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Quality in the Digital Age: CISQ and the Role of the SI in the Software Supply Chain

David Norton, Executive Director

October 30, 2019

CEOs are Paying the Price for Poor IT Quality

“British Airways’ chief executive Álex Cruz says he will not resign despite a “catastrophic” IT system failure that grounded scores of flights”

Paul Pester forced to stepping down as CEO of TSB after the disruption caused to millions of customers by the bank’s, very public, failed IT upgrade.

Former Equifax CEO Richard Smith says he is "deeply sorry" for the security breach in which sensitive personal information of as many as 143 million Americans was compromised.

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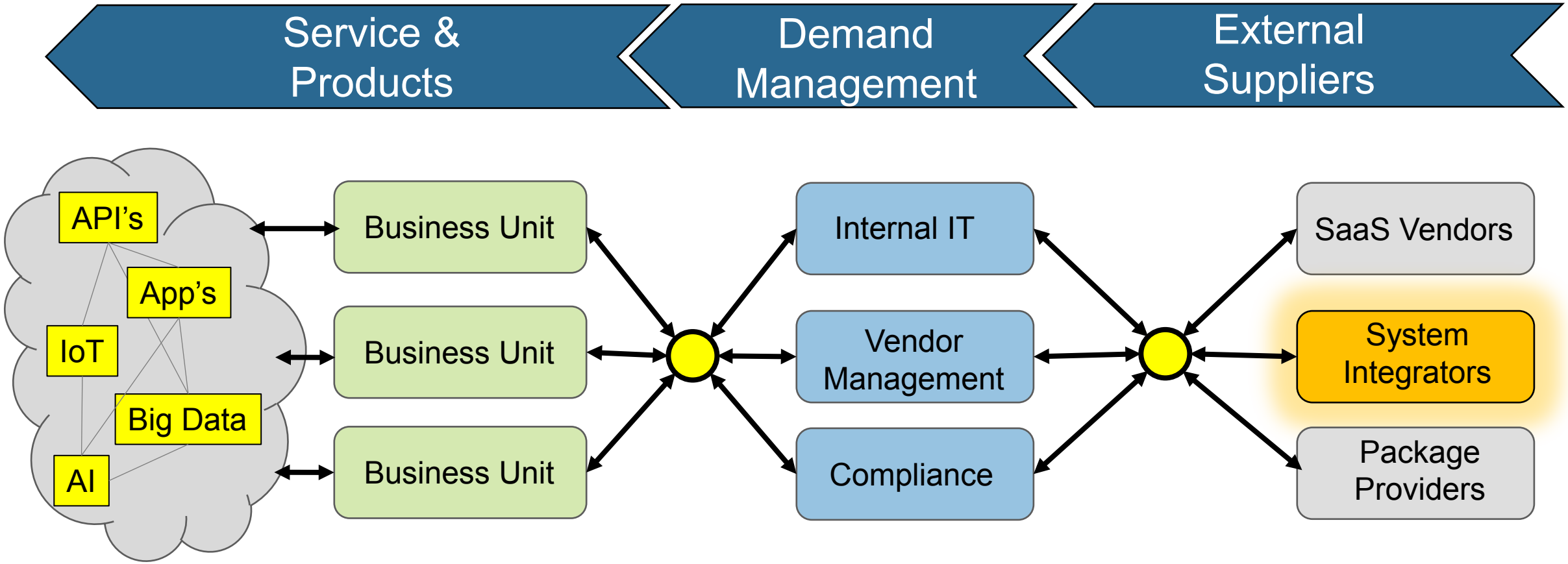
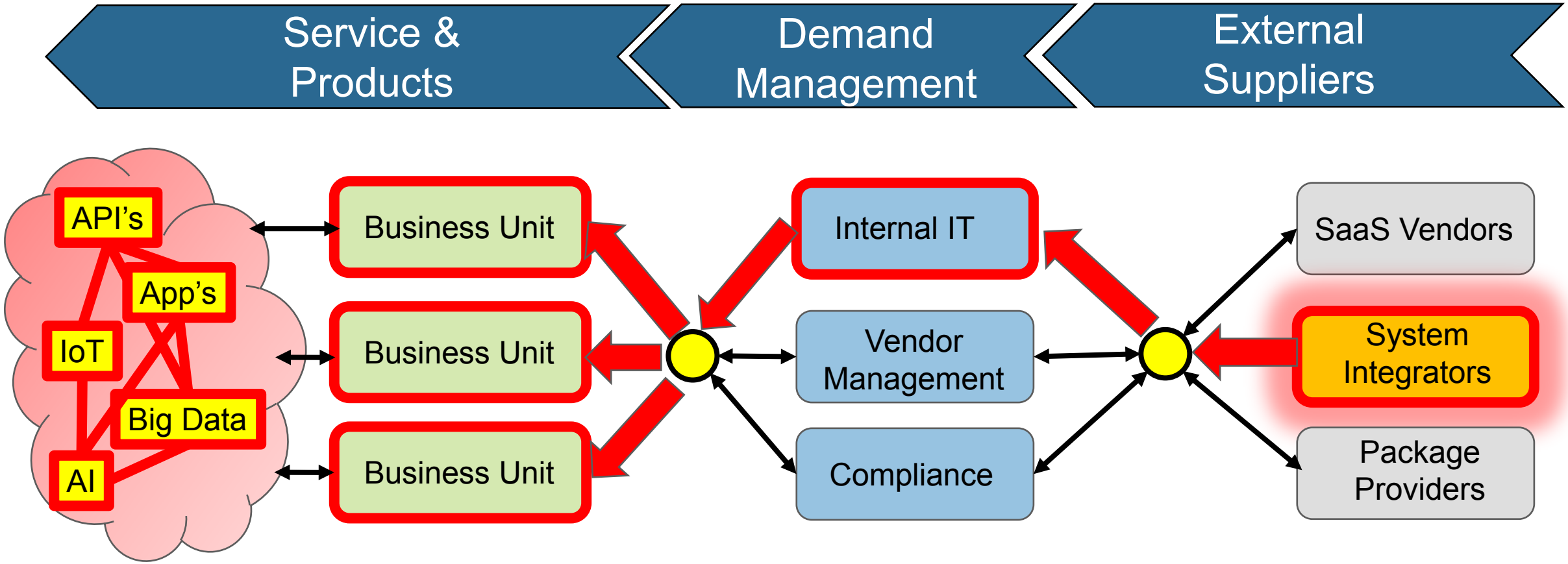
Quality Starts With The System Integrator, They Build The Foundation Digital Business Is Based On



Weaknesses and Vulnerabilities That Find Their Way Into Products & Services Have Devastating Effects

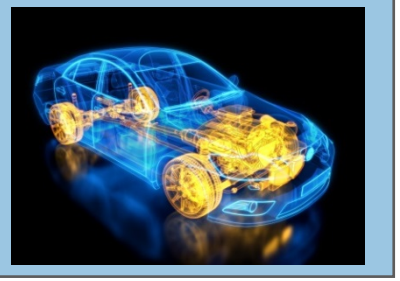


Self-Regulation Is Failing, and The Pressure Is Building In The Boardroom

Angry Citizen, Markets & Business

Lead To Concerned Politicians

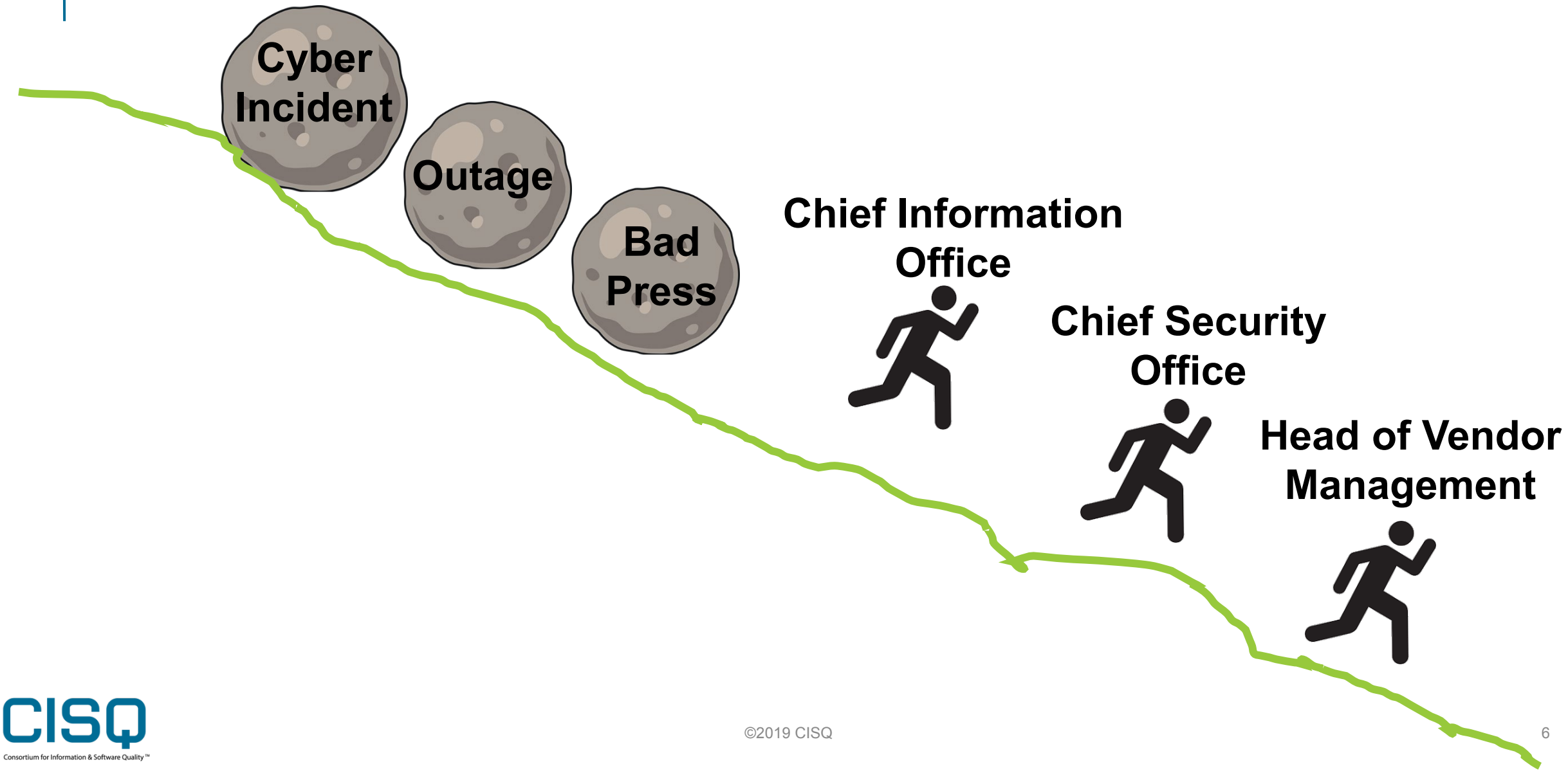
Regulators Forced To Act



Recrimination In The Boardroom

CEO COO CIO
CFO CCO

The Blame Roles Down Hill



If The CIO Has To Thrown Someone To The Wolves Its Normally The External – Rightly or Wrongly

Banks blame 3rd party software for outage

SI let us down, sorry

It was not us, it was them

SI and Outsourcing Generally Is Feeling The Pressure – Not Just Because Of Quality & Cyber

- Over 60% of contracts renegotiated
- Over a 1/3 cancelled outright
- In-sourcing is on the rise
- SI losing out to SaaS

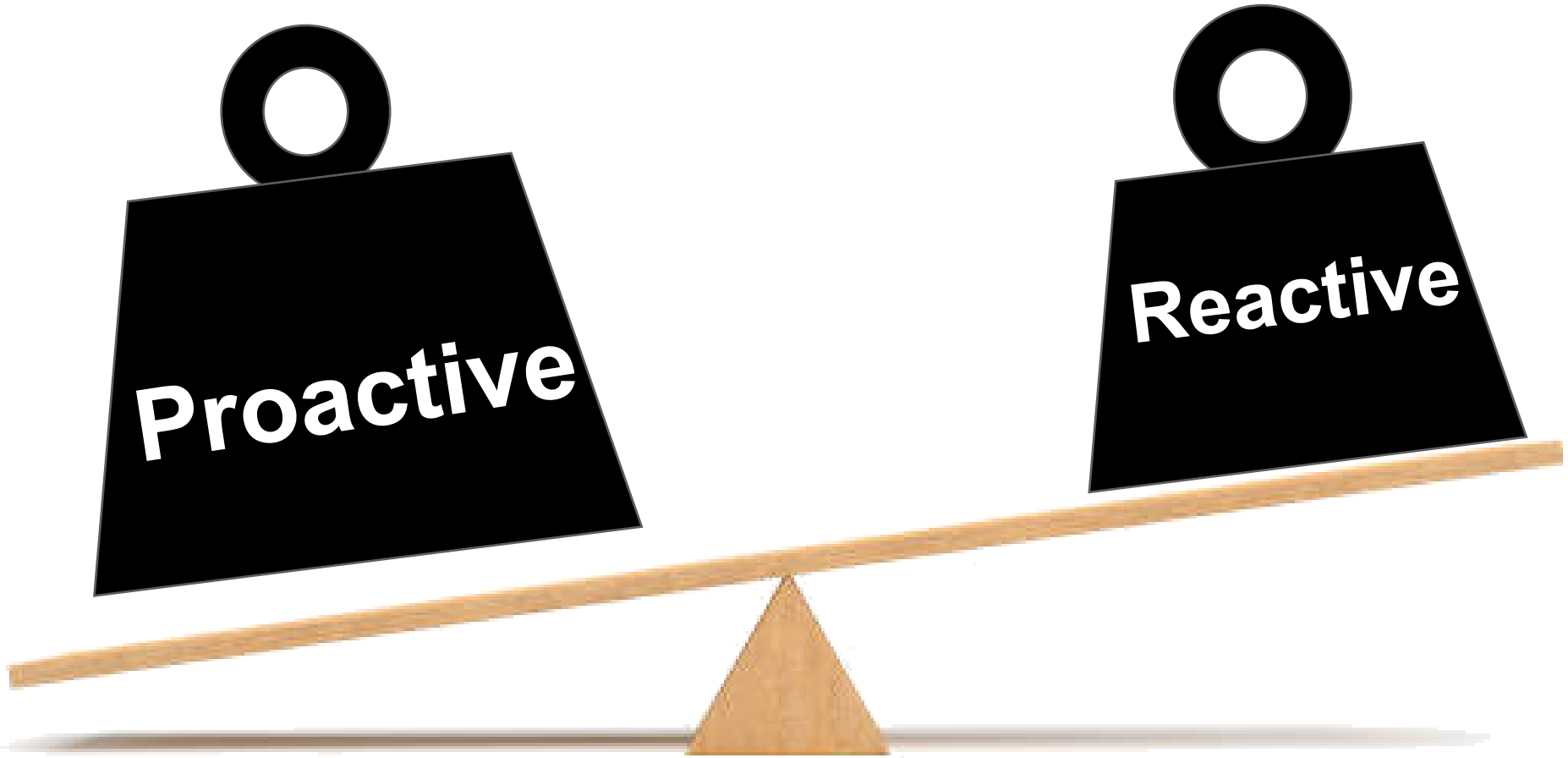
But Wait……

IT DOES NOT HAVE TO BE THIS WAY

SIs Do Not Have To Be At The Back Of The Line

Quality and Resilience This Way

SIs Should Be Proactively Using & Developing New Quality Practices and Standards To Support Digital



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Building A Foundation Quality Standards That Fit Modern Methods and Architecture

Quality Standards That Are:

- Automated
- Product focused vs project
- Support Event and API Architecture
- Integrated into DevOps & DevSecOps toolchain

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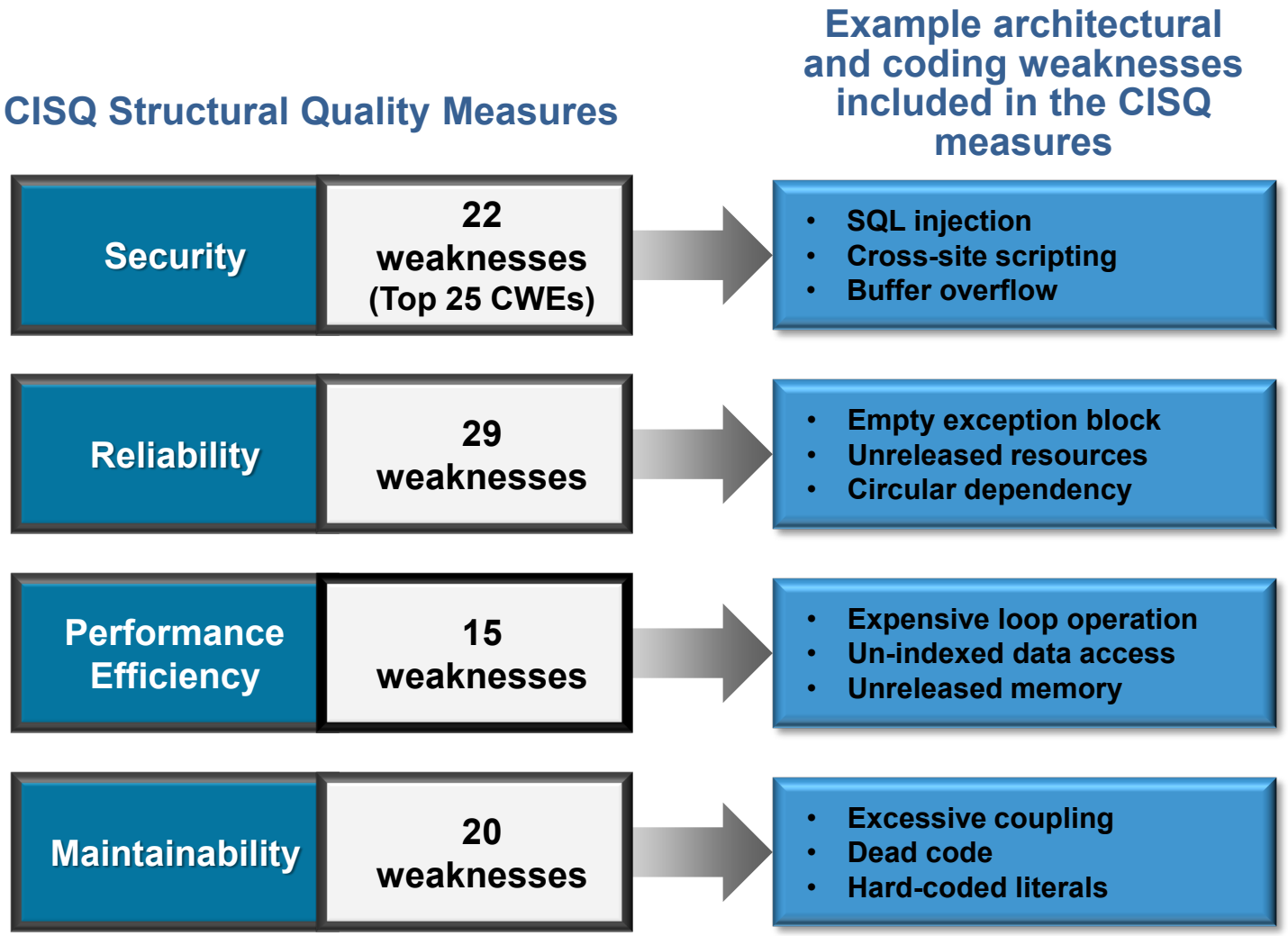
Start With CISQ Structural Quality Metrics



An international team of experts selected the weaknesses to include in CISQ measures based on the severity of their impact on operational problems or cost of ownership.

Only weaknesses considered severe enough that they must be remediated were included in the CISQ measures.

CISQ Structural Quality measures are currently being extended to embedded systems software.

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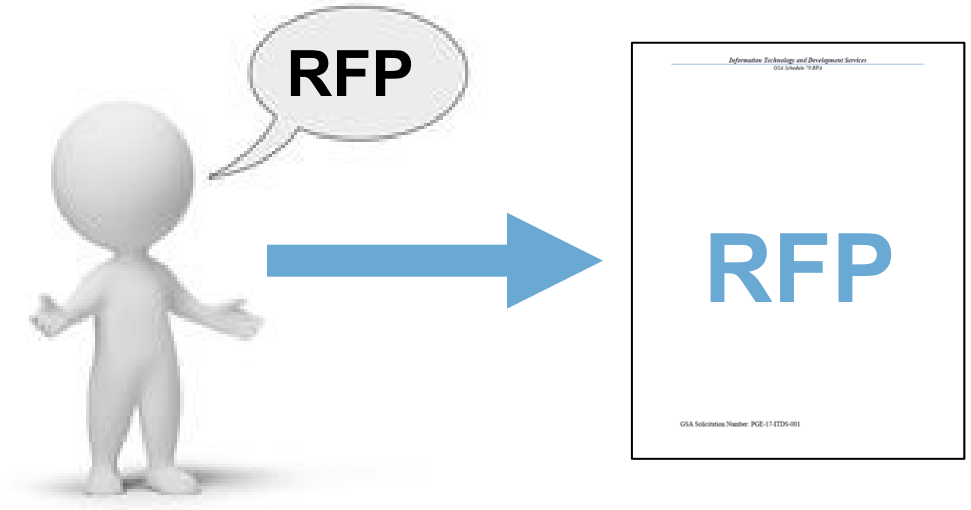
Benefits To The SI In Using Current CISQ Quality Standards

- Lower the amount of rework and by doing so improve customer relationships
- Lower indemnity risk and cost to the end customer
- Increase velocity and shorten lead-time without sacrificing quality or increasing risk
- Reduce technical debt for individual applications and portfolios leading to greater productivity
- Increase the size of the portfolio that can be developed and maintained without increasing headcount - more revenue and bigger margin

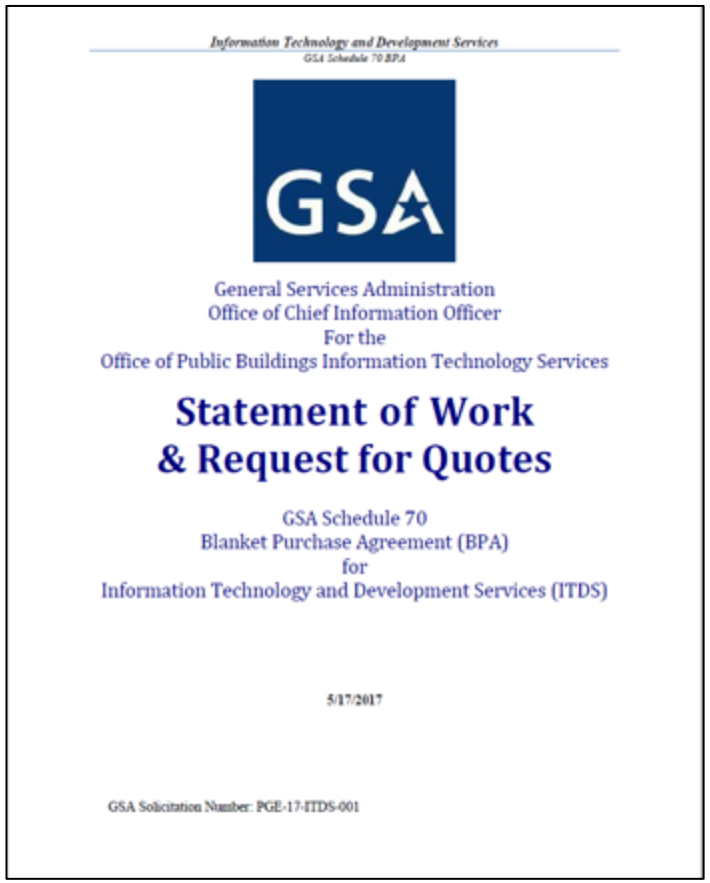
Building A Trust Relationship Based On Standards

Embed Software Quality & Sizing Standards Into Request For Proposal or Quotes



Embed Software Quality & Sizing Standards Into Request For Proposal or Quotes

Sample RFP



Information Technology and Development Services
GSA Schedule 70 BPA

GSA

General Services Administration
Office of Chief Information Officer
For the
Office of Public Buildings Information Technology Services

Statement of Work & Request for Quotes

GSA Schedule 70
Blanket Purchase Agreement (BPA)
for
Information Technology and Development Services (ITDS)

5/17/2017

GSA Solicitation Number: PGE-17-ITDS-001

CISQ has been referenced by the U.S. General Services Administration (GSA), **formally citing CISQ requirements in a Information Technology (IT) statement of work from the Office of the CIO for the Office of Public Buildings**. GSA is an independent agency of the U.S. government that supports general services of Federal agencies.

See page 21, section 5.9 in GSA's document, Schedule 70 Blank Purchase Agreement for IT and Development Services…

"PB-ITS (Project Based IT Services) is seeking to establish code quality standards for its existing code base, as well as new development tasks. As an emerging standard, PB-ITS references the ***Consortium for Information Software Quality (CISQ) for guidance on how to measure, evaluate and improve software****."*

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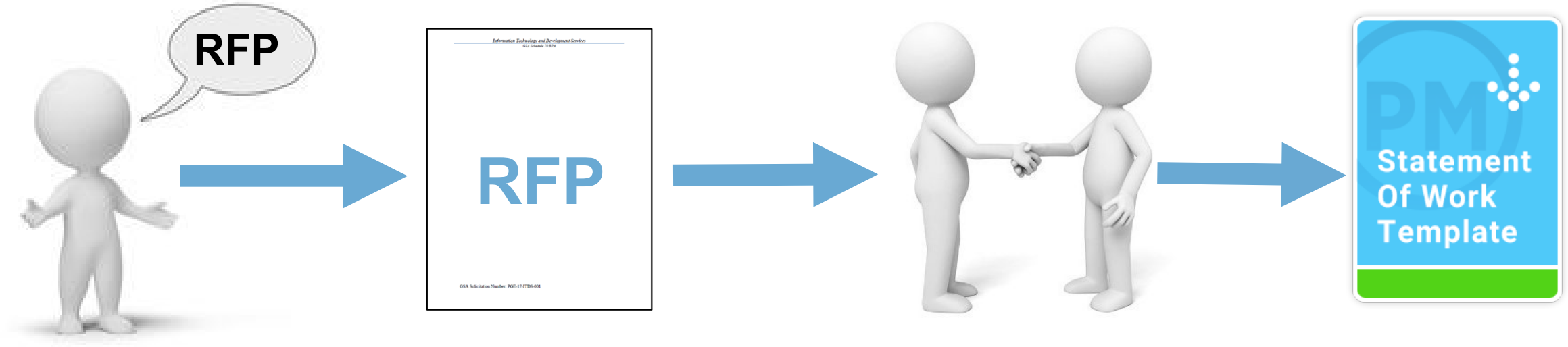
Agree Productivity Levels With Suppliers Based On Automated Sizing Code – Combine With Manual Sizing Of Requirement

Embed The Agreed Sizing Method and Productivity Into The Statements of Work



Embed The Agreed Sizing Method and Productivity Into The Statements of Work

1. **Contracting and Productivity**

1. **Productivity**

The contracted is based on a bases level of productivity of **18 Function Pointers per Staff Month** [1]. A staff month is defined as 22 days per calendar month, 8 hours per day, equalling 176 working hours per month.

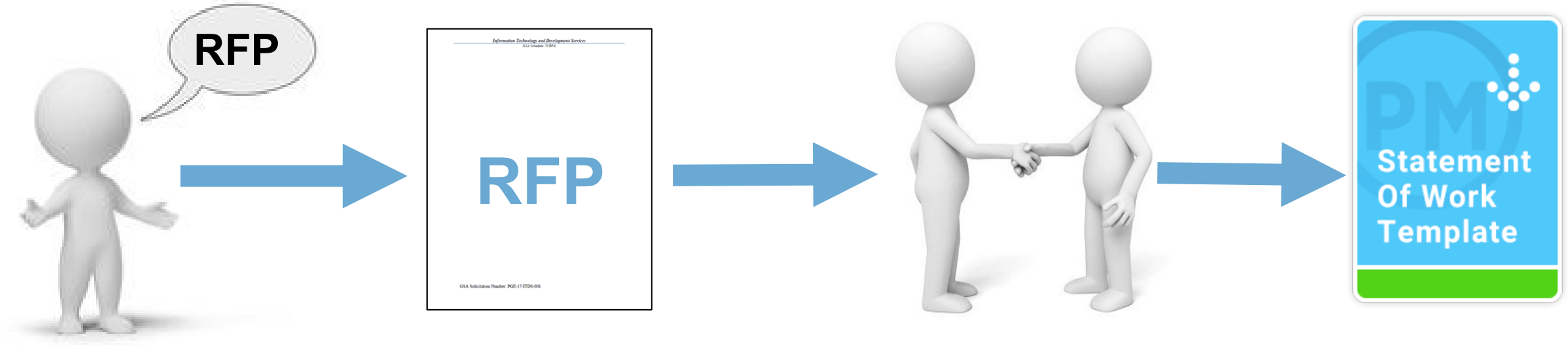
Attentively the contracted is based on a bases level of productivity of 9.5 hours per function point [1].

1. **Rate**

The supplier shall invoice at a rate of € 300 [2] per function point delivered to the client as measured by **ISO 19515 Information technology — Object Management Group Automated Function Points (AFP), 1.0** defined in section 3.4

Exceptions to the rate and activities that will not be invoiced by function point must be agreed in advance of contract signing.

Suppliers Should Be Ready To Developer To The Standards



Suppliers Should Be Ready To Developer To The Standards

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Suppliers Teams Should Use Tools That Support CISQ AFP/ISO Sizing Standards

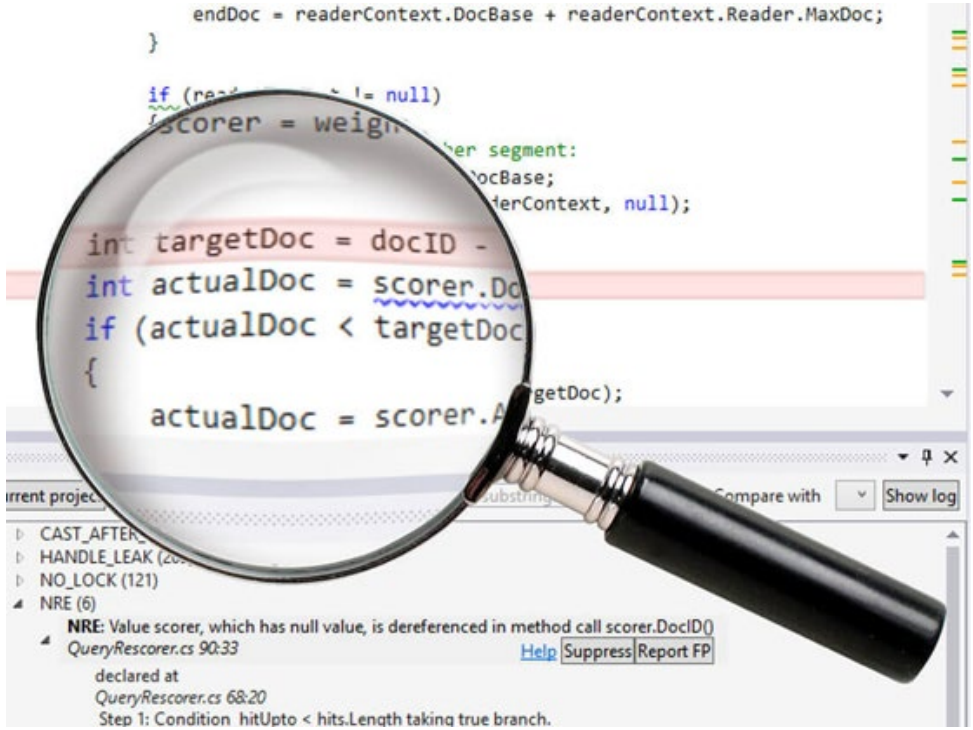
avaJava.com Web Tutorials - Eclipse

TestServlet.java

```
1  package my;
2
3  import java.io.IOException;
4
5  import javax.servlet.Servlet;
6  import javax.servlet.ServletException;
7  import javax.servlet.http.HttpServlet;
8  import javax.servlet.http.HttpServletRequest;
9  import javax.servlet.http.HttpServletResponse;
10
11 public class TestServlet extends HttpServlet implements Servlet {
12     static final long serialVersionUID = 1L;
13
14     public TestServlet() {
15         super();
16     }
17
18     protected void doGet(HttpServletRequest request,
19             HttpServletResponse response) throws ServletException, IOException {
20         doPost(request, response);
21     }
22
23     protected void doPost(HttpServletRequest request,
24             HttpServletResponse response) throws ServletException, IOException {
25         response.getWriter().println("blah");
26     }
27 }
```

How do I create a profile to format Java code in Eclipse?

Automatic Analysis Of The Size Of The Code In Function Points



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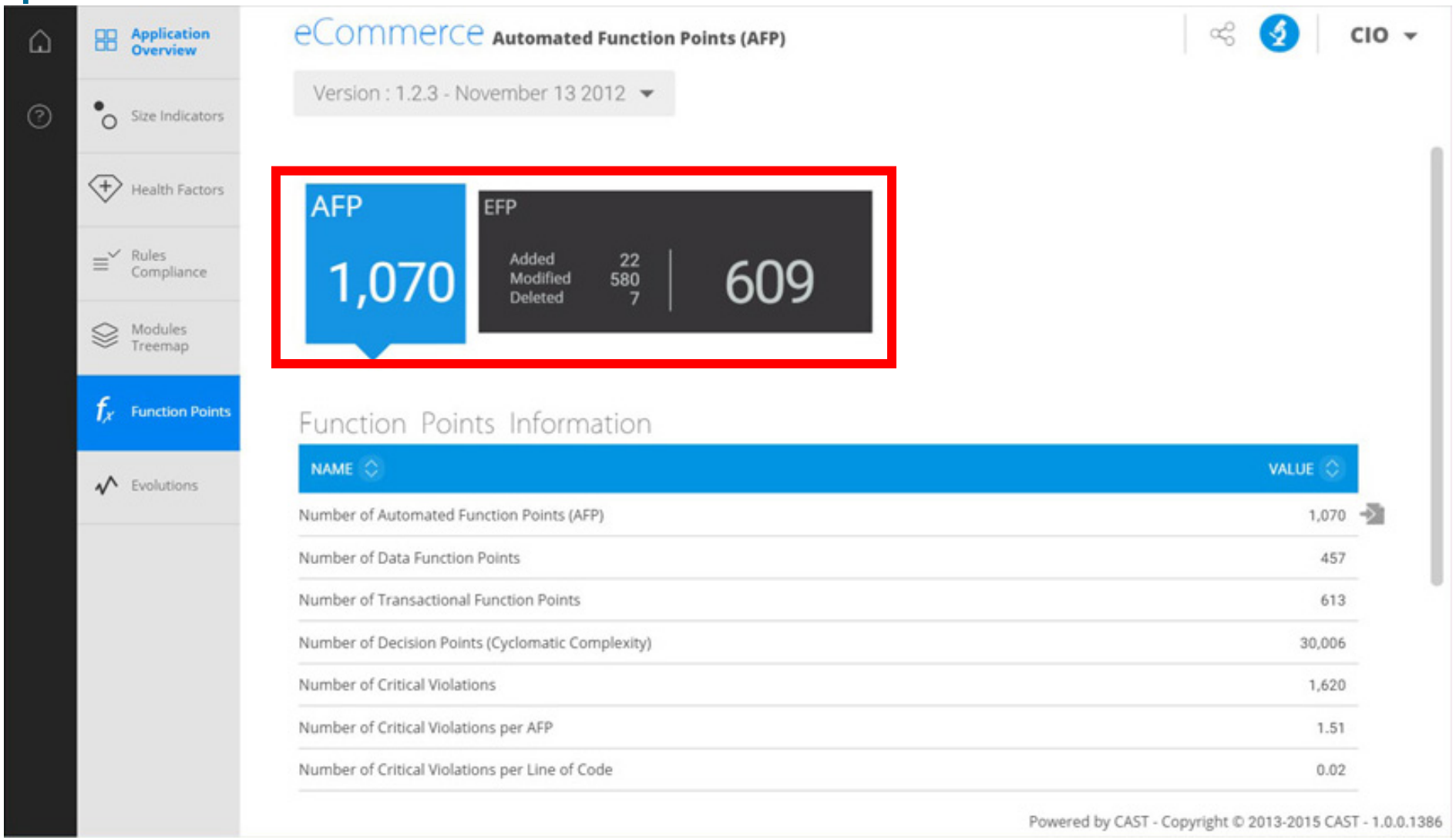
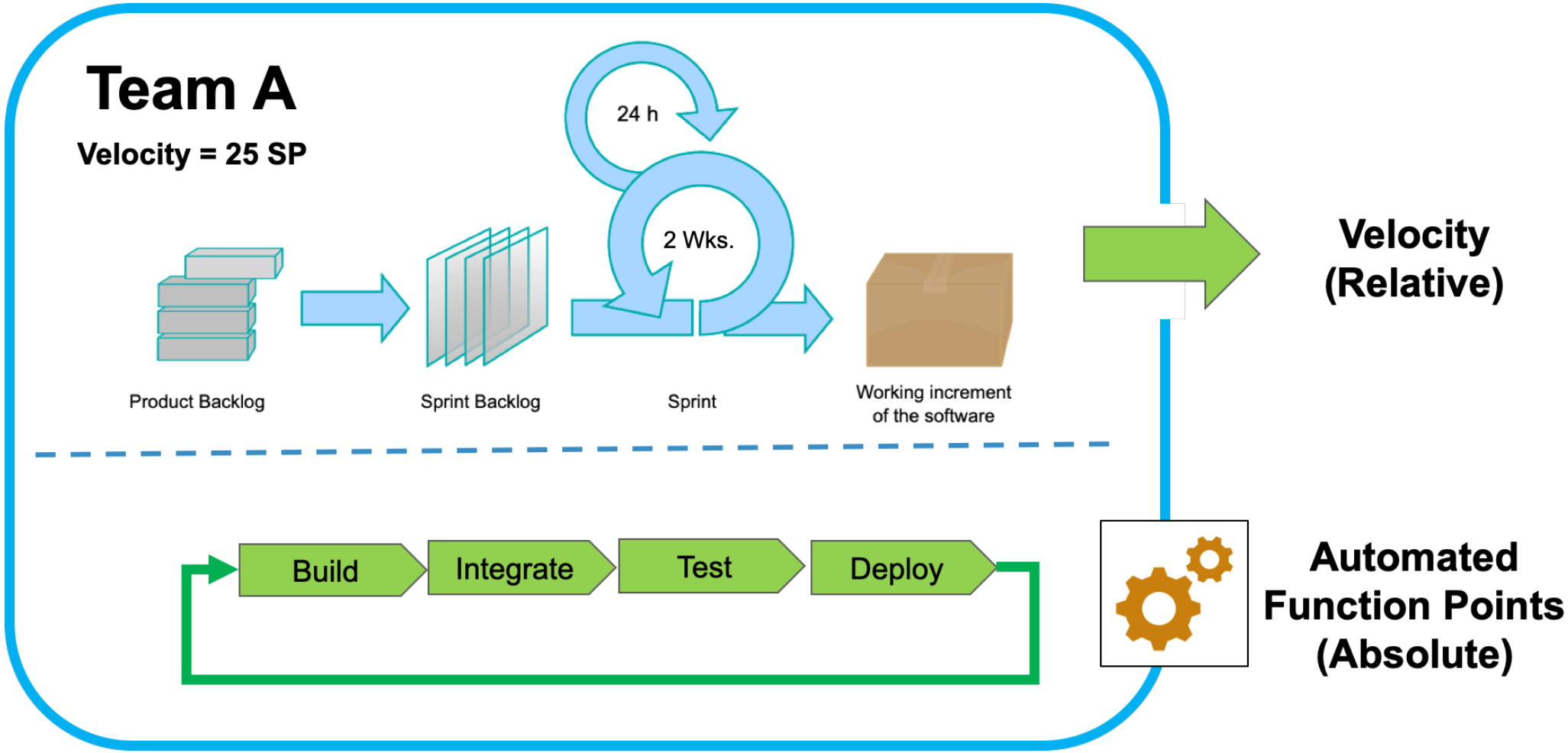
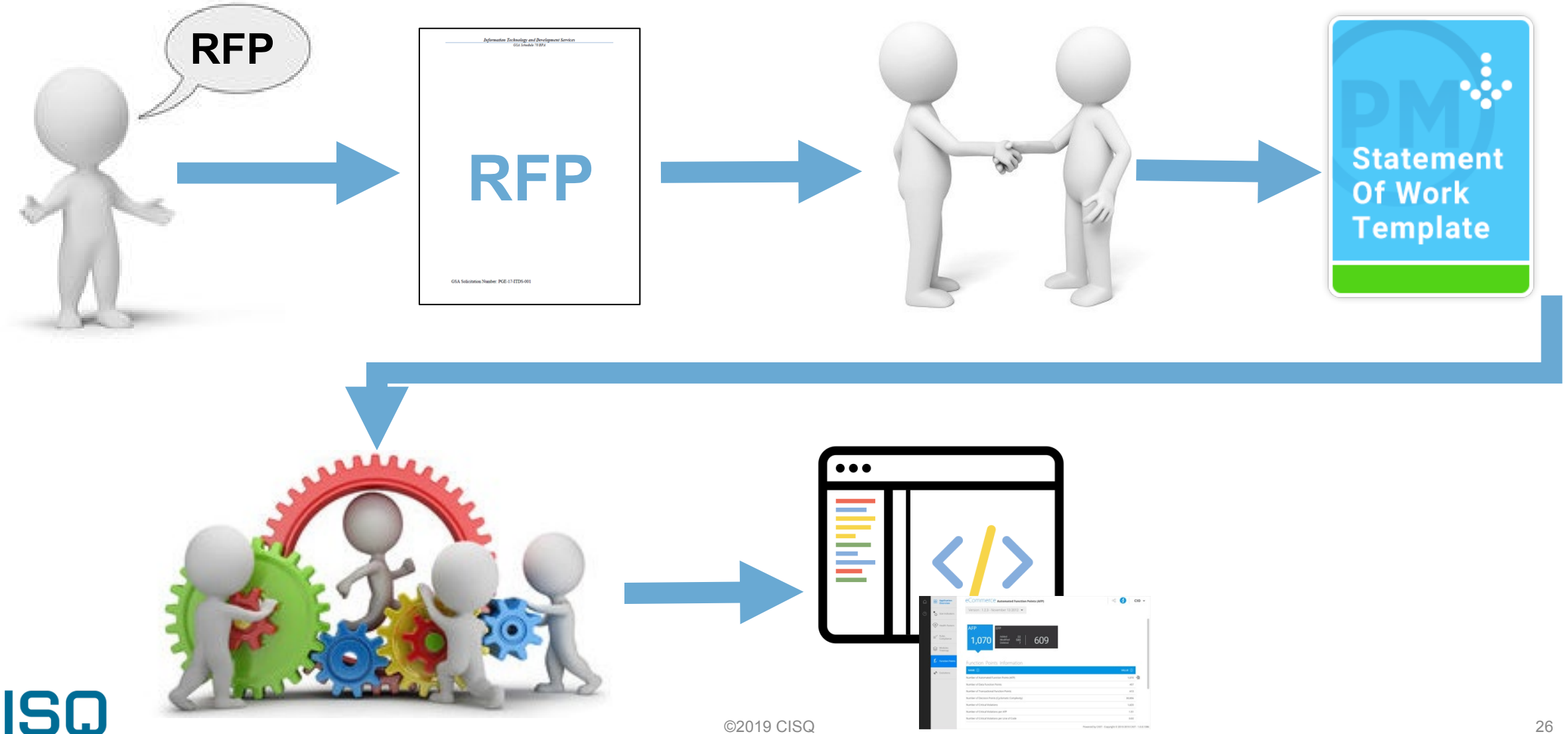
Team Dashboards Should Clearly Show The Size Of Code Developed and Enhanced



Teams Are Still Free To Use Agile & DevOps Story Point Sizing, Automated Function Points Counted In The Background



Do Not Just Focus On Size of The Code, Verify The Quality – Automatically



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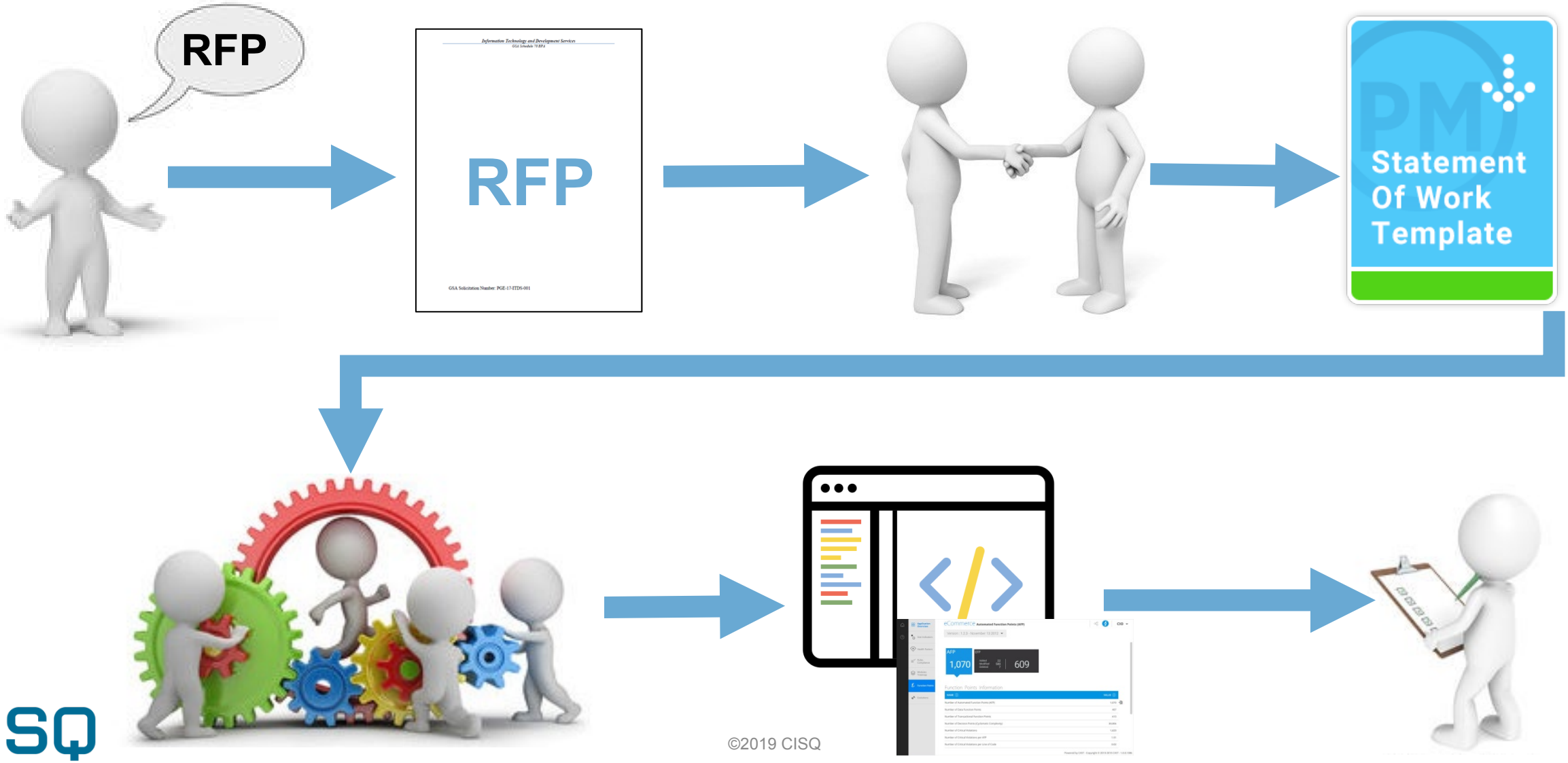

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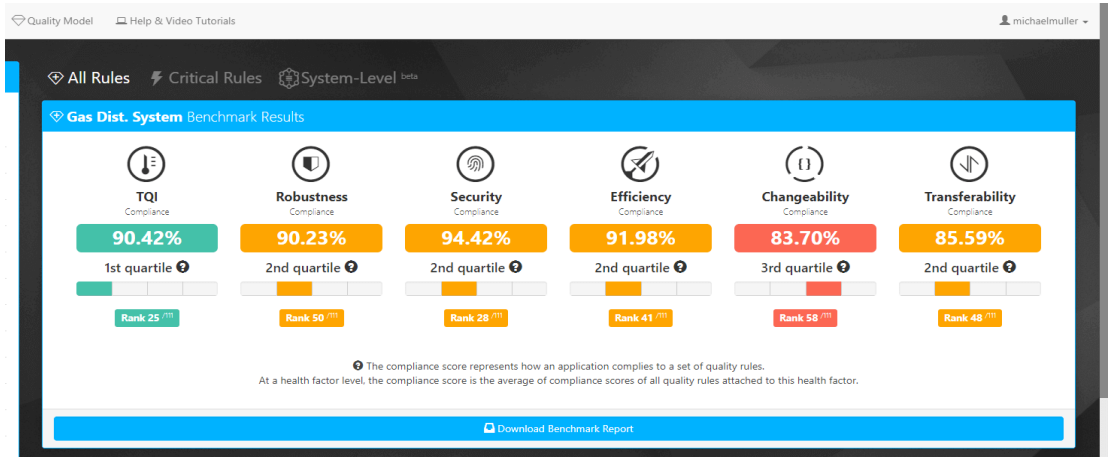
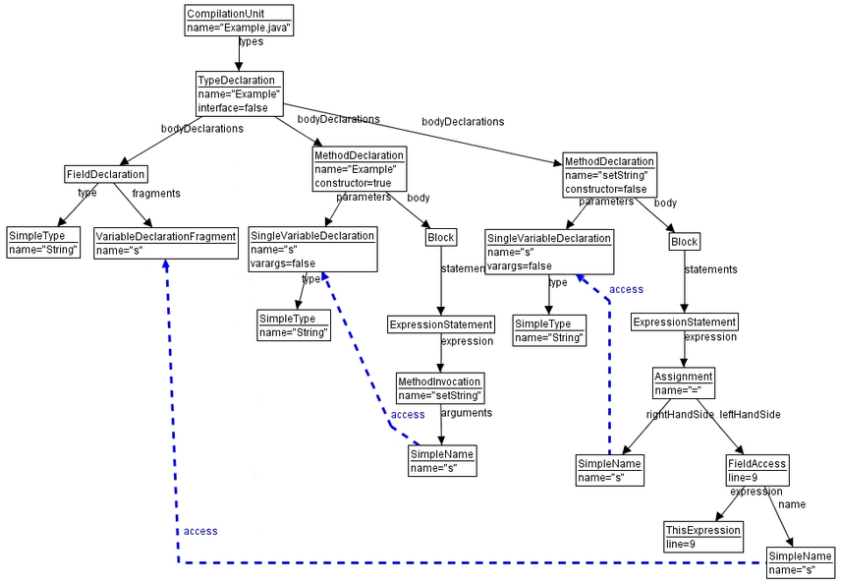
Suppliers Teams Should Verify Code Quality, and Check For Vulnerabilities Against CISQ Standards

- Security: Measures weaknesses in source code representing the most exploited security weaknesses in software including the CWE/Sans Institute Top 25 Most Dangerous Security Errors and OWASP Top 10
- Reliability: Measures weaknesses in source code impacting the availability, fault tolerance, and recoverability of software
- Performance Efficiency: Measures weaknesses in source code impacting response time and utilization of processor, memory, and other resources
- Maintainability: Measures weaknesses in source code impacting the comprehensibility, changeability, testability, and scalability of software
- Technical Debt: A measure of corrective maintenance effort due to the CISQ code quality weaknesses remaining in a software application





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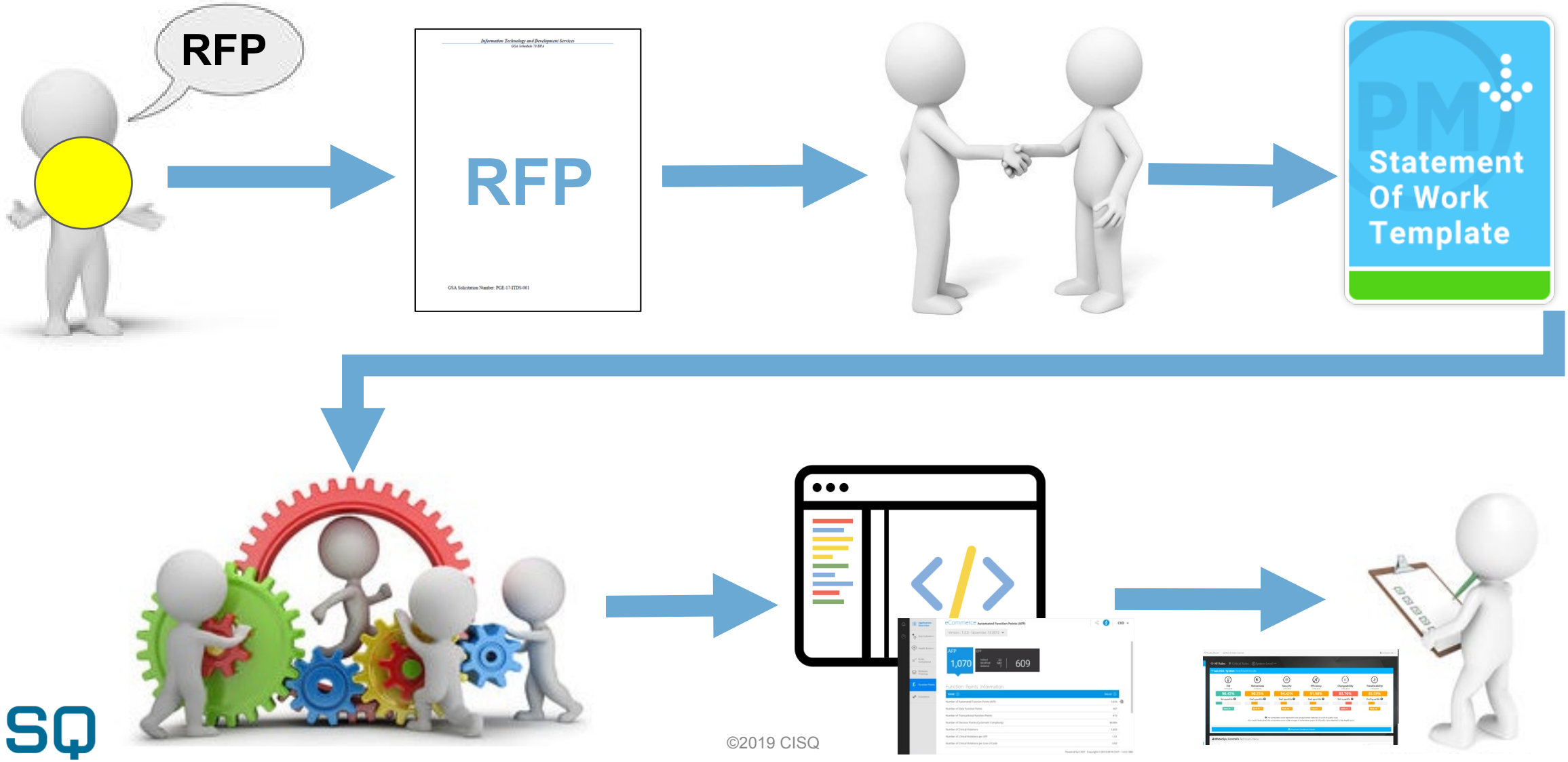
End to End Trust Relationship Based On Standards



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And If It Goes Wrong, CISQ Standards Become Your Armor From Friendly Fire

SI

Excuse “It’s the SI’s poor code”

Excuse “SI quality is inconsistent”

Excuse “SI is not proactive”

Client

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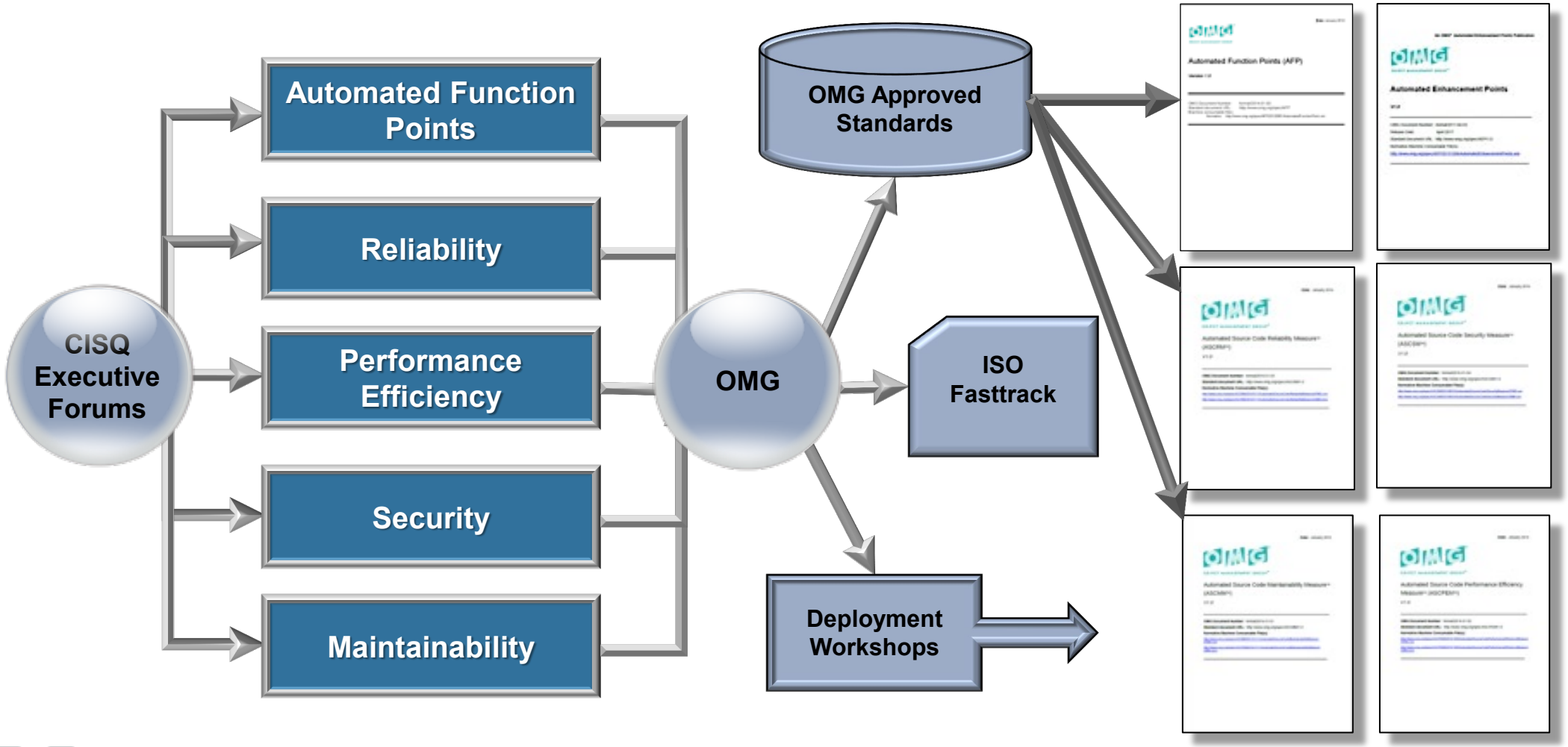
By Engaging With CISQ, You...

- Collaborate on vision for Digital Quality
- Direct input into the development of standards
- Benefits from CISQ related PR
- Demonstrate leadership with customers and prospects
- Influence policy makers and regulators

And The Benefits Of the CISQ and OMG Standards Process – Months Not Years



Next Generation Digital Quality Standards - Engage

Thank you

 Founded 2010

 3,000+ members

 750+ companies

 7 adopted standards

 www.it-cisq.org

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