

Code-Reviews

Was leisten sie wirklich?

Entwicklertag Karlsruhe 2022



Janika Krull
Dr. Sven Amann



Industrie

Software **Audits**

Kontinuierliche **Qualitäts-**
und **Test-Kontrolle**

 **Teamscale**

CQSE GmbH

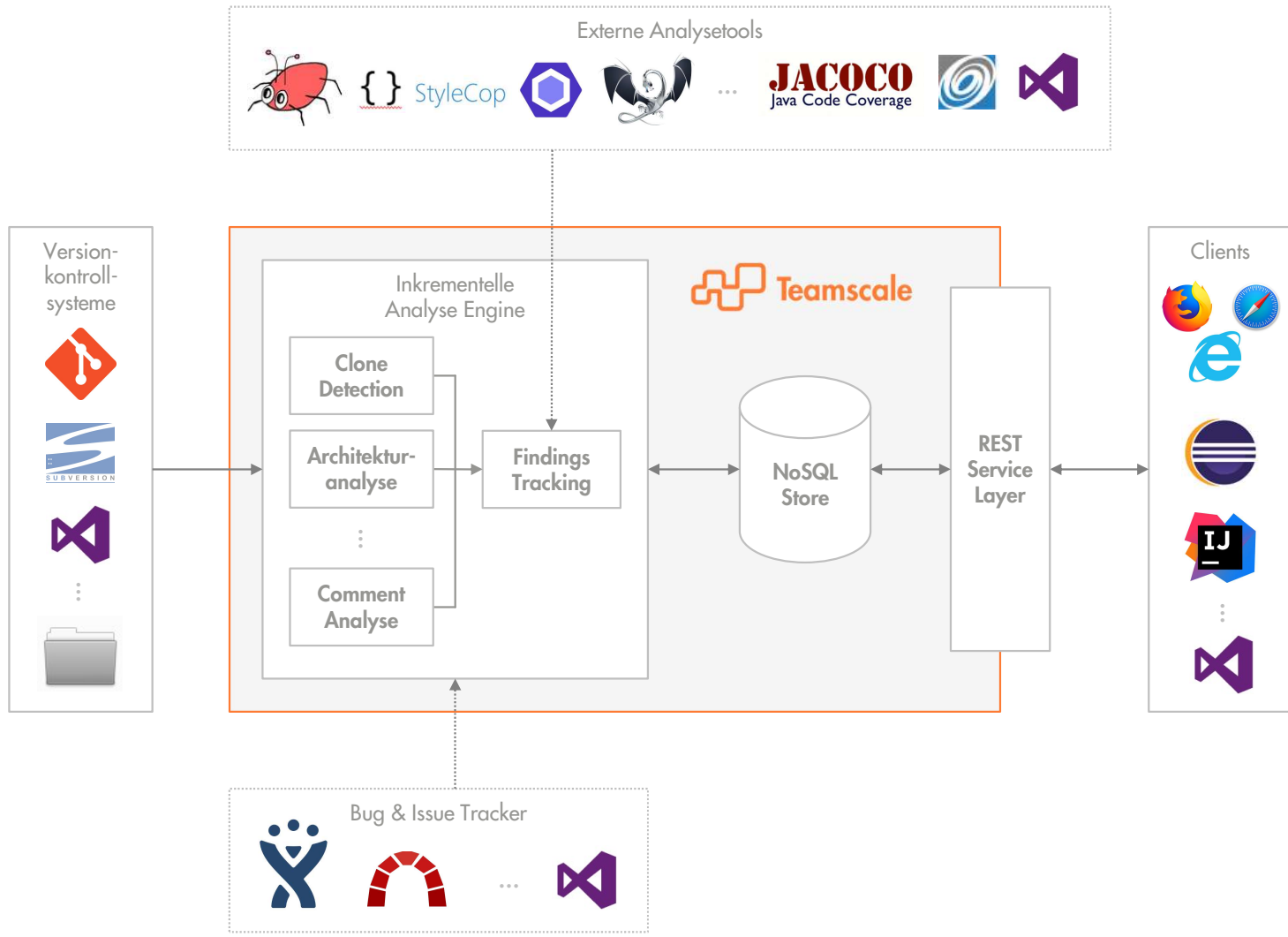


Forschung

17+ **PhDs** in Software
Engineering

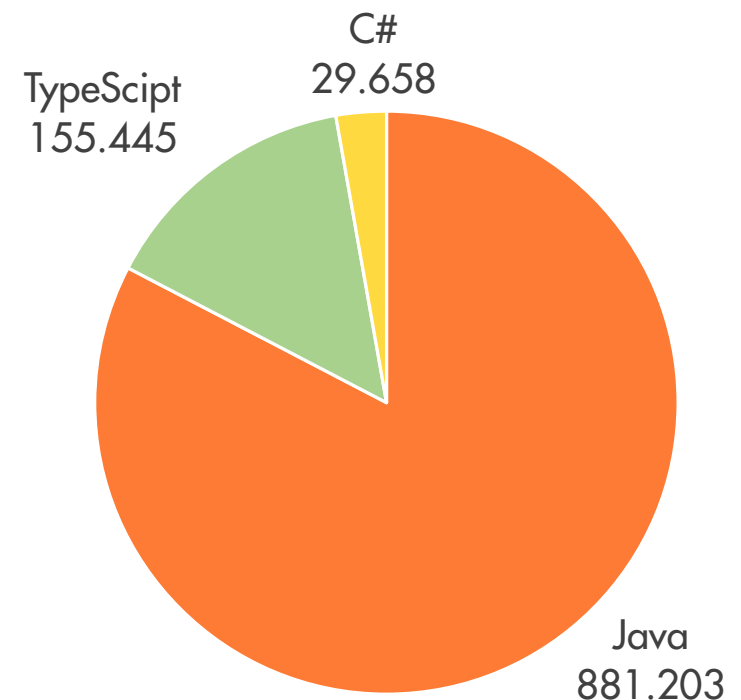
Eigene **Forschung**

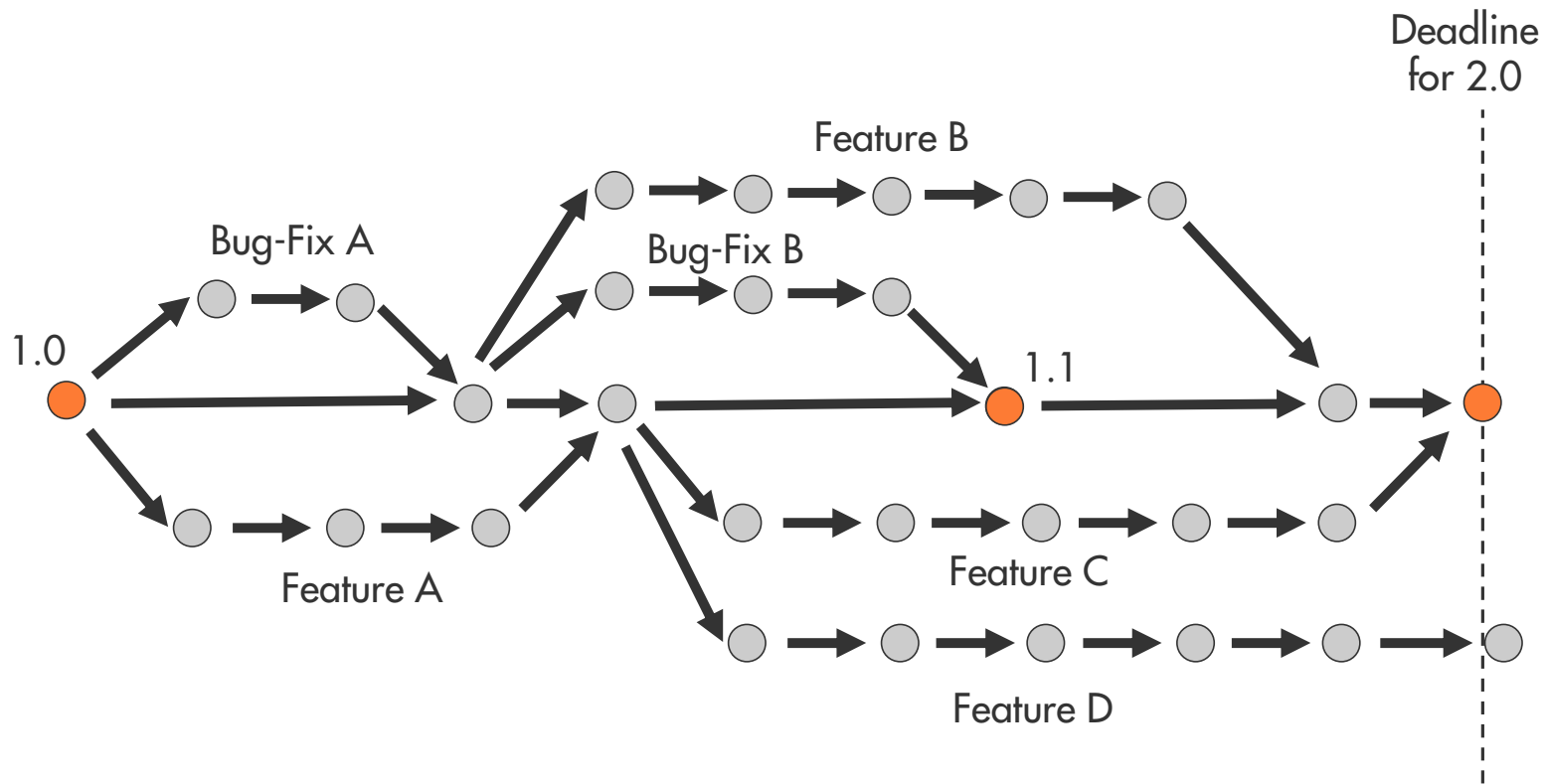
Enger Kontakt zu
Universitäten



Teamscale in Zahlen

- >1M Lines of Code
- 9200 Dateien
- 47 Committer in 6 Wochen
- 33 Commits pro Tag
- Committers = MA + Studis
- 1 Major-Release alle 6 Wochen
(mehrere Bug-Fix-Releases pro Woche)
- ~270 Tickets pro Major-Release
(inkl. 100 Tickets aus Bug-Fix-Releases)
- 2147 Tickets in 2021







Teamscale / TS-18855

Deep nesting in RepositoryContentUpdaterBase

[Edit](#) [Comment](#) [Assign](#) [More](#) [Back to New](#)

[Share](#) [Export](#)

Details

Type:	Maintenance	Status:	DONE (View Workflow)
Priority:	Normal	Resolution:	Green
Component/s:	Backend	Fix Version/s:	Teamscale 5.1
Labels:	code-retrospective		
Affected Version:	master		
Merge Request:	https://git.cqse.eu/cqse/teamscale/merge_requests/5382		
PDash Task:	#4888		
Change Log:	-		
Maturity Level:	Development		

People

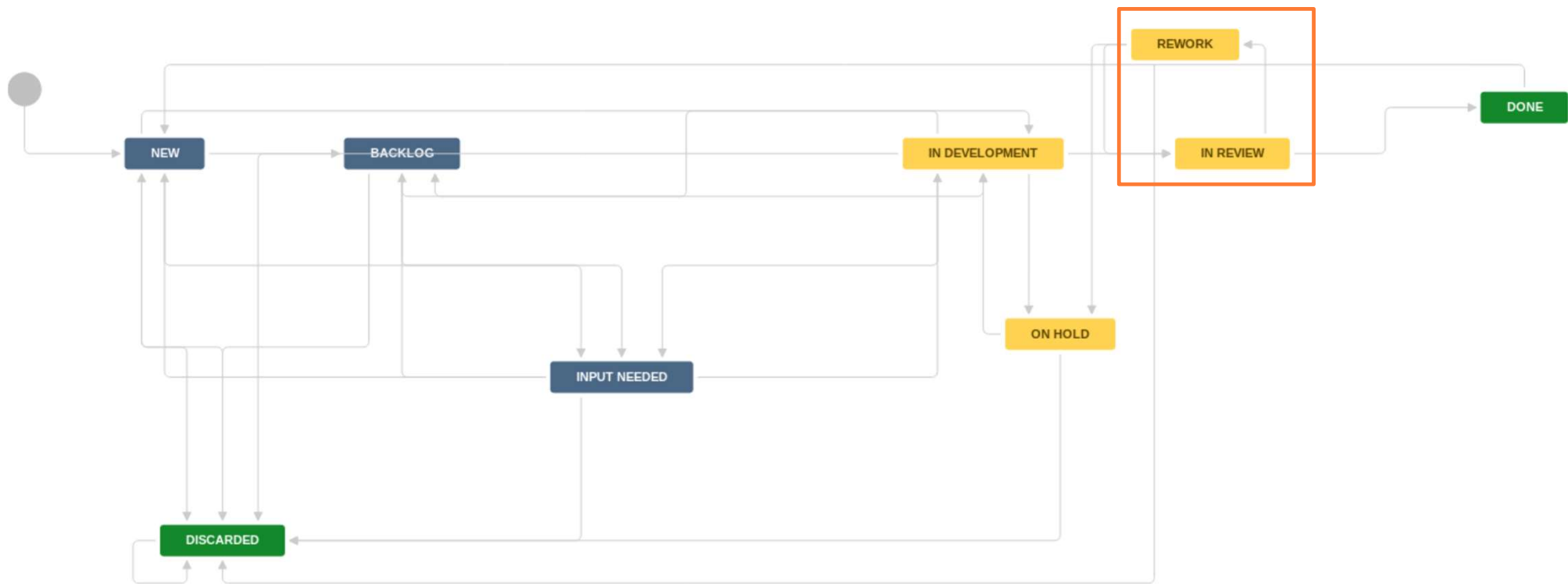
Assignee:	Lars Heinemann Assign to me
Reporter:	Lars Heinemann
QA-Contact:	Andreas Sewe
Votes:	0 Vote for this issue
Watchers:	1 Start watching this issue







Dates

Created:	25/Apr/19 1:06 PM
Updated:	02/May/19 8:37 AM
Resolved:	26/Apr/19 10:58 AM

Description





Transition	Time In Source Status
 Lars Heinemann made transition - 25/Apr/19 1:07 PM NEW → BACKLOG	7s
 Lars Heinemann made transition - 25/Apr/19 3:27 PM BACKLOG → IN DEVELOPMENT	2h 20m
 Lars Heinemann made transition - 25/Apr/19 3:27 PM IN DEVELOPMENT → IN REVIEW	22s
 Andreas Sewe made transition - 26/Apr/19 9:44 AM IN REVIEW → REWORK	18h 16m
 Lars Heinemann made transition - 26/Apr/19 10:39 AM REWORK → IN REVIEW	55m 7s
 Andreas Sewe made transition - 26/Apr/19 10:58 AM IN REVIEW → DONE	18m 57s



Merged

Opened 2 weeks ago by  **Andreas Sewe** 8 of 8 tasks completed

Edit

Close merge request



CR#15286 Allow upload of backups to S3

- Code adheres to our Coding Guidelines and produces no errors or warnings in the IDE
- The change is verifiably tested (no non-trivial test gaps)
- No new Teamscale findings reported for the code changes (old findings in changed code are addressed as negotiated with reviewer)
- In case of user-visible changes or new features, the Teamscale product documentation (Admin Guide, User Guide, Tutorials) is updated accordingly
- CHANGELOG (at the root of the project) is updated in case of prominent features or important bug fixes
- Migrations written for all changes to data in backed up indices and migration tested at least once
- Migrations written for all changes to dashboard widgets/parameters and migration tested at least once
- The [Feature Specific Review Checklists](#) have been considered

 0  2  455

Edited 2 weeks ago by Andreas Sewe



```
engine/org.conqat.engine.index/src/org/conqat/engine/index/repository/RepositoryContentUpdaterBase.java
@@ -293,17 +293,23 @@ public abstract class RepositoryContentUpdaterBase extends RepositoryChangesProc
    List<BasicTokenElementInfo> tokenElements = tokenElementIndex.getValues(paths);
    for (int i = 0; i < paths.size(); i++) {
        String path = paths.get(i);
        RepositoryChangeInfo changeInfo = changeSet.getChangeInfo(path);
        ERepositoryChangeType changeType = patchChangeType(changeInfo, tokenElements.get(i));
        if (changeType != null) {
            result.add(new RepositoryChangeEntry(path, requiredNode.getRevision().getRevision(), changeType,
                commit, changeInfo.getOriginPath(), changeInfo.getOriginCommit()));
        }
        BasicTokenElementInfo element = tokenElements.get(i);
        addChangeEntry(requiredNode, result, changeSet, path, element);
    }
}

private void addChangeEntry(ICommitTreeNode requiredNode, List<RepositoryChangeEntry> result,
    RepositoryChangeSet changeSet, String path, BasicTokenElementInfo element) {
    RepositoryChangeInfo changeInfo = changeSet.getChangeInfo(path);
    ERepositoryChangeType changeType = patchChangeType(changeInfo, element);
    if (changeType != null) {
        result.add(new RepositoryChangeEntry(path, requiredNode.getRevision().getRevision(), changeType, commit,
            changeInfo.getOriginPath(), changeInfo.getOriginCommit()));
    }
}

/**
 * Patches the changes types for the given change entries by manually
 * determining the change type using the token element index. This needs to be
```



```
engine/org.conqat.engine.index/src/org/conqat/engine/index/repository/RepositoryContentUpdaterBase.java
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                commit, changeInfo.getOriginPath(), changeInfo.getOriginCommit()));
        }
        BasicTokenElementInfo element = tokenElements.get(i);
        addChangeEntry(requiredNode, result, changeSet, path, element);
    }
}
```



Andreas Sewe @sewe commented 2 weeks ago Maintainer ✓ 😊 ⋮

I would re-order the message signature. ATM, it's hard to tell which parameter the change entry is added to. If you have `result` first, as in `result.add(...)` things become clearer.

Alternatively, let the extracted method return `Optional<RepositoryChangeEntry>` and do the `add` here.

```
computeChangeEntry(requiredNode, changeSet, path, element).ifPresent(result::add);
```

```
changeInfo.getOriginPath(), changeInfo.getOriginCommit());
    }
}
/**
 * Patches the changes types for the given change entries by manually
 * determining the change type using the token element index. This needs to be
```




Automatisiertes Review durch Teamscale

The screenshot displays the Teamscale interface for automated code reviews. It features several diff views and notification threads:

- Thread 1:** Started by 'build' 6 months ago, resolved by 'build' 6 months ago. It shows a diff for `lib/eu.cqse.check/src/eu/cqse/check/base/AvoidObjectComparisonWithSelfCheckBase.java`. The code includes a `private boolean isComplexExpression` method with a `switch` statement for language-specific syntax.
- Thread 2:** Started by 'build' 7 months ago, resolved by 'build' 6 months ago. It shows a diff for `engine/com.teamscale.index/src/com/teamscale/index/repository/git/azure_devops/AzureDevOpsGitMergeRequestAnnotationTrigger.java`. The diff highlights a `@Override` method `deleteMergeRequestAnnotation`.
- Thread 3:** Started by 'build' 4 months ago, resolved by 'build' 4 months ago. It shows a diff for `engine/com.teamscale.ui/src-js/com/teamscale/ui/commons/FindingsFilterCategoryGroupTypeComponentTemplate.ts`. The diff highlights a violation of a file size threshold, showing a change from `import * as FindingsFilterCategoryGroupTypeComponentTemplate from 'soy/commons/FindingsFilterCategoryGroupTypeComponentTemplate.soy.generated';` to `import * as FindingsFilterCategoryGroupTypeComponentTemplate`.

Notifications and comments are visible below the diff views:


- A comment from 'build' 6 months ago: "Commented Out Code (view in Teamscale)".
- A comment from 'build' 7 months ago: "[New] Empty block: method (view in Teamscale)".
- A notification from 'build' 4 months ago: "Violation of file size threshold (source lines of code) of 300: 301 (view in Teamscale)".

Merged Opened 2 weeks ago by  Lars Heinemann

Edit

Report abuse

CR#18855: reduce nesting

 Request to merge `cr/18855_deep_nesting` into `master`

 Pipeline #82800 passed for `dc48e064` on `cr/18855_deep_nesting`



 Test summary contained no changed test results out of 3897 total tests


Collapse


 ui-tests found no changed test results out of 165 total tests

 integration-tests found no changed test results out of 1623 total tests

 ui-tests-common-lang found no changed test results out of 114 total tests

 system-tests found no changed test results out of 169 total tests

 unit-tests found no changed test results out of 1726 total tests

 js-tests found no changed test results out of 100 total tests

 Merged by  Andreas Sewe 2 weeks ago [Revert](#) [Cherry-pick](#)

The changes were merged into `master` with `f2819175`

The source branch has been removed



Nutzen von Code Review

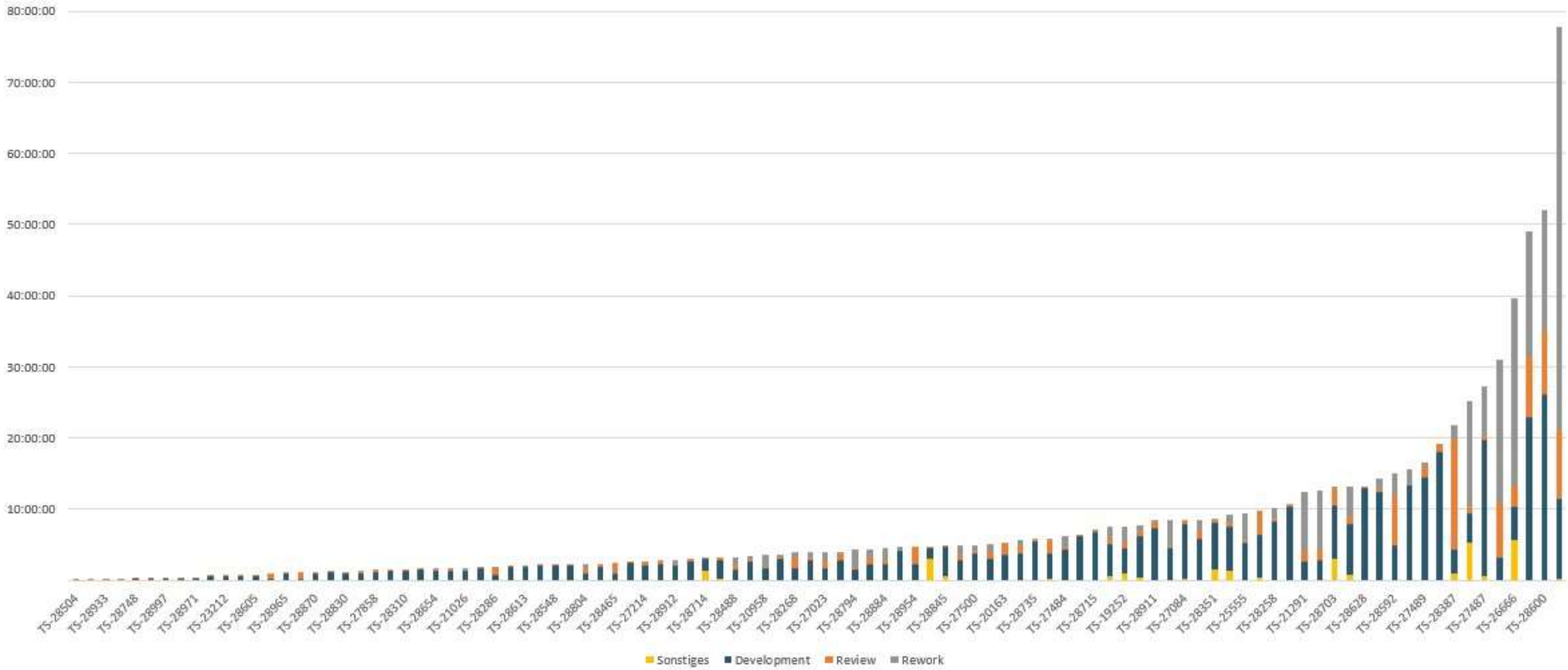
- Code wird besser
- Feedback zur eigenen Arbeit
- Wissenstransfer

=> Schafft Umgebung, in der man Verantwortung übernehmen kann

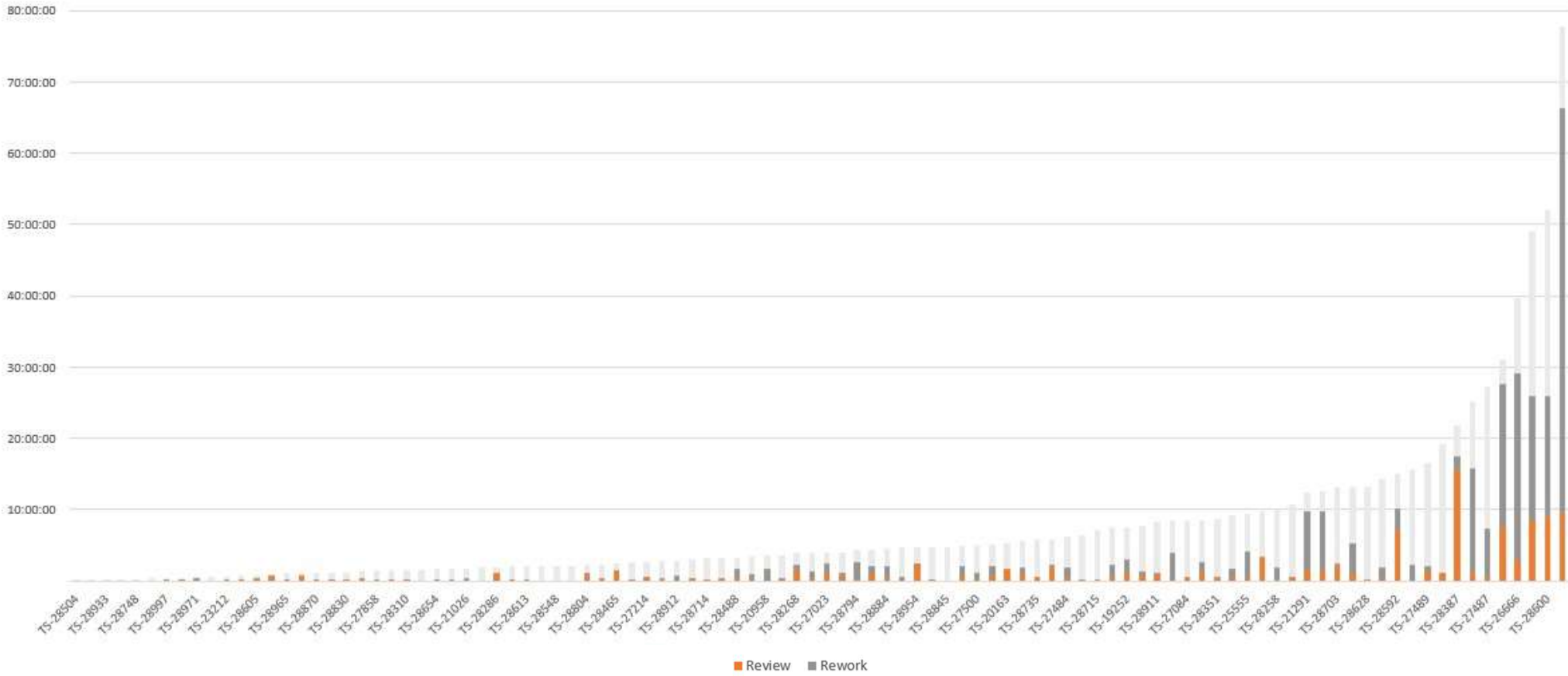
- Was kosten uns Code Reviews?
- Wie (viel) wird unser Code besser?

Welcher Anteil unserer Entwicklungszeit
entsteht durch die Review-Schleife?

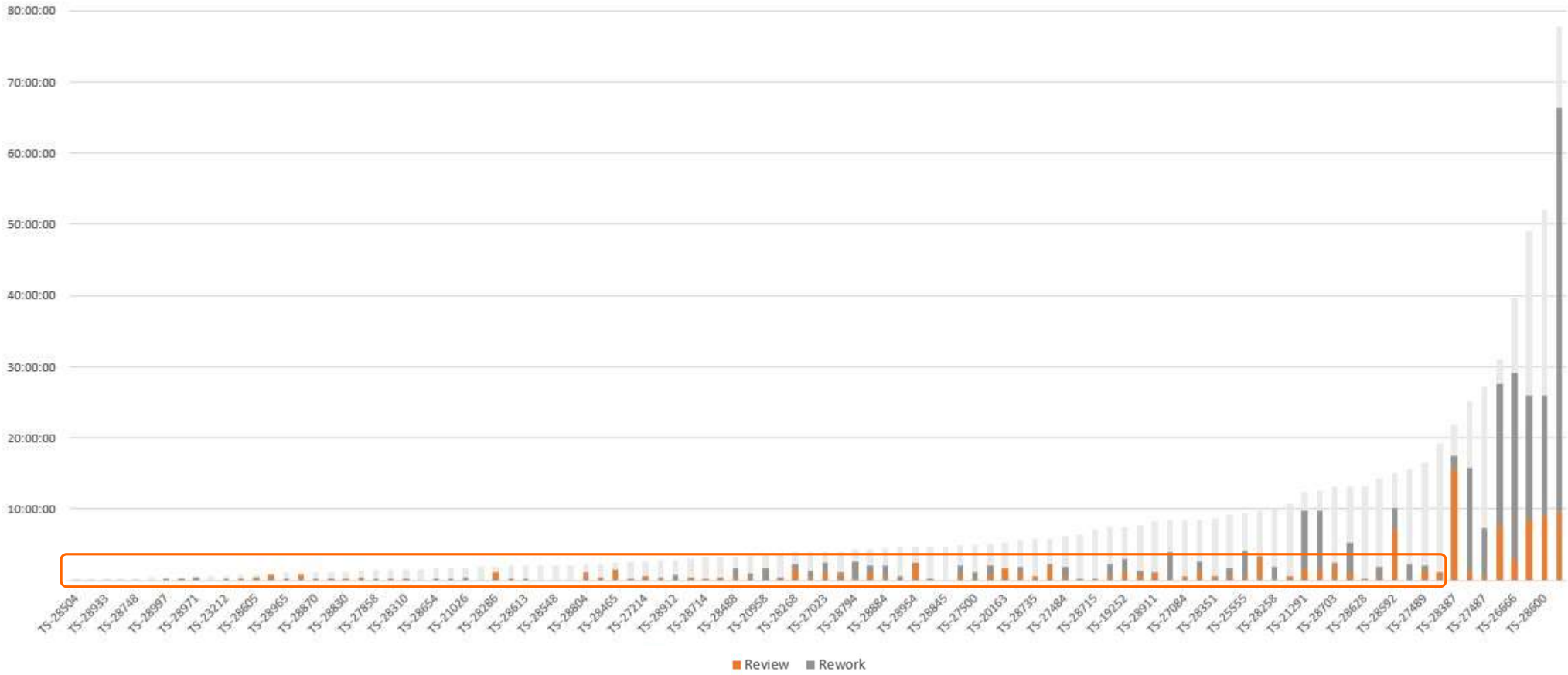
Zeitaufteilung pro Ticket



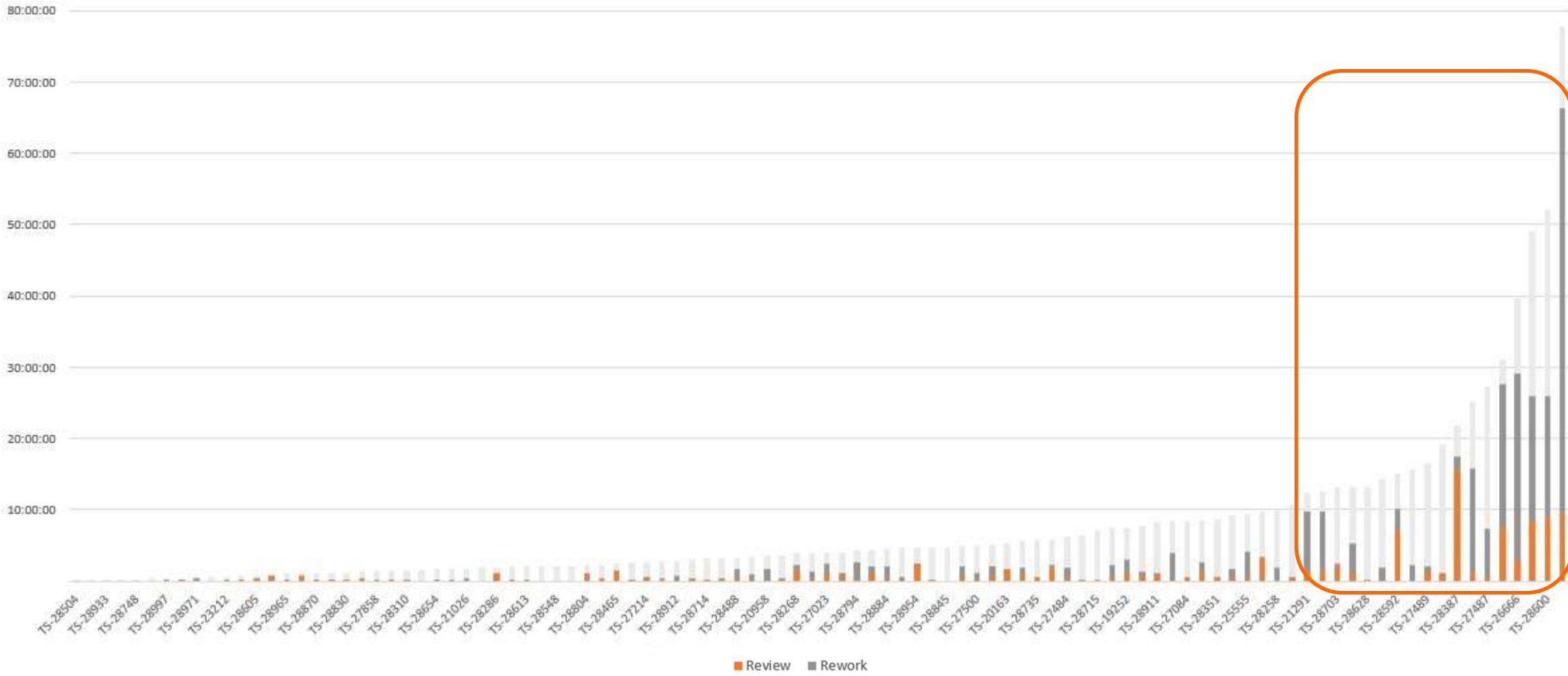
Zeitaufteilung pro Ticket



Zeitaufteilung pro Ticket



Zeitaufteilung pro Ticket



TS-26659

Teamscale / TS-26659

IntelliJ Plugin: License expiry message not displayed as reason for stalled Pre-Commit analysis

[Edit](#)
[Comment](#)
[Assign](#)
[Back to New](#)

Type: **Bug** Status: **DONE** (View workflow)
 Priority: **High** Resolution: **Green**
 Components: **IntelliJ Plugin** Fix versions: **Teamscale 7.6**
 Labels: **students**
 Affected Version: **6.6.4**
 Customer:
 PDash Task: **#4886**
 Change Log: **Fix: IDE plugins constantly request unavailable pre-commit results due to expired license**

Teamscale: **Teamscale Info**

Project name	Findings balance	Test Gap
CQSE All	31 removed	100.00%

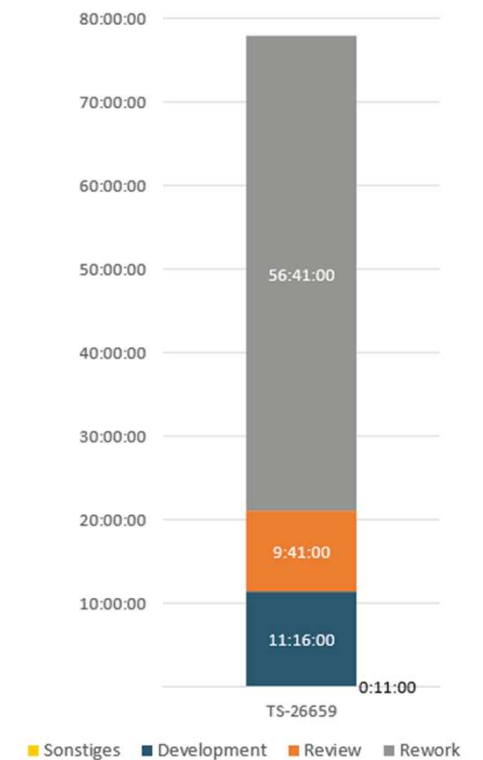
Dev Squad: **Denali**
 Freshdesk URL: <https://cqse.freshdesk.com/a/tickets/19594>
 Merge Request: https://git.cqse.eu/cqse/teamscale/-/merge_requests/11582
 Maturity Level: **Customer Visible**

Description

People
 Assignee: **Korbinian Weidinger** [Assign to me](#)
 Reporter:
 QA-Contact: **Andreas Sewe**
 Votes: **0** [Vote for this issue](#)
 Watchers: **3** [Start watching this issue](#)

Dates
 Created: **31/Mar/21 6:15 PM**
 Updated: **16/Feb/22 3:01 PM**
 Resolved: **25/Nov/21 5:55 PM**

Automation
Time Tracking +
Agile



TS-26659

Teamscale / TS-26659

IntelliJ Plugin: License expiry message not displayed as reason for stalled Pre-Commit analysis

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[Comment](#)
[Assign](#)
[Back to New](#)

Type: Bug **Status:** DONE (View workflow)
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Customer:
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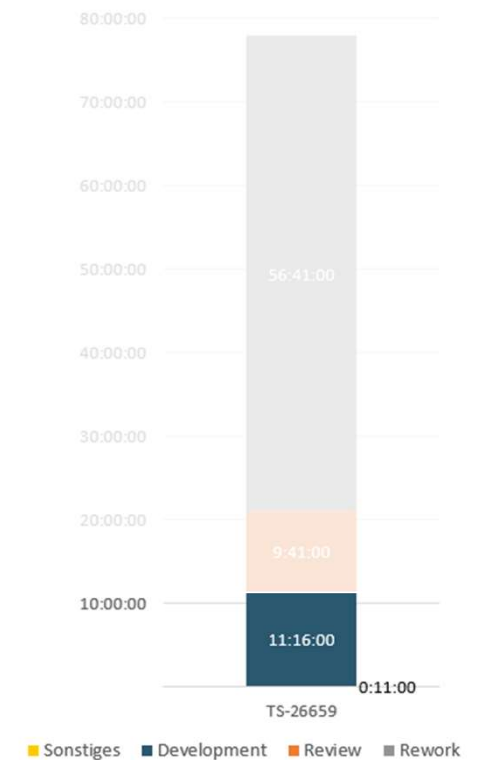
Dev Squad: Denali
Freshdesk URL: <https://cqse.freshdesk.com/a/tickets/19594>
Merge Request: https://git.cqse.eu/cqse/teamscale/-/merge_requests/11582
Maturity Level: Customer Visible

Description

People
Assignee: Korbinian Weidinger
[Assign to me](#)
Reporter:
QA-Contact: Andreas Sewe
Votes: 0 [Vote for this issue](#)
Watchers: 3 [Start watching this issue](#)

Dates
Created: 31/Mar/21 6:15 PM
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[Time Tracking](#) +
[Agile](#)



TS-26659

Teamscale / TS-26659

IntelliJ Plugin: License expiry message not displayed as reason for stalled Pre-Commit analysis

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Type: Bug **Status:** DONE (View workflow)
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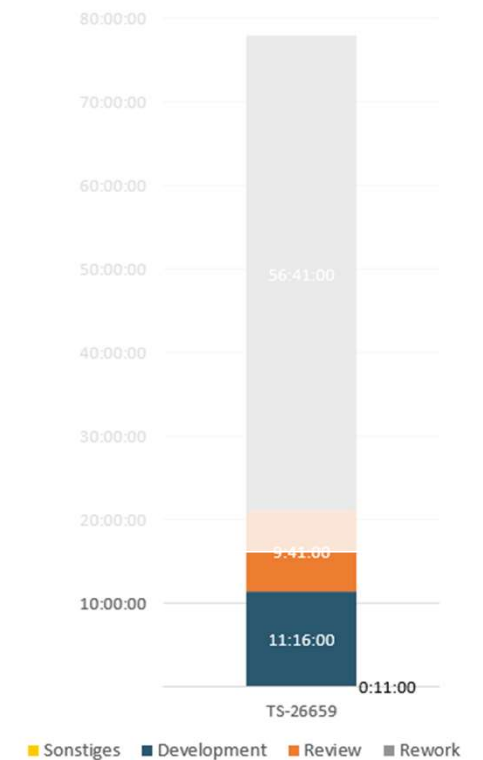
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[Automation](#)
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[Agile](#)



TS-26659

Teamscale / TS-26659

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[Comment](#)
[Assign](#)
[Back to New](#)

Type: **Bug**
 Status: **DONE** (View workflow)

Priority: **High**
 Resolution: **Green**

Components: **IntelliJ Plugin**
 Fix versions: **Teamscale 7.6**

Labels: **students**

Affected Version: **6.6.4**

Customer:

PDash Task: **#4886**

Change Log: **Fix: IDE plugins constantly request unavailable pre-commit results due to expired license**

Teamscale:

- Teamscale Info

Project name	Findings balance	Test Gap
CQSE All	31 removed	100.00%

Dev Squad: **Denali**

Freshdesk URL: <https://cqse.freshdesk.com/a/tickets/19594>

Merge Request: https://git.cqse.eu/cqse/teamscale/-/merge_requests/11582

Maturity Level: **Customer Visible**

Description

People

- Assignee: **Korbinian Weidinger** [Assign to me](#)
- Reporter:
- QA-Contact: **Andreas Sewe**
- Votes: **0** [Vote for this issue](#)
- Watchers: **3** [Start watching this issue](#)

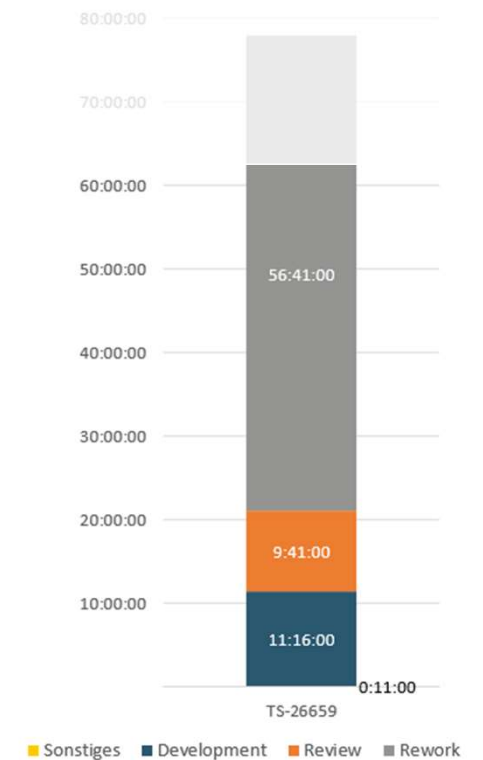
Dates

- Created: **31/Mar/21 6:15 PM**
- Updated: **16/Feb/22 3:01 PM**
- Resolved: **25/Nov/21 5:55 PM**

Automation

Time Tracking

Agile



TS-26659

Teamscale / TS-26659

IntelliJ Plugin: License expiry message not displayed as reason for stalled Pre-Commit analysis

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[Comment](#)
[Assign](#)
[Back to New](#)

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 Priority: **High** Resolution: **Green**
 Components: **IntelliJ Plugin** Fix versions: **Teamscale 7.6**
 Labels: **students**
 Affected Version: **6.6.4**
 Customer:
 PDash Task: **#4886**
 Change Log: **Fix: IDE plugins constantly request unavailable pre-commit results due to expired license**

Teamscale: **Teamscale Info**

Project name	Findings balance	Test Gap
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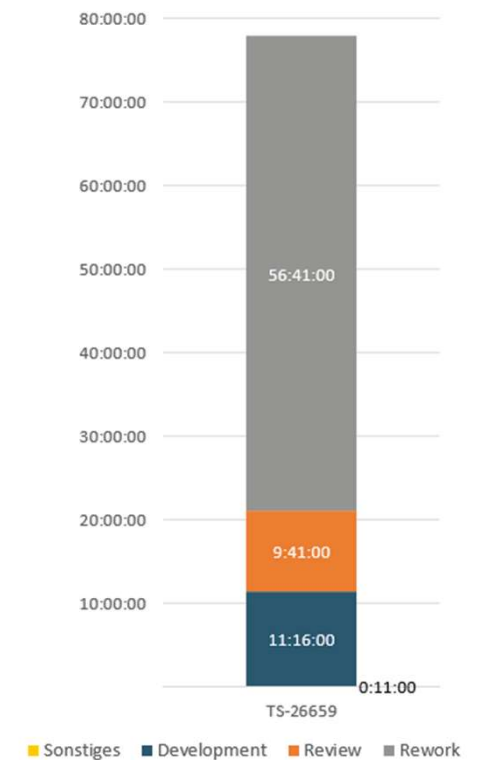
Dev Squad: **Denali**
 Freshdesk URL: <https://cqse.freshdesk.com/a/tickets/19594>
 Merge Request: https://git.cqse.eu/cqse/teamscale/-/merge_requests/11582
 Maturity Level: **Customer Visible**

Description

People
 Assignee: **Korbinian Weidinger** [Assign to me](#)
 Reporter:
 QA-Contact: **Andreas Sewe**
 Votes: **0** [Vote for this issue](#)
 Watchers: **3** [Start watching this issue](#)

Dates
 Created: **31/Mar/21 6:15 PM**
 Updated: **16/Feb/22 3:01 PM**
 Resolved: **25/Nov/21 5:55 PM**

[Automation](#)
[Time Tracking](#) +
[Agile](#)



Gründe für hohe Zeiten in der Review-Schleife

- Erweiterung der Ticket-Anforderungen im Review

TS-26666

Teamscale / TS-26666

Connector for importing external data from Amazon S3

[Edit](#)
[Comment](#)
[Assign](#)
[Back to New](#)

Type: **Feature** Status: **DONE** (View workflow)
 Priority: **High** Resolution: **Green**
 Components: **Code Collaboration Platforms** Fix versions: **Teamscale 7.5**
 Labels: **None**
 Customer Issue: **QTOOLS-1325**
 Customer:
 PDash Task: **#10104**
 Epic Link: **K2-FEATURES-Q32021**
 Change Log: **New S3 Connector**
 Teamscale: **Teamscale Info**

Project name	Findings balance	Test Gap
CQSE All	1 added, 6 in changed code, 3 removed	100.00%

Dev Squad: **K2**
 Merge Request: https://git.cqse.eu/cqse/teamscale/-/merge_requests/11625

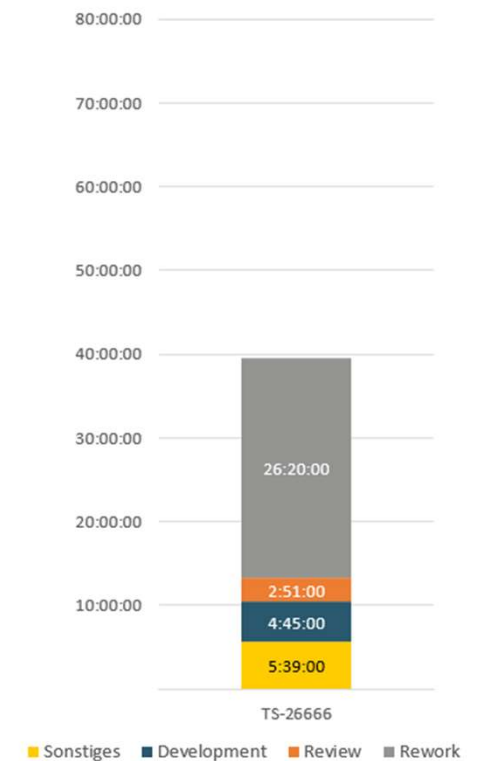
Description
Attachments

People
 Assignee: **Noha Khater** (Assign to me)
 Reporter: **Albert Steckermeier**
 QA-Contact: **Benjamin Hummel**
 Votes: **0** (Vote for this issue)
 Watchers: **8** (Start watching this issue)

Dates
 Created: **31/Mar/21 10:50 PM**
 Updated: **01/Feb/22 4:51 PM**
 Resolved: **03/Nov/21 12:53 PM**

Automation
Time Tracking

Agile



Gründe für hohe Zeiten in der Review-Schleife

- Code-Review als 'Pair-Programming'

Gründe für hohe Zeiten in der Review-Schleife

- Erweiterung der Ticket-Anforderungen im Review
- Code-Review als 'Pair-Programming'

⇒ Development im Status Rework

Weitere Gründe:

- Buchungsfehler
- Umfangreiche Änderungen

Gründe für hohe Zeiten in der Review-Schleife

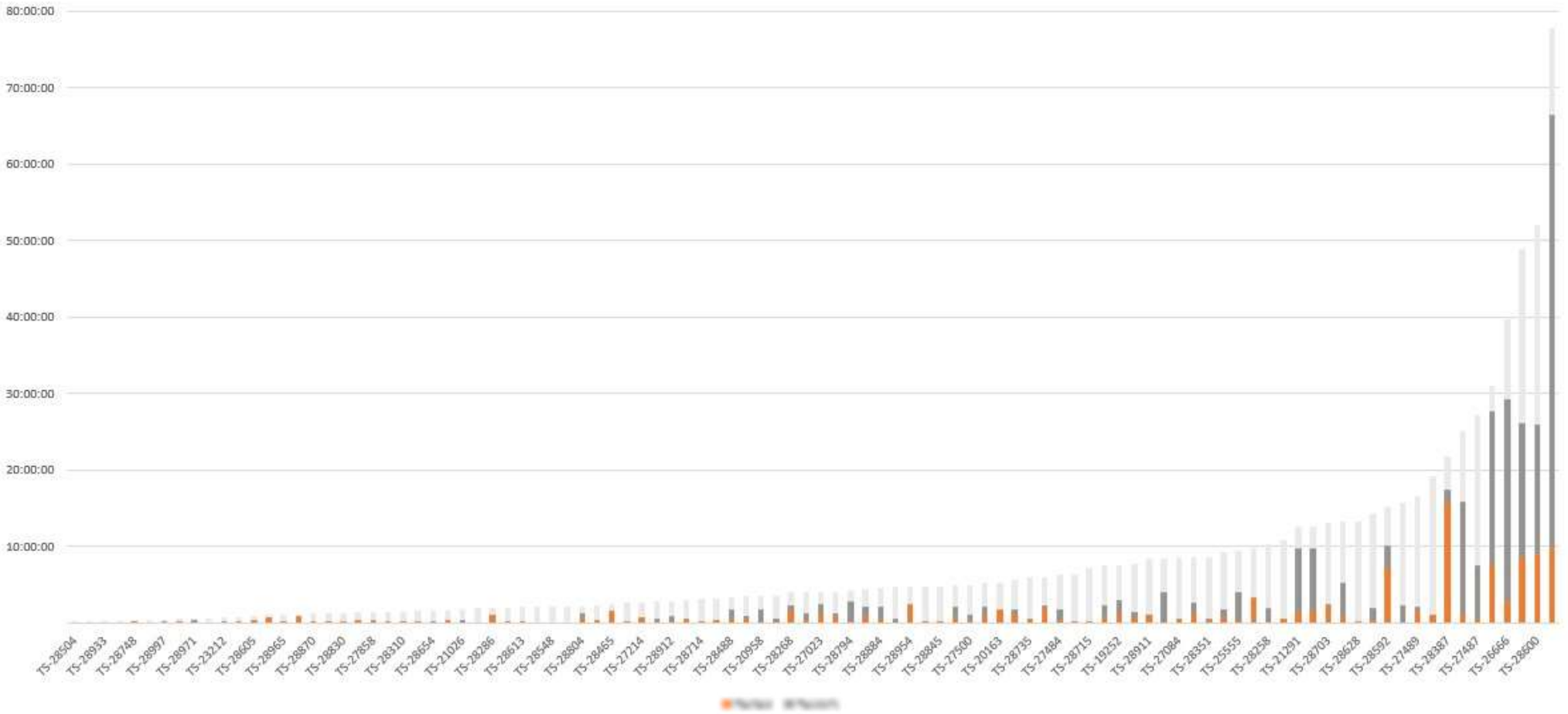
- Erweiterung der Ticket-Anforderungen im Review
- Code-Review als 'Pair-Programming'

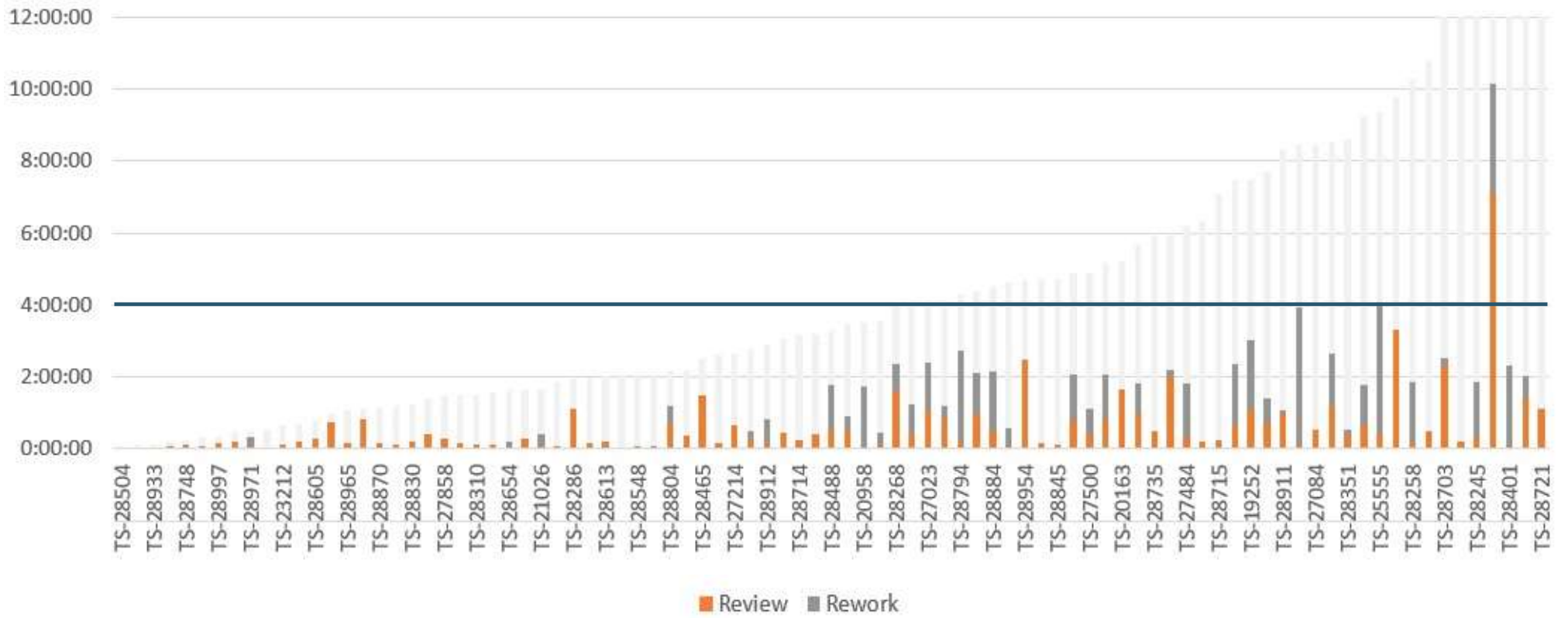
⇒ Development im Status Rework

Weitere Gründe:

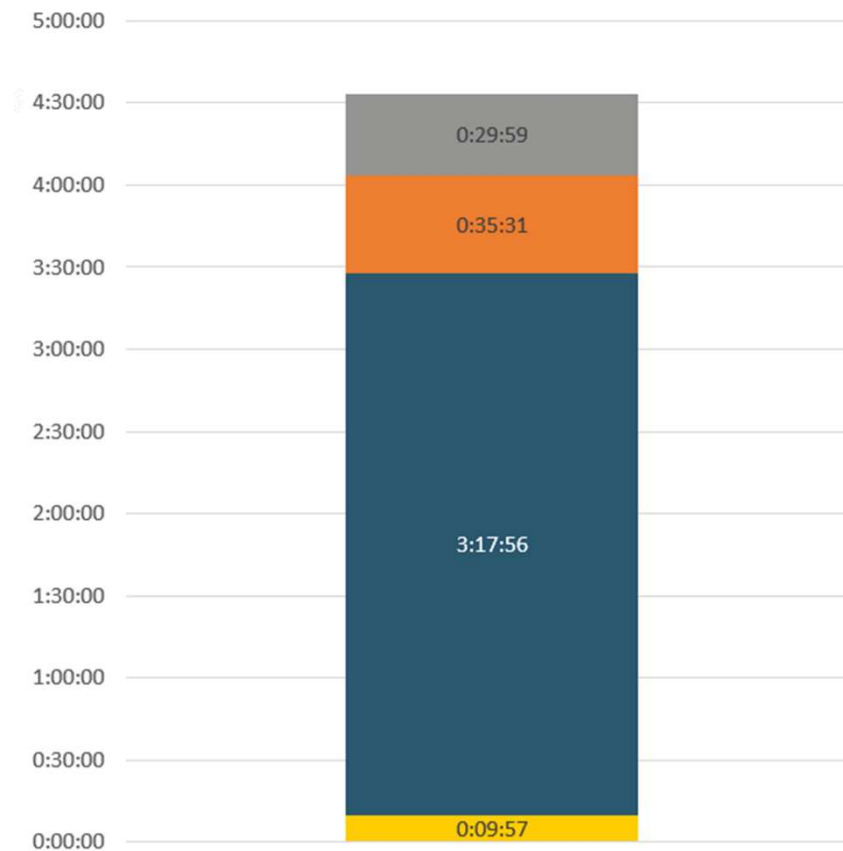
- Buchungsfehler
- Umfangreiche Änderungen

Zeitaufteilung pro Ticket

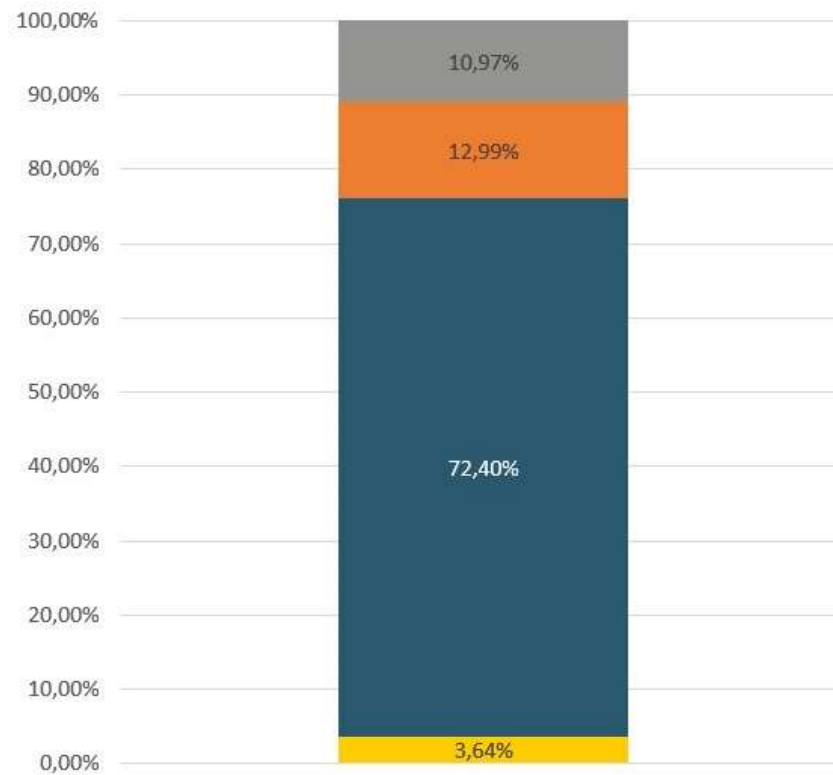




Durchschnitts-Ticket



Verteilung der Gesamtzeit



Welcher Anteil unserer Entwicklungszeit
entsteht durch die Review-Schleife?

➔ ca 24%

Was verbessern Reviews in unserem Code?

```
engine/org.conqat.engine.index/src/org/conqat/engine/index/repository/RepositoryContentUpdaterBase.java
@@ -293,17 +293,23 @@ public abstract class RepositoryContentUpdaterBase extends RepositoryChangesProc
293 List<BasicTokenElementInfo> tokenElements = tokenElementIndex.getValues(paths);
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300             commit, changeInfo.getOriginPath(), changeInfo.getOriginCommit()));
301     }
302     BasicTokenElementInfo element = tokenElements.get(i);
303     addChangeEntry(requiredNode, result, changeSet, path, element);
304 }
```



Andreas Sewe @sewe commented 2 weeks ago

Maintainer

I would re-order the message signature. ATM, it's hard to tell which parameter the change entry is added to. If you have `result` first, as in `result.add(...)` things become clearer.


Alternatively, let the extracted method return `Optional<RepositoryChangeEntry>` and do the `add` here.

```
computeChangeEntry(requiredNode, changeSet, path, element).ifPresent(result::add);
```

```
309 + changeInfo.getOriginPath(), changeInfo.getOriginCommit());
310 + }
311 + }
312 +
307 313 /**
308 314 * Patches the changes types for the given change entries by manually
309 315 * determining the change type using the token element index. This needs to be
... ..
```





Änderungen für bessere Wartbarkeit

 **Andreas Sewe** @sewe started a thread on an old version of the diff 3 months ago
Resolved by Korbinian Weidinger 3 months ago ^ Toggle thread

 `netbeans/com.teamscale.ide.netbeans/src/main/java/com/teamscale/ide/netbeans/StaticResources.java` 


```
107 107 */
108 108 @StaticResource
109 109 public static final String DISABLED_ICON = "icons/disabled.png";
110 +
111 + /**
112 +  * An icon signifying that a that Teamscale server has an invalid license.
113 +  * <p>
114 +  * Taken from
115 +  * {@code core.windows/s
116 +  */
117 + @StaticResource
118 + public static final Stri
```

 **Andreas Sewe** @sewe · 3 months ago
You will notice that we don't just stick to the badge.png becomes pre-commit-branch-ba warning.png is particularly generic. Please r


 **Andreas Sewe** @sewe started a thread on an old version of the diff 3 months ago
Resolved by Korbinian Weidinger 3 months ago ^ Toggle thread

 `lib/com.teamscale.ide.commons/src/com/teamscale/ide/commons/findings/tasks/FetchFindingsTask.java` 

```
322 269         return false;
323 270     }
324 271     try {
325 272 +         Optional<String> server = settings.getTeamscaleServer();
```



 **Andreas Sewe** @sewe · 3 months ago Maintainer ✓ 😊 ⋮
Can we move this and the previous `if (!teamscaleProject.isPresent())` out of `validateBranchName`. Having `validateBranchName` set `serverDetails` as a side-effect is quite confusing.

Funktionale Änderungen

 Noha Khater @khatер started a thread on an old version of the diff 7 months ago ^ Toggle thread
Resolved by Stefan Krüger 7 months ago

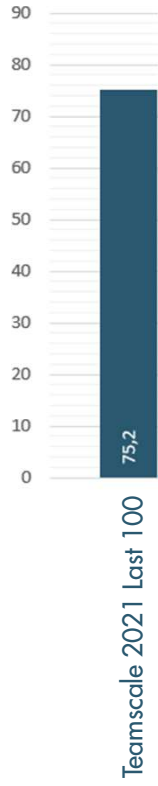
 [engine/com.teamscale.index/src/com/teamscale/index/repository/git/azure_devops/AzureDevOpsGitMergeRequestAnnotationTr](#)
[igger.java](#) 

```
49 50      }
50 51
52 +   @Override
53 +   protected void deleteNonCommentedTeamscaleInlineComments(SchedulingParameters schedulingParams,
54 +       MergeRequestAnnotationInput input) throws ServiceCallException {
55 +       deleteExistingPullRequestComments(client.getRepositoryName(),
56 +           client.getPullRequest(input.mergeRequest.getId()).getId());
57 +   }
58 +
59 +   @Override
60 +   protected void addVoteSummaryToDescription(SchedulingParameters schedulingParams,
61 +       MergeRequestAnnotationInput input,
62 +       String newDescription) throws ServiceCallException {
63 +       IPullRequestRestClient.PullRequest pullRequest = client.getPullRequest(input.mergeRequest.getId());
64 +       client.updatePullRequestDescription(client.getRepositoryName(), pullRequest.getId(),
65 +           new IPullRequestRestClient.PullRequestDescription(
66 +               newDescription + "\n" + pullRequest.getDescription()));
```

 Noha Khater @khatер · 7 months ago Maintainer   

I think the order here is reversed. It should be the description and then the message (like the rest of the platforms). As you can see in the screenshot, the warning is not added correctly.

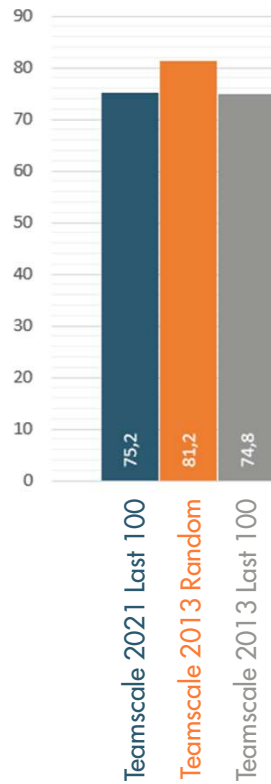
Wartbarkeit



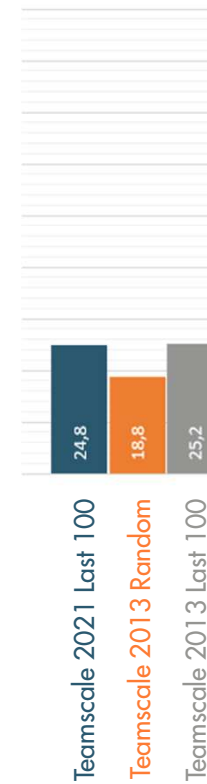
Funktional



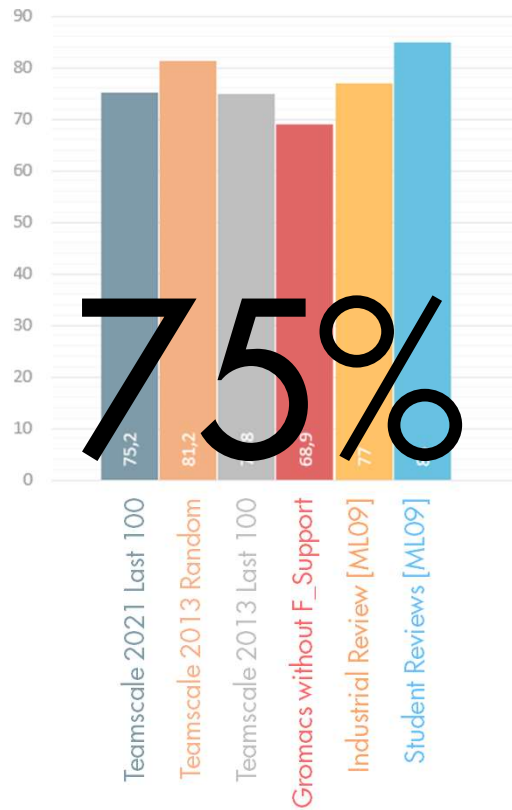
Wartbarkeit



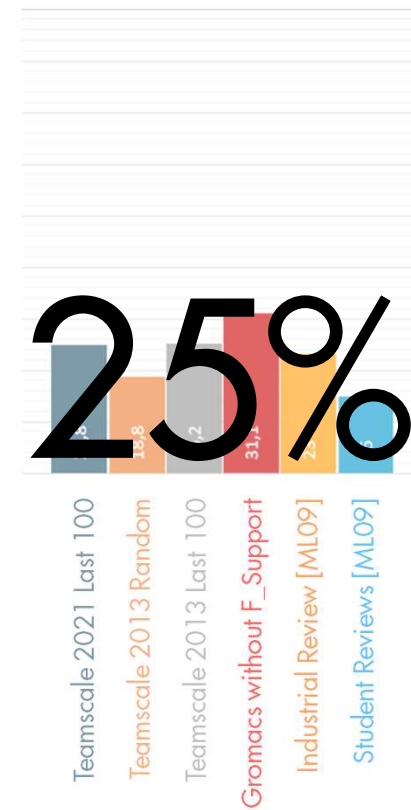
Funktional



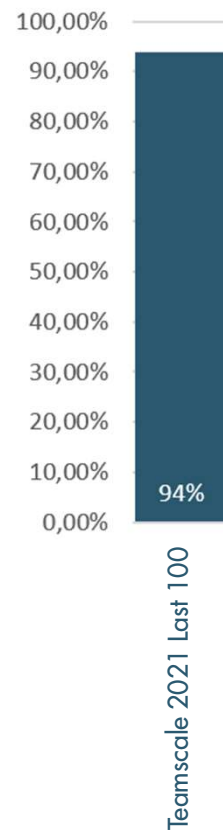
Wartbarkeit



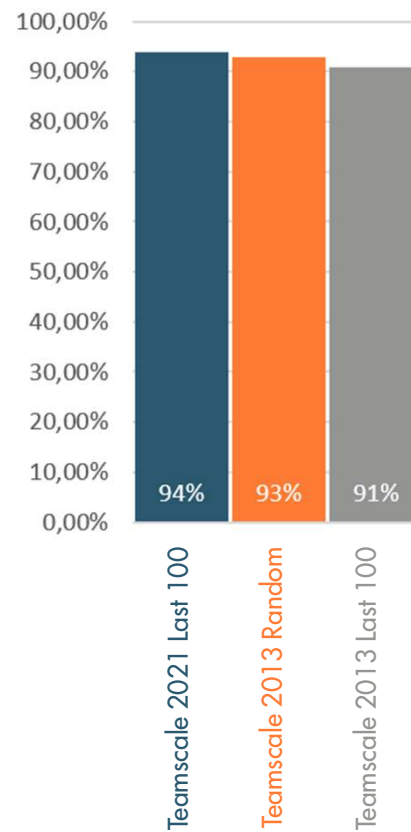
Funktional



Umgesetzte Änderungen



Umgesetzte Änderungen

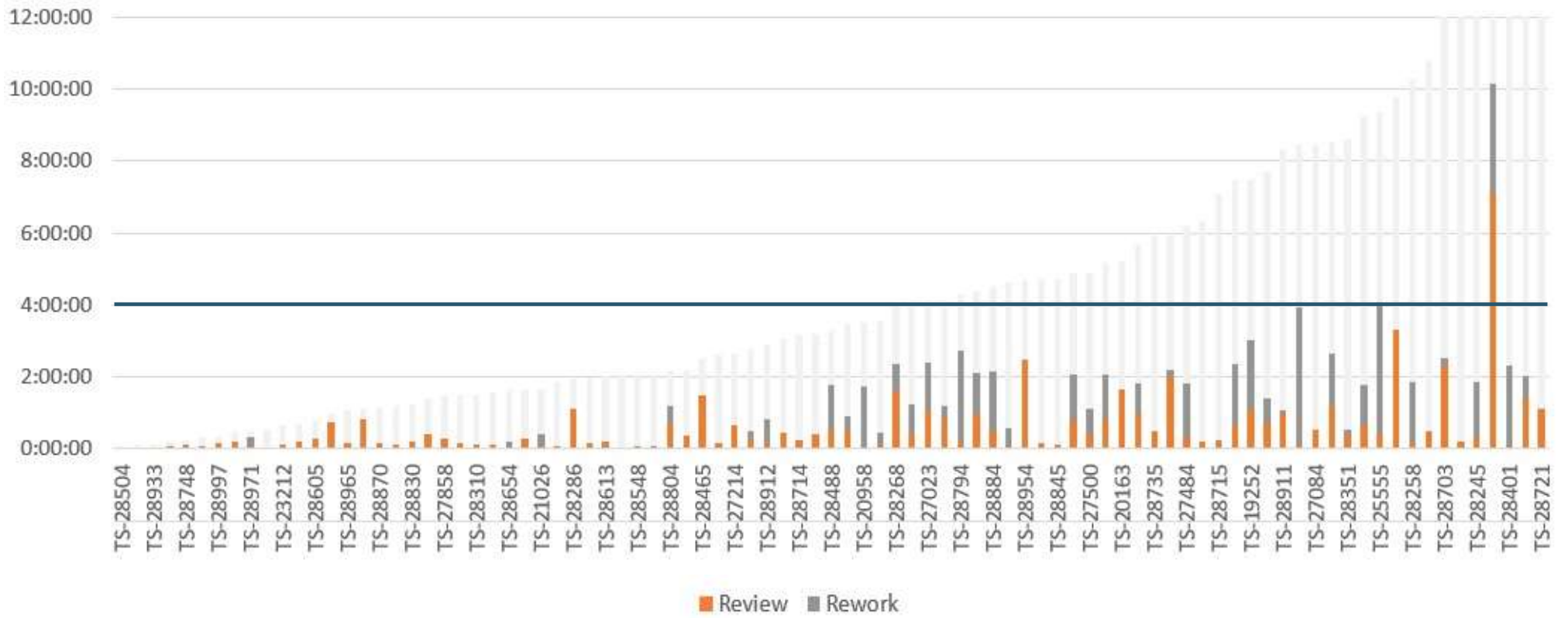


Modern Code Reviews in Open-Source Projects: Which Problems Do They Find/Fix?, Beller, Juergens, MSR 2014

Was verbessern Reviews in unserem Code?

➔ 75% Wartbarkeit und 25% Funktionalität

Kosten vs. Nutzen



Umgesetzte Änderungen pro Ticket

- 1.6 Funktionale Änderungen
- 5 Wartbarkeits-Änderungen

Umgesetzte Änderungen **pro Stunde**

- 0.4 Funktionale Änderungen
- 1.25 Wartbarkeits-Änderungen

Nutzen von Code Review

- Code wird besser (0,4 funktionale & 1,25 Wartbarkeitsverbesserungen / Stunde)
- Feedback zur eigenen Arbeit
- Wissenstransfer

=> Schafft Umgebung, in der man Verantwortung übernehmen kann

- Was kosten uns Code Reviews? +24% Aufwand
- Wie (viel) wird unser Code besser?

Kontakt – Wir freuen uns auf Diskussionen 😊



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