，第4章）

Correct. Not every change will introduce more risks. Releases are risky when they are large, not documented well, or tests are not automated, and human error is introduced. Frequent, small changes are less risky, especially if they are easy to roll back. (Literature: A, Chapter 4)

## 27 / 40

某网店专门经营70年代和80年代的服装。这家网店经营状况良好，现有客户群由爱好具有时代特色服装的客户和服装租赁公司组成。公司想要扩张。

一个团队讨论如何扩张，他们决定采用假设驱动开发。这家网店的一个可能性假设是，如果网店的内容能在网页端之外再在移动端上展示，将会吸引更多客户。

团队应该做什么？

A web shop specializes in 70's and 80's clothing. The web shop is doing well. Their current customer base consists of people that seek period costumes, and clothing rental companies. The company wants to expand.

A team discusses how to expand, and they decide to use hypothesis-driven development. An example of a possible hypothesis for this web shop is that more customers will be attracted to the web shop if its content is presented in a mobile app instead of just on the website.

What should be done?

(题目未完，接下一页)

- A)** - 客户定义一个假设，团队决定具体的测试或实验项目。
- 然后，团队构建一个支持拟定假设的最小可用产品（MVP），并检验客户的反应。
  - 在与客户进行简短反馈后，对MVP进行返工，确保客户价值最大化。
  - The customer defines a hypothesis, and the team determines what test or experiment should be done.
  - Then the team builds an MVP that supports the formulated hypothesis and tests the customers' response.
  - The MVP is reworked after a short feedback round with the customers to ensure the most customer value.
- B)** - 客户根据自己的需求提出假设，团队与客户沟通交流。
- 然后，团队构建原型并进行测试，确定最终的最小可用产品（MVP）。
  - 将原型重新开发为MVP，并向客户展示以检验假设。
  - The customer develops a hypothesis based on their needs and the team talks to the customers.
  - Then the team builds and tests a prototype and determines the final minimal viable product (MVP).
  - The prototype is redeveloped as an MVP and the customer is presented with it to test the hypothesis.
- C)** - 团队收集客户的信息并根据信息形成假设。
- 然后，团队确定证明或反驳该假设的具体实验或测试项目。
  - 进行实验并进行分析，然后告知客户并征求更多反馈。
  - The team gathers information from customers and formulates a hypothesis based on that information.
  - Then the team determines which experiment or test can be done to prove or disprove the hypothesis.
  - The experiment is conducted and analyzed, and the customer is informed and asked for more feedback.
- D)** - 团队收集利益相关者的信息，并根据信息形成备选假设。
- 然后，团队构建MVP并进行测试，再向组织的高管展示。
  - 根据验收测试结果和经理的反应形成最终假设。
  - The team gathers information from stakeholders and formulates alternative hypotheses from this.
  - Then the team builds and tests an MVP and presents it to the organization's upper management.
  - The final hypothesis is formed based on the results from acceptance tests and the manager's reaction.

(题目未完，接下一页)



- A)** 错误。形成假设和测试应由同一实体同时负责。客户一般不会制定假设。如果有所依据，团队可以据此开展工作。在证明假设正确之前，不应构建MVP。

Incorrect. The same entity should develop hypothesis and test together. Customers generally do not create the hypothesis. If there is a basis, the team could work from that. MVPs should not be built before a hypothesis has been proven true.

- B)** 错误。客户一般不会制定假设。如果有所依据，团队可以据此开展工作。在证明假设正确之前，不应构建MVP。

Incorrect. Customers generally do not create the hypothesis. If there is a basis, the team could work from that. MVPs should not be built before a hypothesis has been proven true.

- C)** 正确。团队应该了解客户需求并检验客户的假设。不应构建MVP。（文献：A，第4章和第8章）

Correct. The team should understand the customer needs and test their hypothesis. An MVP should not be built. (Literature: A, Chapter 4 and 8)

- D)** 错误。这个选项几乎完全排除了客户，但是客户反馈是最有价值的。

Incorrect. This option excludes the customers almost completely, even though the customer feedback is the most valuable.

28 / 40

哪一项**不是**精益管理实践很可能带来的效果？

What is **not** a likely effect of Lean management practices?

**A)** 组织形成更具生机的文化。

The organization gets a more generative culture.

**B)** 软件交付效能提高。

The software delivery performance is increased.

**C)** 团队成员不容易工作倦怠。

The team members are less likely to burn out.

**D)** 管理者会更加关注利润。

The managers will pay more attention to profits.

**A)** 错误。精益管理实践注重创造流动并改进，这是一种更具生机的文化。

Incorrect. Lean management practices focus on creating flow and improvements, which is a more generative culture.

**B)** 错误。精益管理实践注重创造流动并减少错误，这通常会提高软件交付效能。

Incorrect. Lean management practices focus on creating flow and reducing errors, which usually increases software delivery performance.

**C)** 错误。精益管理实践注重创造可持续的境况并消除障碍，这通常意味着团队成员不容易工作倦怠。

Incorrect. Lean management practices focus on creating a sustainable place and removing obstacles, which usually means team members are less likely to experience burnouts.

**D)** 正确。精益管理不应关注利润。相反，精益管理实践注重创造流动，这可能会提高客户满意度。由此最终可能会增加利润，但利润不是管理层的重点。（文献：A，第7章）

Correct. Lean management should not focus on profits. Instead, they focus on creating flow, which is likely to increase customer satisfaction. That last part may lead to increased profits, but is not the management's focus. (Literature: A, Chapter 7)

29 / 40

某团队在识别并解决基础架构中部署的应用程序存在的问题上遇到了挑战。这个问题导致了事件频发和服务中断。客户经常致电服务台投诉，服务台必须将许多问题转发给团队，这给他们带来了时间压力。

团队不清楚问题的根本原因，尽管他们已经绘制了工作流并按流程执行。团队目前在使用看板，似乎已经实现了流动。

从长远来看，哪种解决方案将最有助于减少问题数量？

A team has challenges identifying issues and troubleshooting applications that are deployed into their infrastructure. This is a problem because there are many incidents and outages. Customers call the service desk often with complaints and the service desk must reroute many questions to the team, which puts them under time pressure.

The team has no idea what the root cause of the issues is, even though they have mapped their workflow and follow these processes. The team is working with a Kanban board and seems to have achieved flow.

In the long term, which solution will help **most** to reduce the number of issues?

- A) 聘请顾问重新绘制工作流，并在团队的看板上设置新流程  
Hire a consultant to remap the workflow and set up new processes on the team's Kanban board
- B) 指示服务台停止将问题转发给团队，从而腾出宝贵的工作时间  
Free up valuable work time by instructing the service desk to stop rerouting questions to the team
- C) 度量各团队成员的问题数量，并设立一个竞争机制以改进  
Measure the team members' individual numbers of issues and set up a competition to improve
- D) 通过存储数据、创建仪表板和设置通知，建立监控策略  
Set up a monitoring strategy by storing data, creating a dashboard, and setting up notifications

(题目未完，接下一页)

- A)** 错误。团队已经在使用看板并实现了流程化。不存在变更流程或重新绘制工作流的明确理由。该问题可能不在团队的直接流程内，应通过有效的监控策略予以公示。

Incorrect. The team already works with a Kanban board and has achieved flow. There is no clear reason to change the processes or to remap the workflow. The problem is likely outside of the direct processes of the team and should be made visible by a good monitoring strategy.

- B)** 错误。虽然这可能会在短期内解决团队的问题，但该问题可能不在团队的直接流程内，应通过有效的监控策略予以公示。

Incorrect. Although this might solve problems in the short run for the team, the problem is likely outside of the direct processes of the team and should be made visible by a good monitoring strategy.

- C)** 错误。竞争从来不是DevOps的工作方式。团队应该共同合作，不怕犯错误。该问题可能不在团队的直接流程内，应通过有效的监控策略予以公示。

Incorrect. Competition is never the DevOps way. The team should work together and not be scared to make mistakes. The problem is likely outside of the direct processes of the team and should be made visible by a good monitoring strategy.

- D)** 正确。建立可靠的监控策略，可以深入了解出错的地方和出错的频率，从而有助于团队识别问题的根本原因。从长远来看，这是最有帮助的解决方案。（文献：B，第11章）

Correct. Setting up a solid monitoring strategy, helps the team identify the root causes of the problems, because it gives insight in what goes wrong and how often it goes wrong. This is the solution that helps most in the long term. (Literature: B, Chapter 11)

30 / 40

某团队正在努力按时完成工作。他们尽力向客户如期交付产品。

设置在制品（WIP）限制如何帮助团队建立 workflow？

A team is struggling to get work done on time. They struggle to get the products to the customers on time.

How does imposing work-in-progress limits (WIP-limits) help this team to establish flow?

- A) 改变参与团队的所有利益相关者和团队成员的角色**  
By changing the roles of all stakeholders and team members involved with the team
  - B) 帮助识别瓶颈，从而助力团队改进和优化工作**  
By helping to identify bottlenecks that help the team to improve and optimize the work
  - C) 改进应用程序和通信工具的生命周期管理**  
By improving the lifecycle management of applications and communication tools
  - D) 限制团队工作所需的工具和应用程序数量**  
By limiting the number of tools and applications that the team needs to use to work
- A) 错误。尽管团队可能会发现他们因为存在瓶颈而需要改变角色，但设置WIP限制并不能直接或总是改变利益相关者或团队成员的角色。**  
Incorrect. Although the team may find that they need to change a role because they are a bottleneck, imposing WIP-limits does not directly or always change the role of stakeholders or team members.
- B) 正确。设置在制品限制总是有助于暴露瓶颈，从而帮助团队改进流动。（文献：A，第7章）**  
Correct. Imposing WIP-limits will always help show bottlenecks and, consequently, help the team improve their flow. (Literature: A, Chapter 7)
- C) 错误。尽管团队可能会发现他们因为存在瓶颈而应该改变应用程序和通信工具的生命周期管理，但设置WIP限制并不能直接或总是改变这一点。**  
Incorrect. Although the team may find that they should change the lifecycle management of their applications and communication tools because they are a bottleneck, imposing WIP-limits does not directly or always change this.
- D) 错误。尽管团队可能会发现他们因为存在瓶颈而想要限制工作所需的工具和应用程序数量，但设置WIP限制并不能直接或总是改变这一点。**  
Incorrect. Although the team may find that they want to limit the number of tools and applications they work with because they are a bottleneck, imposing WIP-limits does not directly or always change this.

### 31 / 40

某团队在负责多个项目，管理层对所有项目都给予相同的优先级。这给团队带来了压力，每天都要处理所有项目，每周还要汇报每个项目的进度。

团队需要一种方法来确保团队效率的最优化和高质量的交付。他们希望实现客户价值和业务价值的最大化。

团队应该怎么做？

A team works on several projects and management puts the same priority on all their projects. This leads to pressure on the team to do work on all projects daily and report progress on each project weekly.

The team needs a way to ensure maximum team efficiency and high-quality deliverables. They want to deliver the highest customer value and business value.

What should the team do?

- A)** 指定一名团队成员作为联络人，防止管理者直接与团队交流。缺点是团队不能再收到直接的客户反馈。  
Appoint one team member as a liaison to stop managers from directly talking to the team.  
The disadvantage is that the team no longer receives direct customer feedback.
- B)** 只要能设法让每个人都满意，就继续目前的工作方式。缺点是部分团队成员要经常转换任务。  
Keep working in the current way for as long as they can manage to keep everyone satisfied.  
The disadvantage is that some team members are switching tasks often.
- C)** 限制在制品（WIP）并向团队引入可视化管理技术。缺点是团队需要适应新的工作方式。  
Limit the work in progress (WIP) and introduce a visual management technique to the team.  
The disadvantage is that the team needs to adapt to the new way of working.
- D)** 拆分成由两到三名团队成员组成的小团队，分别负责每个项目。缺点是并非所有团队都具备在团队内开展工作的技能。  
Split up into smaller teams of two or three team members to work on each project separately.  
The disadvantage is that not all teams possess the skills to do the work within the team.

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- A)** 错误。这似乎是一个合乎逻辑的解决方案，但研究表明，加大DevOps团队与客户之间的距离，不仅会降低质量，还会增加项目开发时间。

Incorrect. This seems like a logical solution, but research has shown that creating greater distance between DevOps teams and customers decreases quality and increases project development time.

- B)** 错误。客户已经不满，坚持现有工作方法无法解决任何问题。

Incorrect. Customers are already unhappy. Keeping to this method of working will not solve anything.

- C)** 正确。通过引入在制品限制和可视化管理技术（例如看板），管理工作和创造流动，这对于团队的帮助最大。它将确保价值交付的最大化。（文献：A，第7章）

Correct. Managing the work and creating flow by introducing WIP-limits and a visual management technique such as a Kanban board will help the team most. It will ensure the highest value delivery. (Literature: A, Chapter 7)

- D)** 错误。解决一个问题并制造另一个问题并不是最好的解决方案。尽管客户可能感受到专用资源的投入，但由于这种依赖，用合理速度进行的交付质量难以保障。

Incorrect. Solving one problem and creating another is not the best solution. Although customers may feel that resources are dedicated to their work, dependencies make it hard to deliver quality at a reasonable speed.

32 / 40

BigBlue Software是一家为其他企业开发软件的小公司。该公司拥有一个开发团队和一个运维团队。两个团队都有各自的经理，但他们合作融洽。由于公司规模小，而首席执行官又目标远大，两个团队有时会有时间压力。

时间紧迫时，两个团队都会犯错，导致软件出现错误和中断。在这种情况下，团队会齐心协力解决中断问题，或者集中某个问题以尽快解决。团队成员公开分享所犯错误、合作解决错误并交付客户价值，经理们为他们感到自豪。

变革Westrum组织文化类型是否能让该组织受益？

BigBlue Software is a small company that creates software for other businesses. The company has a Development team and an Operations team. These teams both have their own managers, but they work well together. Because the company is small, and the CEO is ambitious, the teams sometimes experience time pressure.

Under time pressure, both teams make errors that have led to bugs in the software and outages. The teams have pulled together on these occasions to solve the outages, or to swarm on a problem to solve it as quickly as possible. The managers are proud of the team members for openly sharing mistakes they made, cooperating to solve it, and delivering customer value.

Would this organization benefit from a change in its Westrum organizational culture typology?

**A) 是，从设立经理的团队结构可以看出，该组织文化为官僚型，应该实施变革。**

Yes, the organizational culture is bureaucratic as can be seen from the team structures with a manager and should be changed.

**B) 是，从压力下犯错可以看出，该组织文化为病态型，应该实施变革。**

Yes, the organizational culture is pathological as can be seen from the mistakes made under pressure and should be changed.

**C) 否，从合作和分享错误可以看出，该组织文化为生机型，不应该实施变革。**

No, the organizational culture is generative as can be seen from the cooperation and sharing mistakes and should not be changed.

**D) 否，从需要客户价值可以看出，该组织文化为市场导向型，不应该实施变革。**

No, the organizational culture is market oriented as can be seen from the call for customer value and should not be changed.

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- A)** 错误。尽管团队设有经理，但这本身并不是官僚型文化的标志。团队成员不惧怕分享错误并进行合作，这是生机型文化的标志，在这种文化中，所有团队和团队成员共同合作为客户创造价值。  
Incorrect. Although the teams have managers, that in itself is not a sign of a bureaucratic culture. The team members are not afraid of sharing the mistakes and cooperating. These are all signs of a generative culture where all teams and team members work together to deliver customer value.
- B)** 错误。尽管团队频繁犯错并面临一定的时间压力，但他们并不惧怕分享错误并合作解决错误。这是生机型文化的标志，在这种文化中，所有团队和团队成员共同合作为客户创造价值。  
Incorrect. Although the teams make many mistakes and are under some time pressure, they are not afraid of sharing the mistakes and are cooperating to solve them. These are all signs of a generative culture where all teams and team members work together to deliver customer value.
- C)** 正确。团队表明他们会犯错，但不惧怕分享错误，并合作解决错误，甚至是跨团队合作。经理们鼓励这种行为。这是生机型文化的标志，在这种文化中，所有团队和团队成员共同合作为客户创造价值。（文献：A，第3章）  
Correct. The teams show that they make mistakes, but are not afraid of sharing them and they are cooperating to solve them, even across teams. The managers encourage this behavior. These are all signs of a generative culture where all teams and team members work together to deliver customer value. (Literature: A, Chapter 3)
- D)** 错误。目前尚不清楚该组织是否以市场为导向，因为市场导向型不属于Westrum组织类型。团队成员不惧怕分享错误并进行合作，这是生机型文化的标志，在这种文化中，所有团队和团队成员共同合作为客户创造价值。  
Incorrect. It is not clear if the organization is market oriented or not because this is not a part of the Westrum organizational typology. The team members are not afraid of sharing the mistakes and cooperating. These are all signs of a generative culture where all teams and team members work together to deliver customer value.

33 / 40

一位团队成员表示，组织需要组织级学习（又称为生机型文化），因为组织级学习能够帮助客户，确保质量，创造竞争优势，并打造一支忠诚的员工队伍。

为什么这是对的？

A team member states that the organization needs organizational learning, sometimes called a generative culture, because it enables helping the customers, ensures quality, and creates competitive advantage and a committed workforce.

Why is this true?

- A)** 因为组织级学习意味着发现错误，让团队成员个人担责并从中吸取教训  
Because organizational learning means identifying mistakes and holding individual team members accountable to learn from them
- B)** 因为组织级学习意味着让团队不断学习最新的敏捷和精益方法，以增加流动  
Because organizational learning means keeping the team educated on the latest Agile and Lean methods to increase the flow
- C)** 因为组织级学习需要一种使员工感受到支持而他们的判断受到重视的思维方式  
Because organizational learning requires a mindset that makes employees feel supported, and values their judgments
- D)** 因为组织级学习需要一种研究文化，能够自动形成假设以做出明智决策  
Because organizational learning requires a research culture that automatically creates hypotheses to make informed decisions

(题目未完，接下一页)

- A) 错误。** 尽管学习型组织可以发现错误并从中吸取教训，但生机型文化的目标并不是让团队成员对错误负责。

Incorrect. Although learning organizations could identify mistakes to learn from them, a generative culture does not have the goal of holding team members accountable for mistakes.

- B) 错误。** 学习型组织意味着该组织的文化促进实验和学习，从而减少工作倦怠，带来持续进步。简单学习敏捷和精益无法实现这一点。

Incorrect. A learning organization means that the organization has a culture that allows experimentation and learning, which reduces burnout and results in continued progress. Simple education in Agile and Lean does not achieve this.

- C) 正确。** 如果员工能感受到雇主支持，工作所需的工具和资源到位，感觉自己的判断受到重视，那么工作质量会越高。工作状态越好，软件交付效能越高，因而组织绩效水平会更高。（文献：A，第10章）

Correct. People who feel supported by their employers, who have the tools and resources to do their work, and who feel their judgment is valued, deliver higher quality work. Better work results in higher software delivery performance, which results in a higher level of organizational performance. (Literature: A, Chapter 10)

- D) 错误。** 学习型组织并不总是意味着进行科学研究，尽管这可能是其中的一部分。学习型组织并不需要研究型文化，文化也不会自动形成假设。

Incorrect. Learning organization does not always mean that scientific research is done, although that could be a part of it. It does not require a research culture and the culture does not create the hypotheses automatically.

34 / 40

某人力资源团队被要求编制一份关于招聘DevOps团队成员的新政策。

哪一项是招聘DevOps团队成员的**最佳**政策？

A human resource team is asked to write a new policy for hiring DevOps team members.

What is the **best** policy for hiring DevOps team members?

- A) 允许应聘者在简历上不署名，并优先考虑能为团队带来多样性的应聘者，因为多样性有利于创造更好的团队成果  
Allowing applicants to apply without a name on their resume and preferring applicants that bring diversity to the team, because this leads to better team results
- B) 允许经理调查哪个别家公司的职员表现最好，并努力挖走他们，因为这样可以帮助团队吸纳最优秀的人才  
Allowing managers to research which employee performs best at another company and trying to buy them away, because this makes the best people part of the team
- C) 仅招募认为自己不完全契合组织或其他团队成员的应聘者，因为这样最能促进多样性  
Allowing only those applicants who do not fully feel that they fit in with the organization or with the other team members, because this fosters diversity the most
- D) 允许现有团队成员选择自己最认同的团队成员，因为这进一步促进整个团队的和谐和平等  
Allowing the team members to select the team member that they identify with most, because this brings more harmony and equality to the entire team

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- A) 正确。**确保尽可能消除招聘中的偏见，并主动追求多样性，这有助于提升DevOps团队的智慧和工作效率。（文献：A，第10章）

Correct. Making sure bias is removed from hiring as much as possible and actively preferring diversity helps the DevOps team to be smarter and perform better. (Literature: A, Chapter 10)

- B) 错误。**DevOps团队能够因多样性而成长，并帮助团队提升智慧和工作效率。挖走别家公司职员可能会带来技能，但不会带来多样性或归属感。

Incorrect. DevOps teams thrive on diversity and help the teams to be smarter and perform better. Buying away people from other companies may buy you skills, but not diversity or a sense of belonging.

- C) 错误。**DevOps团队能够因多样性而成长，并帮助团队提升智慧和工作效率。但仅有多样性是不够的；团队成员要有归属感，DevOps才能成功。招募无归属感的人会适得其反。

Incorrect. DevOps teams thrive on diversity and help the teams to be smarter and perform better. But diversity alone is not enough; people need to feel a sense of belonging to make DevOps succeed. Hiring people that feel they do not belong achieves the opposite.

- D) 错误。**DevOps团队能够因多样性而成长，并帮助团队提升智慧和工作效率。招募非常相似的团队成员与多样性相悖。

Incorrect. DevOps teams thrive on diversity and help the teams to be smarter and perform better. Hiring very similar team members is the opposite from diversity.

35 / 40

某组织将管理实践转变为精益领导力。这是对旧有工作方式的一次巨大变革，原先管理层会定期公开羞辱犯错的同事。

其中一个团队是分布式团队。尽管团队对新的领导风格更满意，但他们的沟通并不理想。团队成员不讨论所造成的错误，也不合作来快速解决问题。

团队经理引入了大多数团队成员私下在用的聊天工具的商业版本，但这似乎并没有达到预期效果。

团队是怎么回事，经理应该如何解决问题？

An organization has changed its management practices to Lean leadership. This is a big change from the old way of doing things, when management would regularly publicly shame coworkers for mistakes they made.

One of the teams is a distributed team. Although the team is much happier with the new leadership style, their communication is not optimal. The team members are not discussing bugs that they create or cooperating to solve problems quickly.

The team manager has introduced a business version of the chat tool that most team members were already using privately, but this does not seem to have the desired result.

What is happening in this team and how should the manager solve this?

- A)** - 团队成员对聊天工具还不够熟练。
  - 经理应促进内部或外部培训来解决这个问题。
  - The team members are not skilled enough with the chat tool yet.
  - The manager should facilitate internal or external training to solve this.
- B)** - 团队成员仍处于原先领导风格的调整适应期。
  - 经理不需要干预这个临时过程。
  - The team members are still adjusting from the former leadership style.
  - The manager does not need to intervene in this temporary process.
- C)** - 团队成员还不信任新的领导风格。
  - 经理必须考虑周全并表达对团队的自豪感。
  - The team members do not trust the new leadership style yet.
  - The manager must be thoughtful and express his pride in the team.

(题目未完，接下一页)

- A)** 错误。团队采用的是成员们私下在用的聊天工具，这不太可能是缺乏沟通的原因。由于团队不讨论错误和问题，所以他们更有可能还不信任新的领导风格。

Incorrect. The team is using the same tool for private use. It is unlikely that this is the cause for the lack of communication. Since they are not discussing bugs and problems, it is more likely that they do not trust the new leadership style yet.

- B)** 错误。团队对新的领导方式更满意。这不太可能是缺乏沟通的原因。由于团队不讨论错误和问题，因而他们更有可能是还不信任新的领导风格。

Incorrect. The team is happier with the new type of leadership. It is unlikely that this is the cause for the lack of communication. Since they are not discussing bugs and problems, it is more likely that they do not trust the new leadership style yet.

- C)** 正确。由于团队不讨论错误和问题，因而他们很可能还不信任新的领导风格。经理应该表现出支持型领导力和激励型沟通来解决这个问题。（文献：A，第11章）

Correct. Since the team is not discussing bugs and problems, it is most likely that they do not trust the new leadership style yet. The manager should show supportive leadership and inspirational communication to solve this. (Literature: A, Chapter 11)

确保团队成员工作有意义的**最大**直接好处是什么？

What is the **largest** direct benefit of making sure team members have meaningful work?

- A) 有助于减少工作倦怠，提高员工的忠诚度和敬业度。  
It helps to decrease burnout and increases employee loyalty and engagement.
  - B) 有助于在预算范围内按时交付团队的所有DevOps项目。  
It helps to deliver all DevOps projects from the team on time and within budget.
  - C) 有助于增强团队对能够完成DevOps工作的信心。  
It helps to increase the confidence of the team that they can accomplish DevOps work.
  - D) 有助于留住团队成员，因为没有人愿意离职。  
It helps to retain the team members because no one wants to leave their job.
- 
- A) 正确。最大的好处是减少工作倦怠和提高敬业度。（文献：A，第10章）  
Correct. The largest benefit is in reducing burnout and increasing engagement. (Literature: A, Chapter 10)
  - B) 错误。这不是提供有意义工作的直接好处，但可能是间接影响。它最大的好处是减少工作倦怠和提高敬业度。  
Incorrect. This is not a direct benefit of providing meaningful work but can be an indirect effect. The largest benefit is in reducing burnout and increasing engagement.
  - C) 错误。即使团队可能觉得自己有能力，但这并不意味着他们具有做成某事的能力。此外，有意义的工作不一定能增加信心。它最大的好处是减少工作倦怠和提高敬业度。  
Incorrect. Even though the team may feel competent, that does not mean they have the competence to do something. In addition, meaningful work does not necessarily increase confidence. The largest benefit is in reducing burnout and increasing engagement.
  - D) 错误。尽管忠诚度可能会有所提高，但没有人愿意离职这一点过于乐观。它最大的好处是减少工作倦怠和提高敬业度。  
Incorrect. Although there may be an increase in loyalty, it is overly optimistic that no one wants to leave their job. The largest benefit is in reducing burnout and increasing engagement.



37 / 40

某公司在过去两年中呈指数级增长。因此，开发团队面临着时间压力。每个团队成员都觉得需要休假，甚至有团队成员考虑辞职。团队请病假的次数高于往年。

团队经理招募了几名新的团队成员，但大家仍然认为工作量大，尽管最后期限似乎全都及时完成。为了解决这个问题，团队经理想要更直接地解决关于工作倦怠的抱怨与压力问题。

哪些行动**最能**解决对工作倦怠的抱怨与压力问题？

A company has grown exponentially in the last two years. As a consequence, the Development team is experiencing time pressure. Every team member feels like they could use a vacation and some team members are even thinking about quitting their jobs. The team has been calling in sick more than in other years.

The team manager has hired several new team members, but the workload is still perceived as high, although all deadlines seem to be made just in time. To solve the problem, the team manager wants to address the burnout complaints and stress more directly.

Which actions **best** address burnout complaints and stress?

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- A)** - 与分包商签订合同，委托管理一年中高峰期增加的工作量
- 让团队有机会接受公费的专业心理辅导项目
  - Contract subcontractors for managing the increased workload during peak periods of the year
  - Give the team members access to professional mental help programs paid for by the company
- B)** - 给所有团队成员一个月的假期，确保他们复工时能焕发新生
- 要求经理在团队复工前找出所有可能导致工作倦怠的因素
  - Give all team members a month-long vacation to ensure a fresh start when they return to work
  - Ask the managers to identify all factors that might be contributing to burnout before the team returns
- C)** - 让团队成员讨论过程中的所有任务，以发现哪些任务有意义
- 移除无意义的任务并确保团队能够自行做出大部分决策
  - Have the team members discuss all tasks in the process to discover which tasks are meaningful
  - Remove tasks that are not meaningful and ensure the team can make most decisions on their own
- D)** - 聘请更称职的经理，能够知道如何帮助团队成员平衡工作与生活
- 让团队成员有更多时间适应新的环境，找到新的平衡
  - Hire a more competent manager who knows how to create work-life balance for the team members
  - Allow more time for the team members to settle into the new environment and find a new balance

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- A)** 错误。虽然这似乎解决了团队的问题，但这个解决方法并没有直接解决压力或工作倦怠抱怨。仅起到暂时的缓解，并未解决根本原因。

Incorrect. Although this seems to solve the problems of the team, this solution does not address the stress or burnout complaints directly. It just creates a temporary relief and does not address the root cause.

- B)** 错误。尽管所有团队成员无疑会对一个月假期感到高兴，但这会给公司带来很大的混乱。此外，经理并不是解决这个问题的最佳人选。

Incorrect. Although all team members would undoubtedly be happy with a month-long vacation, this would be very disruptive for the company. In addition, the managers are not the best placed people to solve this problem.

- C)** 正确。确保团队成员在工作时有足够的空间自主判断，而且大部分时间做有意义的或至少是必要的任务，这是解决关于工作倦怠的抱怨与压力的最佳长期方案。这两件事都能提高员工的敬业度和满意度。

(文献：A，第11章和附录A)

Correct. Ensuring that the team members have enough room to exercise their own judgement while doing their jobs and are mostly doing meaningful or at least necessary tasks is the best long-term solution for the burnout complaints and stress. Both these things increase employee engagement and satisfaction. (Literature: A, Chapter 11 and Appendix A)

- D)** 错误。团队经理已经找对了问题所在，而且似乎并非不称职。聘请新的经理并只是给团队时间并不是解决团队问题的办法。

Incorrect. The team manager has picked up on the problem correctly and does not seem incompetent. Hiring a new manager and just giving the team time is not a solution that addresses the team's problems.

38 / 40

变革领导力被认为是DevOps中最容易被忽视的方面之一。

为什么变革领导力对于整个组织的DevOps成功至关重要？

Transformational leadership is said to be one of the most overlooked aspects of DevOps.

Why is transformational leadership essential for DevOps success across the organization?

- A)** 因为来自高级管理层的承诺促使他们变革流程以抵消阻力  
Because commitment from upper management allows them to change processes to counteract resistance
- B)** 因为如果不是所有员工（包括高级管理层）都了解DevOps，DevOps将会失败  
Because DevOps will fail if not all employees, including upper management, understand DevOps well
- C)** 因为持续交付所必要的变革必须由高级管理层强制要求  
Because the changes that are necessary for continuous delivery must be mandated by upper management
- D)** 因为高级管理层必须信任员工，并鼓励他们在免惩罚下进行实验  
Because upper management must trust employees and encourage them to experiment without punishment

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- A)** 错误。领导层承诺固然是好事，但他们不应该变革流程。相反，领导层应该打造一种生机型文化，员工能够进行必要的变革。

Incorrect. Although commitment by leadership is good, they should not change processes. Instead, leadership should create a generative culture in which the employees can make necessary changes.

- B)** 错误。尽管了解DevOps十分重要，但领导层只需要打造一种生机型文化，能够允许员工因DevOps进行变革。

Incorrect. Although understanding DevOps is important, leadership only needs to create a generative culture in which employees are allowed to make changes for DevOps to work.

- C)** 错误。尽管领导层可以强制要求必须进行变革，但这并不是实现组织转型或确保接受变革的有效方式。相反，领导层应该打造一种生机型文化，员工能够进行必要的变革。

Incorrect. Although leaders can mandate that changes must be made, this is not an effective way to transform the organization or to ensure buy-in into changes. Instead, leadership should create a generative culture in which the employees can make necessary changes.

- D)** 正确。变革领导力打造了一种生机型和高度信任的文化，DevOps可以在这种文化下蓬勃发展。（文献：A，第11章）

Correct. Transformational leaders create a generative and high-trust culture in which DevOps can thrive. (Literature: A, Chapter 11)

39 / 40

对组织中DevOps的成熟度进行持续监测是一项关键能力。它支持跨IT专业的协作，减少或消除在有业务孤岛的组织中频繁出现的非生产性行为。持续监测不同于常规监测。

持续监测的**主要**要求是什么？

Continuous monitoring of the maturity of DevOps in an organization is a critical capability. It enables collaboration across IT specialties, and reduces or eliminates unproductive behaviors that all too frequently appear in organizations with operational silos. Continuous monitoring is different from conventional monitoring.

What is the **main** requirement of continuous monitoring?

- A) 使组件完全自动地达到预期状态  
Bringing a component to the desired status in a fully automated way
  - B) 让开发团队和运维团队在每个价值流中协同工作  
Getting Development and Operations to work together in each value stream
  - C) 保持组织协调并关注生产环境  
Having organizational alignment and a focus on the production environment
  - D) 对组织的复杂应用环境进行全面了解  
Taking a holistic view of the organization's complex application environment
- 
- A) 错误。持续部署要求组件随时能够完全自动地达到预期状态，无论组件的初始状态如何，也无论组件经过了多少次配置。  
Incorrect. Continuous deployment requires that a component can always be fully automatically brought to the desired status, regardless of the component's initial state and regardless of the number of times the component is configured.
  - B) 错误。为客户交付价值需要开发团队和运维团队在价值流中协同工作，并有共同的目标和实践。  
Incorrect. Delivering value to the customer requires that Development and Operations are working together in value streams and have shared goals and practices.
  - C) 错误。常规监测需要组织协调并重点关注生产环境。  
Incorrect. Conventional monitoring requires organizational alignment and limits its focus to the production environment.
  - D) 正确。持续监测需要全面了解整个组织的复杂应用环境。（文献：C，第3章）  
Correct. Continuous monitoring requires taking a holistic view of the complex application environment of the entire organization. (Literature: C, Chapter 3)

## 40 / 40

在考察组织的DevOps成熟度时，重要的是要从多维角度看待组织、组织的能力及其在各维度的成熟度。DevOps持续评估架构可以表示为一个立方体。

DevOps立方体的六个面分别代表什么？

When looking at an organization's DevOps maturity, it is important to have a multidimensional perspective of the organization, its capabilities, and its maturity in each of these dimensions. The DevOps continuous assessment architecture can be represented as a cube.

What is represented on the sides of the DevOps cube?

- A) 流动、反馈、学习和实验、治理、部署及质量保证**  
Flow, feedback, learning and experimentation, governance, deployment, and quality assurance
- B) 监测、信息、沟通、评估、控制及活动**  
Monitoring, information, communication, assessment, control, and activities
- C) 人员、流程、合作伙伴、技术、质量保证及文化**  
People, process, partners, technology, quality assurance, and culture
- D) 需求、流程、资源、组织、成熟度及能力**  
Requirements, processes, resources, organization, maturity, and capability

(题目未完，接下一页)

- A)** 正确。DevOps立方体代表了六个维度，必须持续评估各维度以纠正组织的DevOps工作。前三个维度代表三种DevOps方式，然后是持续的端到端部署、质量保证以及适当的治理。（文献：C，第5章）  
Correct. The DevOps cube represents six dimensions that must be continuously assessed to course-correct the organization's DevOps efforts. The first three represent the three DevOps ways, followed by continuous end-to-end deployment, quality assurance, and proper governance. (Literature: C, Chapter 5)
- B)** 错误。该选项中的维度是早期立方体模型的例子之一，用于表示评估和控制框架的多维方面。发起组织委员会（COSO）是许多运用立方体模型的框架的起点。  
Incorrect. The dimensions shown here are from one of the first examples of using cube models to represent multi-dimensional aspects of assessment and control frameworks. The Committee of Sponsoring Organizations (COSO) was the starting point for many frameworks using cube models.
- C)** 错误。人员、流程、合作伙伴和技术维度构成了微软运营框架（Microsoft Operations Framework, MOF）和微软解决方案框架（Microsoft Solutions Framework, MSF）的关键部分，通常用于确保管理技术环境的平衡。  
Incorrect. The people, process, partners, and technology dimensions that formed key parts of the Microsoft Operations Framework (MOF) and Microsoft Solutions Framework (MSF) frameworks are often used to ensure a balanced approach to managing technological environments.
- D)** 错误。（业务）需求、流程和资源是另一个知名立方体模型的三个域。分别是旧版COBIT（信息及相关技术的控制目标）中的三个主要域，用于确保治理的平衡。尽管COBIT确实涉及组织的设计或角色，及其能力成熟度，但这几个维度并未在COBIT立方体上体现。  
Incorrect. (Business) requirements, processes, and resources are the three domains of another famous cube. These are the three main domains used in older COBIT (Control Objectives for Information and Related Technologies) versions to ensure a balanced governance approach. Although COBIT did address organizational design/roles, and capability maturity, these dimensions were not represented on the COBIT cube.



## 试题评分

如下表格为本套样题的正确答案，供参考使用。

问题	答案	问题	答案
1	D	21	B
2	B	22	D
3	B	23	C
4	B	24	B
5	B	25	B
6	D	26	D
7	A	27	C
8	D	28	D
9	C	29	D
10	A	30	B
11	A	31	C
12	B	32	C
13	A	33	C
14	C	34	A
15	A	35	C
16	B	36	A
17	D	37	C
18	C	38	D
19	B	39	D
20	D	40	A



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