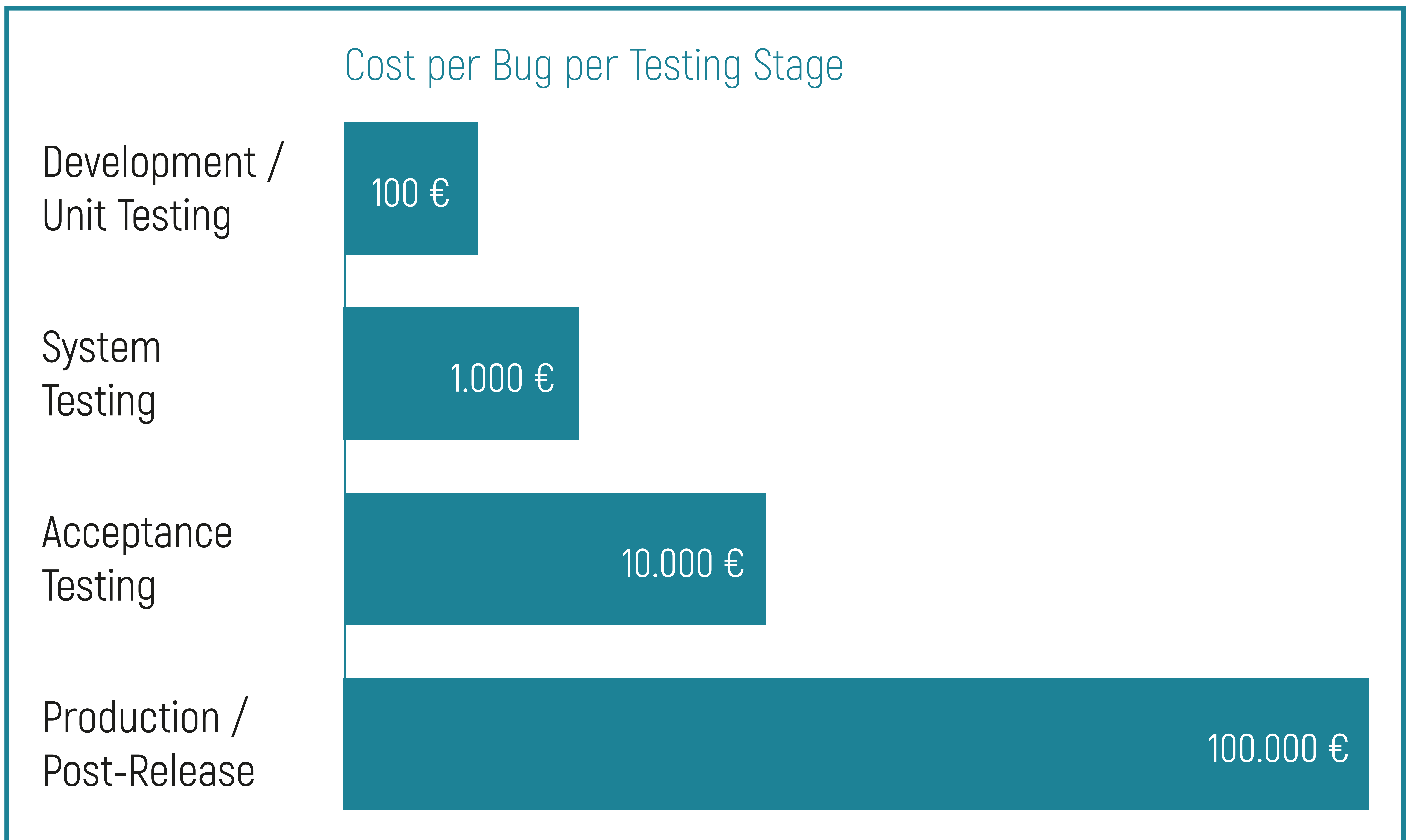


THE RULE OF TEN



,The further a bug moves undiscovered into the late stages of a development process - or even to the end consumer, the higher the costs of eliminating it!'

WHERE DO THE COSTS COME FROM?

- Let's assume we are building a big software project consisting of 500.000 lines of code
- Our bug detection rate is 80 % at each stage
- There are 15.000 bugs at development / unit testing



Let's see how much that will cost us at each stage...

*The following hypothetical examples are used for illustrative purposes only and actual software-testing costs may differ from what is shown here.

DEVELOPMENT / UNIT TESTING

Bugs Found



15.000

Total Bugs

80 %

Detection Rate

100 €

per Bug

1.200.000 €

Total Costs

Bugs go on to the next
phase undetected

SYSTEM TESTING

Bugs Found



3.000

Total Bugs

80 %

Detection Rate

1.000 €

per Bug

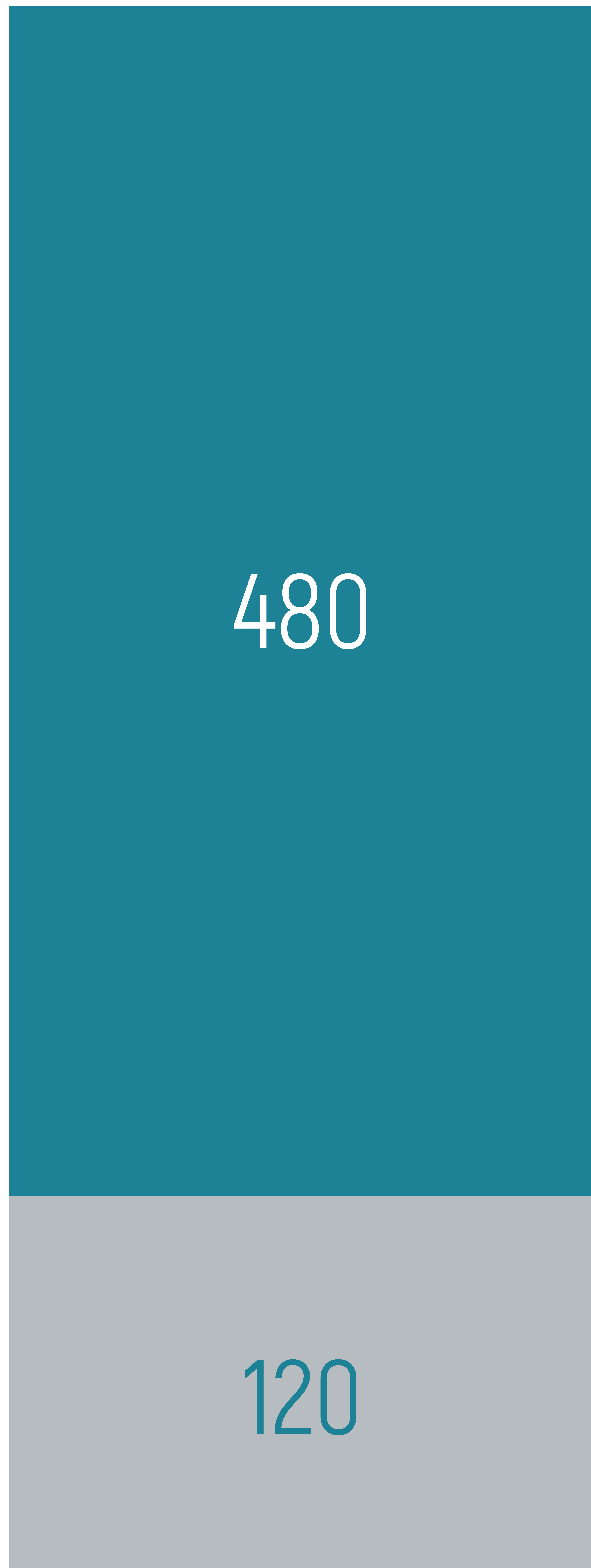
2.400.000 €

Total Costs

Bugs go on to the next
phase undetected

ACCEPTANCE TESTING

Bugs Found



600

Total Bugs

80 %

Detection Rate

10.000 €

per Bug

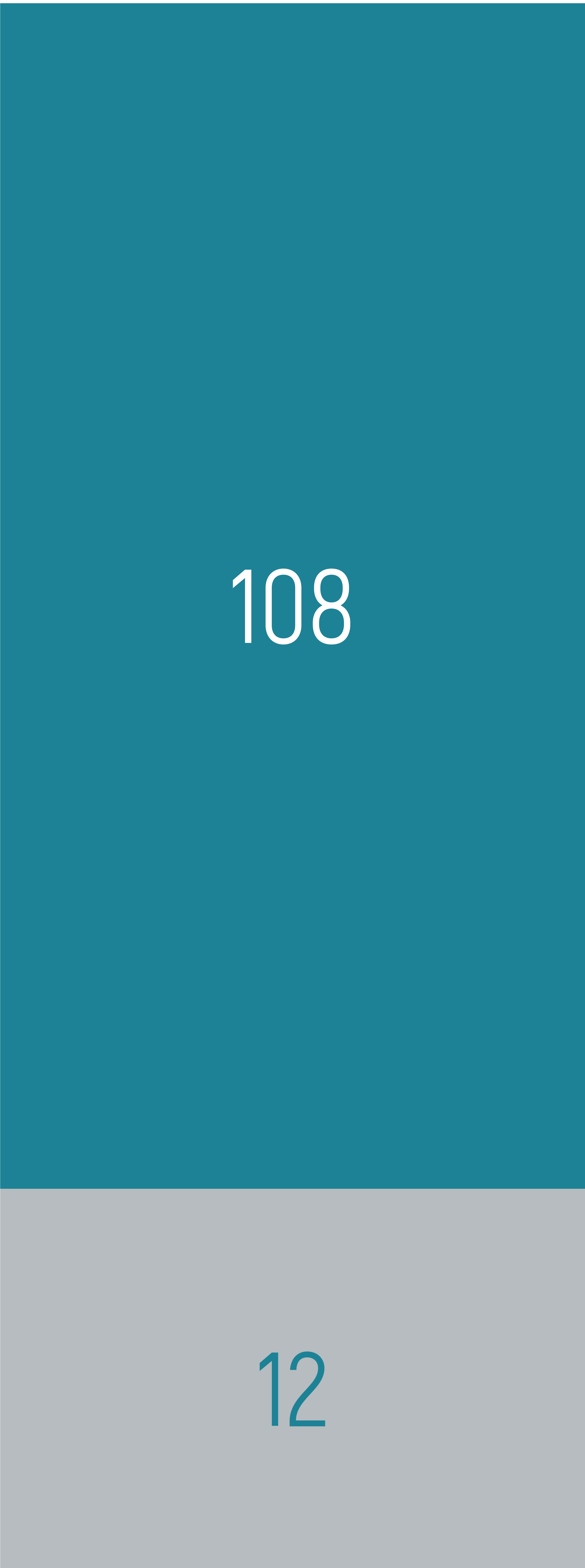
4.800.000 €

Total Costs

Bugs go on to the next
phase undetected

PRODUCTION / POST-RELEASE

Bugs Found



120

Total Bugs

80 %

Detection Rate

100.000 €

per Bug

10.800.000 €

Total Costs

Bugs go on to the next
phase undetected

TOTAL COSTS

for 500.000 Lines of Code

With a 80 % Detection Rate ...

	Bugs	Bugs Found	Costs to Fix	Total Costs
Development / Unit Testing	15.000	12.000	100 €	1.200.000 €
System Testing	3.000	2.400	1.000 €	2.400.000 €
Acceptance Testing	600	480	10.000 €	4.800.000 €
Production / Post-Release	120	108	100.000€	10.800.000 €
Total Costs of 500.000 Lines of Code				19.200.000 €



19.200.000 €

Total Costs

IMPROVE YOUR DETECTION RATE!

- Implement feedback-based fuzzing to reduce bug-fixing costs
- Let's see what happens if we keep all our variables constant but increase our bug-detection rate to 90 % ...



How much can we save?

DEVELOPMENT / UNIT TESTING

Bugs Found



15.000

Total Bugs

90 %

Detection Rate

100 €

per Bug

1.350.000 €

Total Costs

Bugs go on to the next
phase undetected

SYSTEM TESTING

Bugs Found



1.500

Total Bugs

90 %

Detection Rate

1.000 €

per Bug

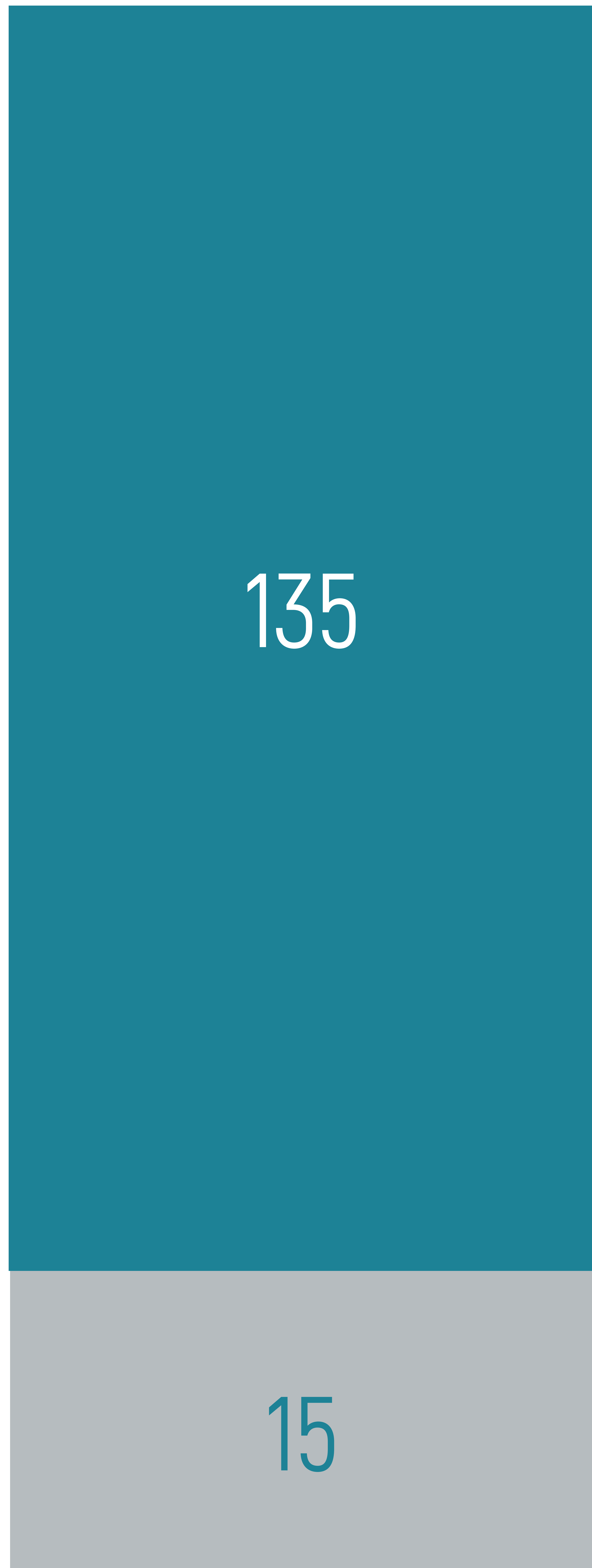
1.350.000 €

Total Costs

Bugs go on to the next
phase undetected

ACCEPTANCE TESTING

Bugs Found



150

Total Bugs

90 %

Detection Rate

10.000 €

per Bug

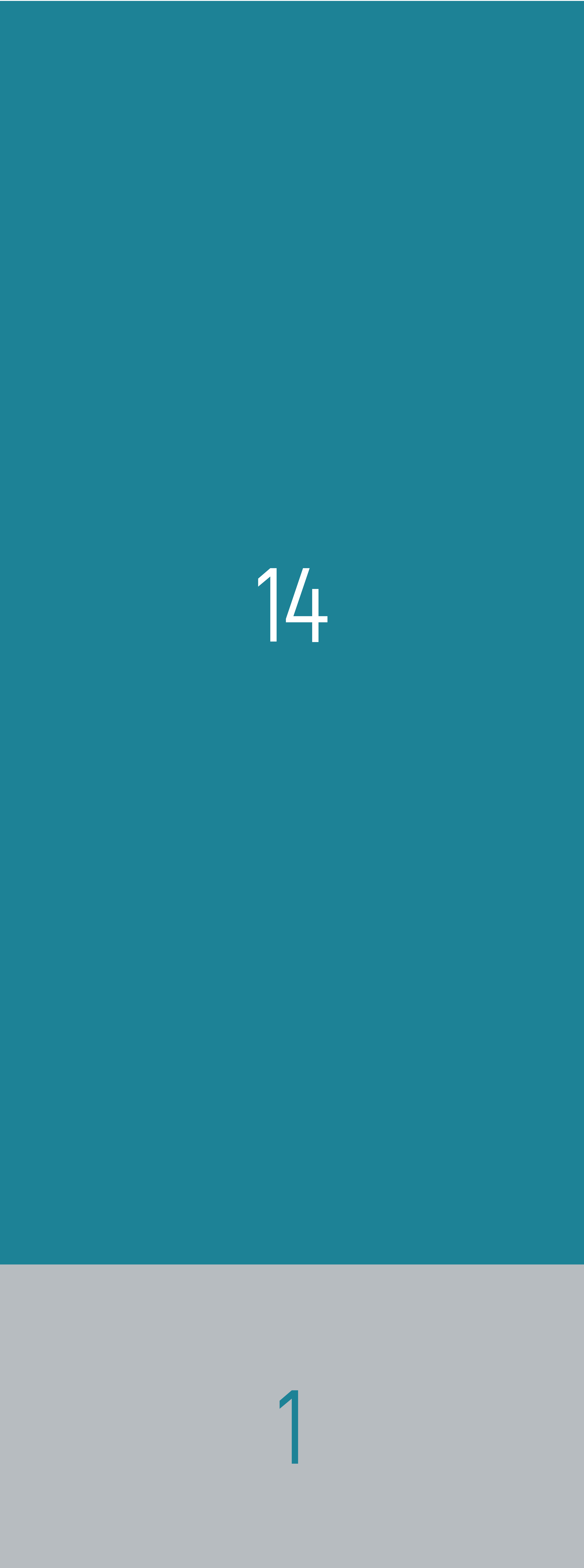
1.350.000 €

Total Costs

Bugs go on to the next
phase undetected

PRODUCTION / POST-RELEASE

Bugs Found



15
Total Bugs

90 %
Detection Rate

100.000 €
per Bug

1.350.000 €
Total Costs

Bug goes on to the
next phase undetected

TOTAL COSTS

for 500.000 Lines of Code

With a 90 % Detection Rate ...

	Bugs	Bugs Found	Costs to Fix	Total Costs
Development / Unit Testing	15.000	13.500	100 €	1.350.000 €
System Testing	1.500	1.350	1.000 €	1.350.000 €
Acceptance Testing	150	135	10.000 €	1.350.000 €
Production / Post-Release	15	14	100.000€	1.350.000 €
Total Costs of 500.000 Lines of Code				5.450.000 €



5.450.000 €

Total Costs

THE RULE OF TEN

Increasing the bug detection rate from **80%** to **90%** reduced the costs from

19.200.000 €

down to only

5.450.000 €

total savings

13.750.000 €



Want to find out more?
We posted an **article** for
further reading in the
comment section of this
post. Check it out!