

what's

QUALITYCODE

got to do with it?



Jayne Holland

Chief Privacy Officer and Deputy Chief Legal Officer
Tyler Technologies

BAD CODE

WHAT'S THE ISSUE WITH BAD CODE?

Difficulty finding and retaining developers

Lack of motivation

Developers are burned out and overwhelmed dealing with tight deadlines

Writing secure code is not yet a priority

Disconnect about creation of quality code

No written SDLC process that incorporates security throughout the lifecycle

If one exists, there has likely been no training on the process

No training on secure code development or how to maintain code

Few written processes that support the development of secure quality code

BAD CODE

\$85

BILLION

PER YEAR

Source: Poll conducted by **stripe**

Tyler Technologies 2022





PEOPLE

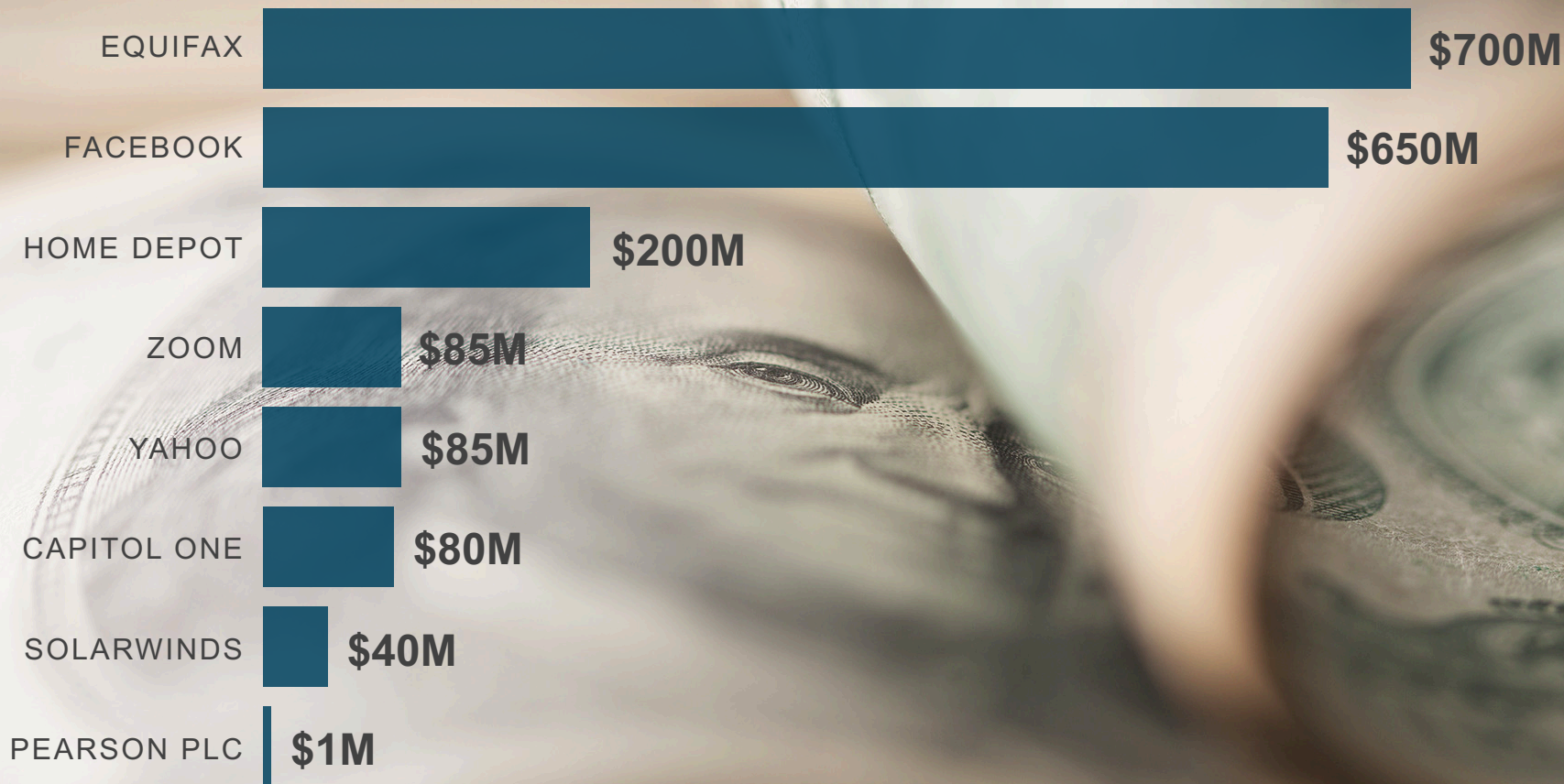
PROCESSES

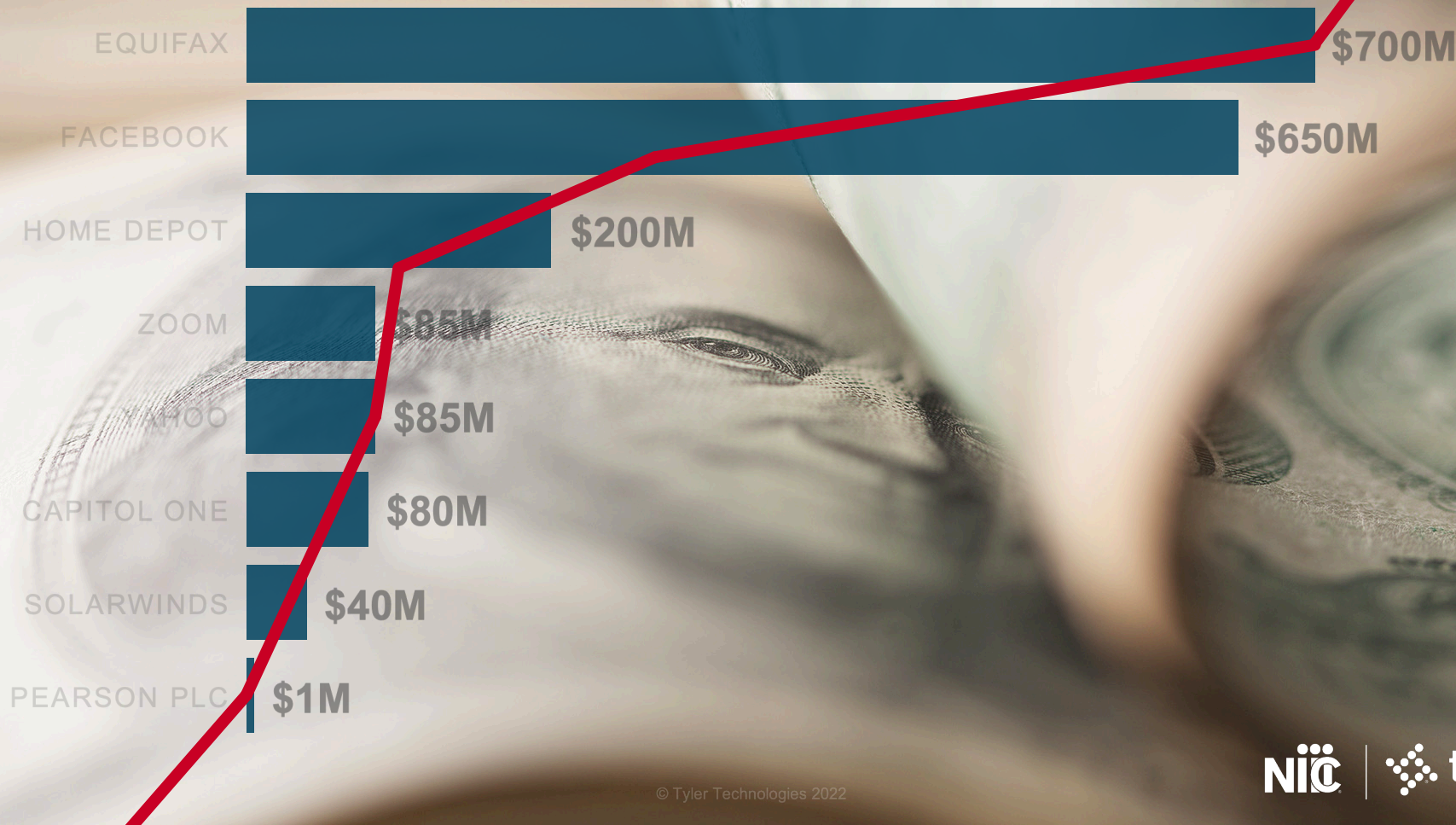
PEOPLE



PROCESSES







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```
mirror_mod = modifier_ob.modifiers.new("mirror_mod")
# Add mirror object to mirror_ob
mirror_mod.mirror_object = mirror_ob

# MIRROR_X
operation == "MIRROR_X":
    mirror_mod.use_x = True
    mirror_mod.use_y = False
    mirror_mod.use_z = False
# MIRROR_Y
operation == "MIRROR_Y":
    mirror_mod.use_x = False
    mirror_mod.use_y = True
    mirror_mod.use_z = False
# MIRROR_Z
operation == "MIRROR_Z":
    mirror_mod.use_x = False
    mirror_mod.use_y = False
    mirror_mod.use_z = True
```

```
# Selection at the end -add back the deselected objects
mirror_ob.select= 1
mirror_ob.select=1
my_context.scene.objects.active = mirror_ob
print("selected" + str(modifier_ob)) # modifier object
mirror_ob.select = 0
my_context.selected_objects[0]
my_data.objects[one.name].select = 1

print("please select exactly two objects, no more, no less")
```

OPERATOR CLASSES -----

```
class MirrorOperator(Operator):
    """Mirror the selected object to the selected object"""
    def execute(self, context):
        my_data.mirror_mirror_x"
```

WE MUST BUILD
SECURE
SOFTWARE SOLUTIONS

QUALITY CODE

WHY IS QUALITY CODE IMPORTANT?

```
elif operation == "MIRROR_Y":
    mirror_mod.use_x = False
    mirror_mod.use_y = True
    mirror_mod.use_z = False
elif operation == "MIRROR_Z":
    mirror_mod.use_x = False
    mirror_mod.use_y = False
    mirror_mod.use_z = True
    mirror_mod.use_x = True
    mirror_mod.use_y = True
    mirror_mod.use_z = False
#selection at the end of MIRROR_Z back the deselected mirror modifier
mirror_ob.select = 1
modifier_ob.select = 1
b.context.scene.objects.active = modifier_ob
print("Selected modifier ob")
elif operation == "MIRROR_X":
    mirror_ob.mod.use_x = False
    mirror_ob.mod.use_y = False
    mirror_ob.mod.use_z = False
elif operation == "MIRROR_Y":
    mirror_ob.mod.use_x = False
    mirror_ob.mod.use_y = True
    mirror_ob.mod.use_z = False
elif operation == "MIRROR_Z":
    mirror_ob.mod.use_x = False
    mirror_ob.mod.use_y = False
    mirror_ob.mod.use_z = True
except:
    print("please select exactly two objects, the last one gets the modifier")
    mirror_ob.select = 1
    print("please select exactly two modifiers, the last one gets the modifier")
    bpy.context.scene.objects.active = modifier_ob
    print("Selected" + str(modifier_ob))
    mirror_ob.select = 0
else:
    print("please select exactly two objects")
```

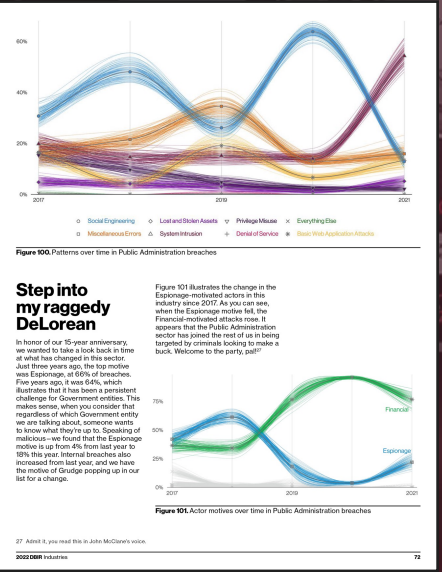
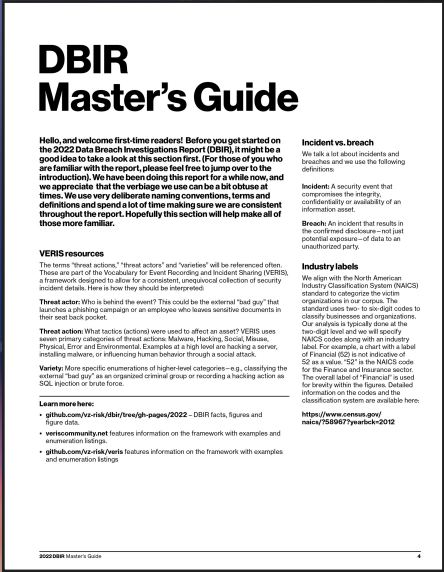
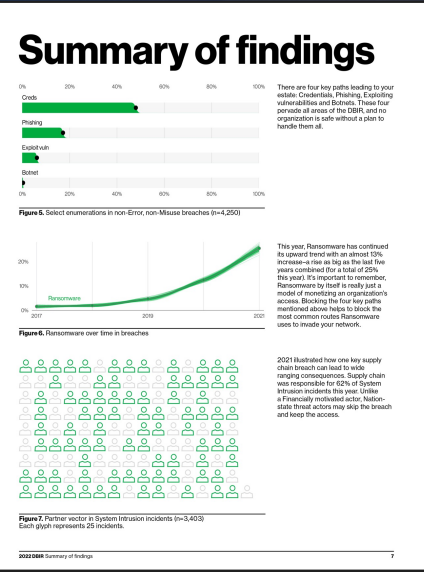
DBIR

Data Breach Investigations Report

2008

2022





41012A 3732C20616E642070617463686513206F5590BF34121 6C62
01872C1076C6206C6974746C65 16E642074616C773192A3 B6C697AF
FADE3100A16C20Data BreachE204 6520 1A07072216145A13C7573686
08 12202E6F6163686573204C697474CC 5205265CB74AF8101F61636A
D0BA7 01Cyber Attack696EA1 486FAF64206 6E013921FC0 1FFC52
074023 106564207368 206E61C F766 6C792Protection Failed061
7B1 627 C6E207468652A 261736B60142E20480810D3F5A89C7B7C12A
1BC010046368AF93010808B4FA017745C7A6 108B2C3FD5515708 0DF016
AF0F00F00AFFA33C08E00F2A5697D011A56AFE64 074686520601 772Data
11F1D01 02073 C732C20736852756B013A 0AA206336 5206E674616C6E
206AD8 616E642001A B719System Safety Compromised1A711B2EC34B4
FB6987 8E00F2A5694C028BE5BF7D011A0010A3BCE561AF87010FC2 616E7
LB988 8E00F2A5694C028BE2BEAD0TTV00TGV3CE20JVL8J0T0LGS 8T0E

\$3,800,000

PER INCIDENT TO CLEAN UP AFTER
A CYBERSECURITY BREACH



70%

OF SECURITY INCIDENTS
ARE DUE TO COMPROMISED
WEB APPLICATIONS

UNDERSTAND

YOUR SOFTWARE DEVELOPMENT PROCESSES
AND PROMOTE SECURE CODE DEVELOPMENT

what's

QUALITYCODE

got to do with it?





A Venn diagram with two overlapping circles. The left circle is olive green and labeled 'PEOPLE'. The right circle is teal and labeled 'PROCESSES'. The intersection is a dark blue circle containing a white code symbol '</>'. The background is dark blue with various white icons connected by lines, including a person, a magnifying glass, a handshake, a dollar sign, a pie chart, a line graph, a bar chart, a padlock, and a gear.

PEOPLE

PROCESSES

A background image of three office workers (two men and one woman) sitting at a desk with multiple computer monitors. The image is overlaid with a semi-transparent green filter. The text 'PEOPLE' is in large white bold letters, and 'CHALLENGES' is in smaller white spaced-out letters below it.

PEOPLE

CHALLENGES

THE GREAT RESIGNATION

Q U I E T QUITTING



what's

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got to do with it?

BIGGEST CHALLENGES

FACING SOFTWARE DEVELOPERS

BIGGEST CHALLENGES

FACING SOFTWARE DEVELOPERS



41%

HIGH CLIENT
EXPECTATIONS

BIGGEST CHALLENGES

FACING SOFTWARE DEVELOPERS



41%

HIGH CLIENT
EXPECTATIONS



40%

CUSTOMER
DEMANDS

BIGGEST CHALLENGES

FACING SOFTWARE DEVELOPERS



41%

HIGH CLIENT
EXPECTATIONS



40%

CUSTOMER
DEMANDS



36%

PROJECT
MANAGEMENT
ISSUES

A man with dark hair and glasses is sitting at a desk, leaning his head on his right hand in a thoughtful or stressed pose. He is wearing a blue button-down shirt. In front of him are several computer monitors. The monitor on the left displays a complex data interface with green and red text, including the words "CREDIT INFORMATION". A laptop is open in front of him, and a tablet is lying flat on the desk. The background is slightly blurred, showing an office environment.

OTHER CHALLENGES

OTHER KEY BUSINESS CHALLENGES

OTHER CHALLENGES

OTHER KEY BUSINESS CHALLENGES



46%

MAINTAINING
CURRENT TALENT



43%

KEEPING
EMPLOYEES
ENGAGED



39%

LIMITED
RESOURCES



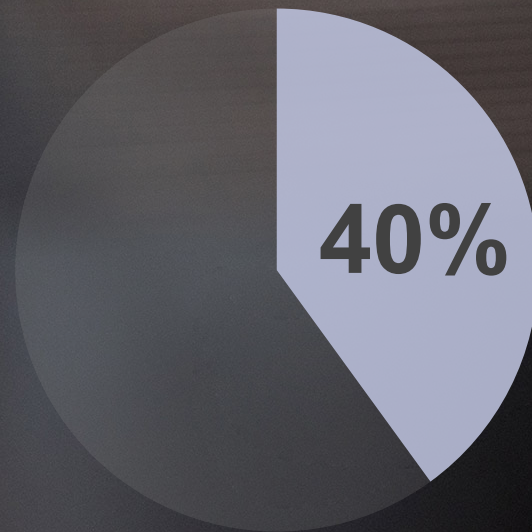
31%

NOT ENOUGH
TIME TO
COMPLETE WORK



28%

INABILITY TO KEEP
PACE WITH TOOLS



FEEL THAT
WORKLOAD AND
DEADLINES FORCE
THEM TO IGNORE
BASIC QUALITY
STANDARDS



A MORE REASONABLE

AND WORKABLE APPROACH
MUST BE CONSIDERED



“

“Anything that affects the mental state of a programmer, ... is likely to be reflected in their code. Promoting quality code, then, is partially a matter of improving organizational health and competence as a whole.”

- KEN LYMAN

”

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PEOPLE

S O L U T I O N S



PRIORITIZE

YOUR PEOPLE

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NiC

tyler
technologies

Minimize or don't allow overtime

Minimize or don't allow overtime

Be flexible

Minimize or don't allow overtime

Be flexible

Encourage PTO to recharge

Minimize or don't allow overtime

Be flexible

Encourage PTO to recharge

Promote a healthy work environment

Minimize or don't allow overtime

Be flexible

Encourage PTO to recharge

Promote a healthy work environment

Empower employees to be heard



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Promote ownership and responsibility



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Create a culture of positivity



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Create a culture of positivity

Be an example



Minimize or don't allow overtime

Be flexible

Encourage PTO to recharge

Promote a healthy work environment

Empower employees to be heard

Promote ownership and responsibility

Create a culture of positivity

Be an example

Show gratitude





PROVIDE

ORGANIZATIONAL CLARITY



What is expected from them?



What is expected from them?

What is their role?



What is expected from them?

What is their role?

How can they support the mission?



What is expected from them?

What is their role?

How can they support the mission?

What does success look like?

P R O M O T E B E T T E R
PROJECT MANAGEMENT



PROVIDE

RESOURCES
& TRAINING

A diverse group of people, including a man with glasses and a woman with curly hair, are clapping and smiling in a modern office setting. The background is slightly blurred, showing other people and office furniture.

HAPPY CODERS

MEANS BETTER & MORE SECURE CODE





A Venn diagram with two overlapping circles. The left circle is olive green and labeled 'PEOPLE'. The right circle is teal and labeled 'PROCESSES'. The intersection is a dark blue circle containing a white code symbol '</>'. The background is dark blue with various white icons connected by lines, including a person, a magnifying glass, a handshake, a dollar sign, a pie chart, a line graph, a bar chart, a padlock, and a gear.

PEOPLE

PROCESSES

A photograph of an office environment with a teal color overlay. In the foreground, a man sits at a desk, talking on a mobile phone and pointing at a computer monitor. In the background, another person is seated at a desk, and a third person stands near another workstation. The overall scene suggests a professional setting focused on technology and workflow.

PROCESSES

CHALLENGES

what's

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98%

PLACE **HIGH IMPORTANCE ON INTEGRATING SECURITY**
THROUGHOUT THE DEVELOPMENT LIFECYCLE

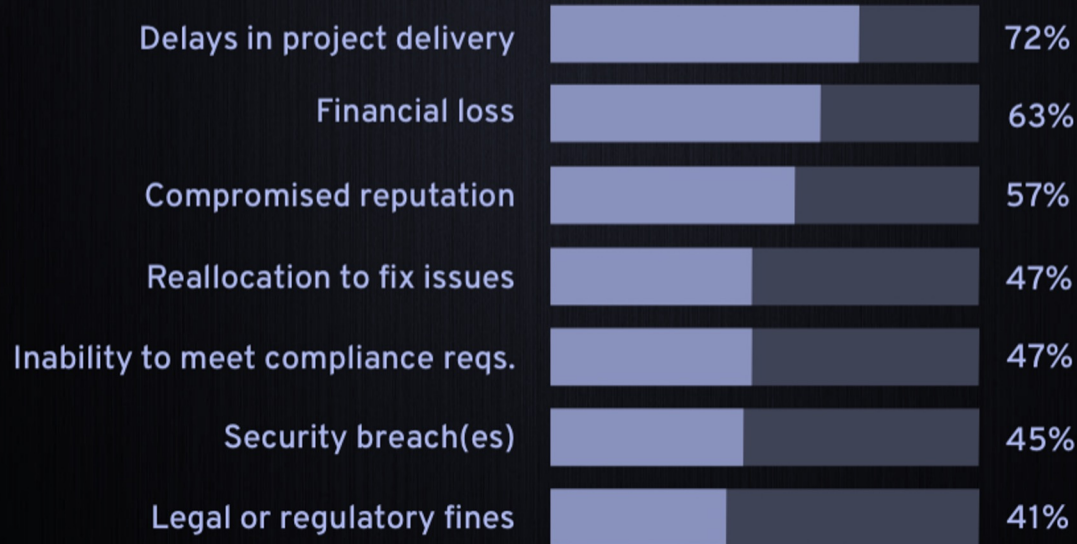
98%

PLACE **HIGH IMPORTANCE** ON INTEGRATING SECURITY
THROUGHOUT THE DEVELOPMENT LIFECYCLE

15%

REPORT THAT **SECURITY IS ALWAYS INTEGRATED** FROM
THE BEGINNING OF THE DEVELOPMENT LIFECYCLE

FAILURE TO NOT INTEGRATE SECURITY IS ABOUT MORE THAN JUST BREACH RISK



70%

CITE INCREASED
PRODUCTIVITY

67%

COST SAVINGS & LESS
SECURITY BREACHES

SOURCE:





DOCUMENTATION

IS A NECESSITY FOR DEVELOPING SECURE, QUALITY CODE

what's

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A photograph of two men in a control room or office setting. They are looking at a computer monitor which displays a complex interface with various data points and graphs. The man in the foreground is wearing glasses and a light blue shirt, while the man behind him is wearing a red shirt. A semi-transparent dark grey box is overlaid on the image, containing the text 'MAKE THE INVESTMENT' in white, bold, sans-serif capital letters.

MAKE THE INVESTMENT

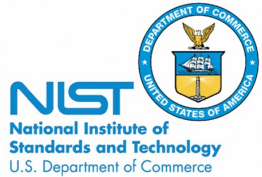


INFORMED DEVELOPERS

PRODUCE QUALITY CODE

PROCESSES

S O L U T I O N S





Checklist

All Lists

In Progress

Completed

List created on Mar 5th

[Edit](#)

[Delete](#)

☒ Gather requirements

☒ Identify risks

☒ Consult experts

☒ Get project approval

☒ Write definition statement

☒ Specify responsibilities

☒ Hold a meeting

what's

QUALITYCODE

got to do with it?

CODE REVIEWS

Adopting security tools

Tools to help teach developers

Support ability to make corrections early on



PEER CODE REVIEWS

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NiC

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OWASP®

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what's

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SECURITY CHAMPIONS

P R O G R A M





A member of the development team



A member of the development team

An extension of the security team



A member of the development team

An extension of the security team

Translates application security



A member of the development team

An extension of the security team

Translates application security

Works with closely with security and dev teams



A member of the development team

An extension of the security team

Translates application security

Works closely with security and dev teams

Helps close the gap between teams



A member of the development team

An extension of the security team

Translates application security

Works closely with security and dev teams

Helps close the gap between teams

Understands issues and solutions



A member of the development team

An extension of the security team

Translates application security

Works closely with security and dev teams

Helps close the gap between teams

Understands issues and solutions

Proactive in security requirements



A member of the development team

An extension of the security team

Translates application security

Works closely with security and dev teams

Helps close the gap between teams

Understands issues and solutions

Proactive in security requirements

Identifies issues and helps make decisions early



PEOPLE

PROCESSES

LEGAL



LEGAL

C O N S I D E R A T I O N S

what's

QUALITYCODE

got to do with it?



CALIFORNIA REPUBLIC

what's

QUALITYCODE

got to do with it?





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what's

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The background of the image is a close-up, shallow depth-of-field shot of a laptop keyboard. The keys are dark with white lettering. In the upper right, a portion of the laptop screen is visible, showing a blurred row of colorful application icons. The NIST logo is centered over the keyboard.

NIST

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY

what's

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got to do with it?



CYBER INSURANCE

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CYBER INSURANCE

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what's

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THE RIGHT PEOPLE

TO DO THE REQUIRED JOB



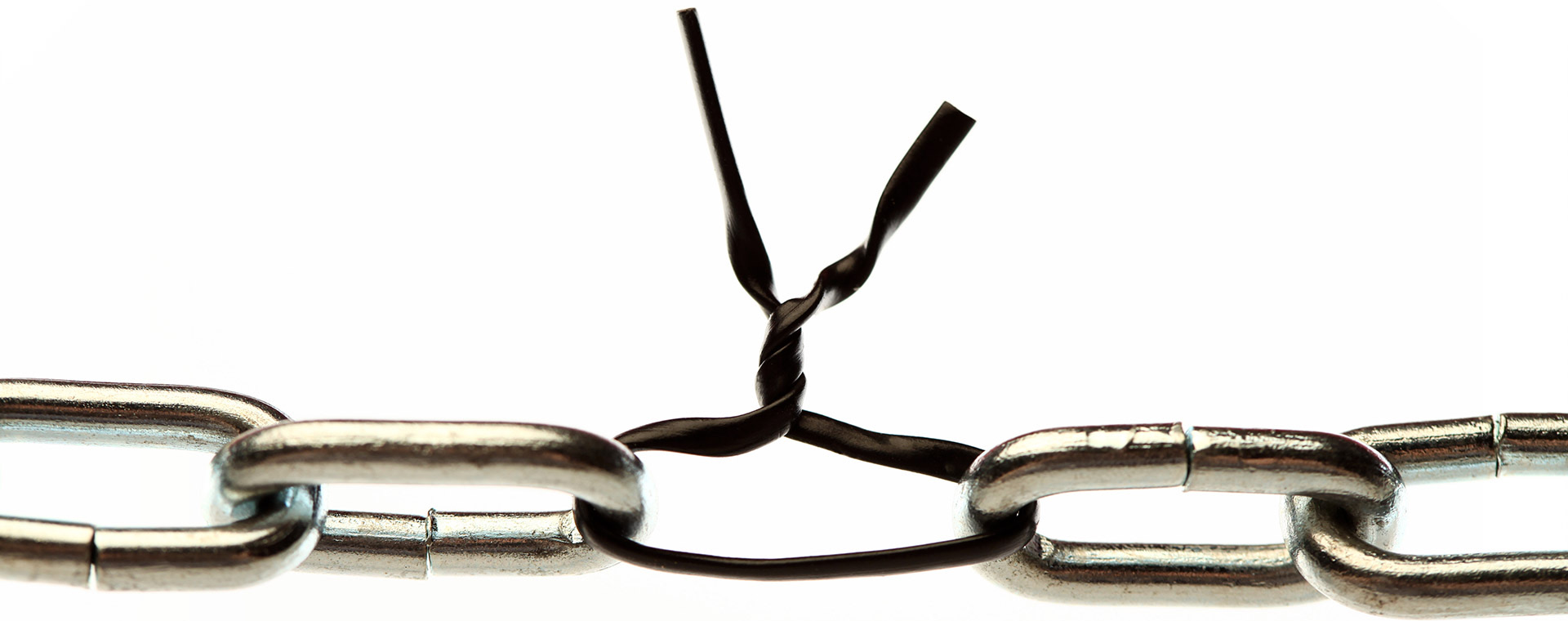
A woman with dark hair tied back, wearing tortoiseshell glasses, is looking intently at a computer screen. The background is a blurred office environment with shelves and other screens. A dark green rectangular box is overlaid on the lower half of the image, containing white text.

TAKE YOUR SOFTWARE DEVELOPMENT PROCESS
VERY SERIOUSLY



QUALITY CODE

PEOPLE | PROCESSES | LEGAL









PEOPLE

PROCESSES









