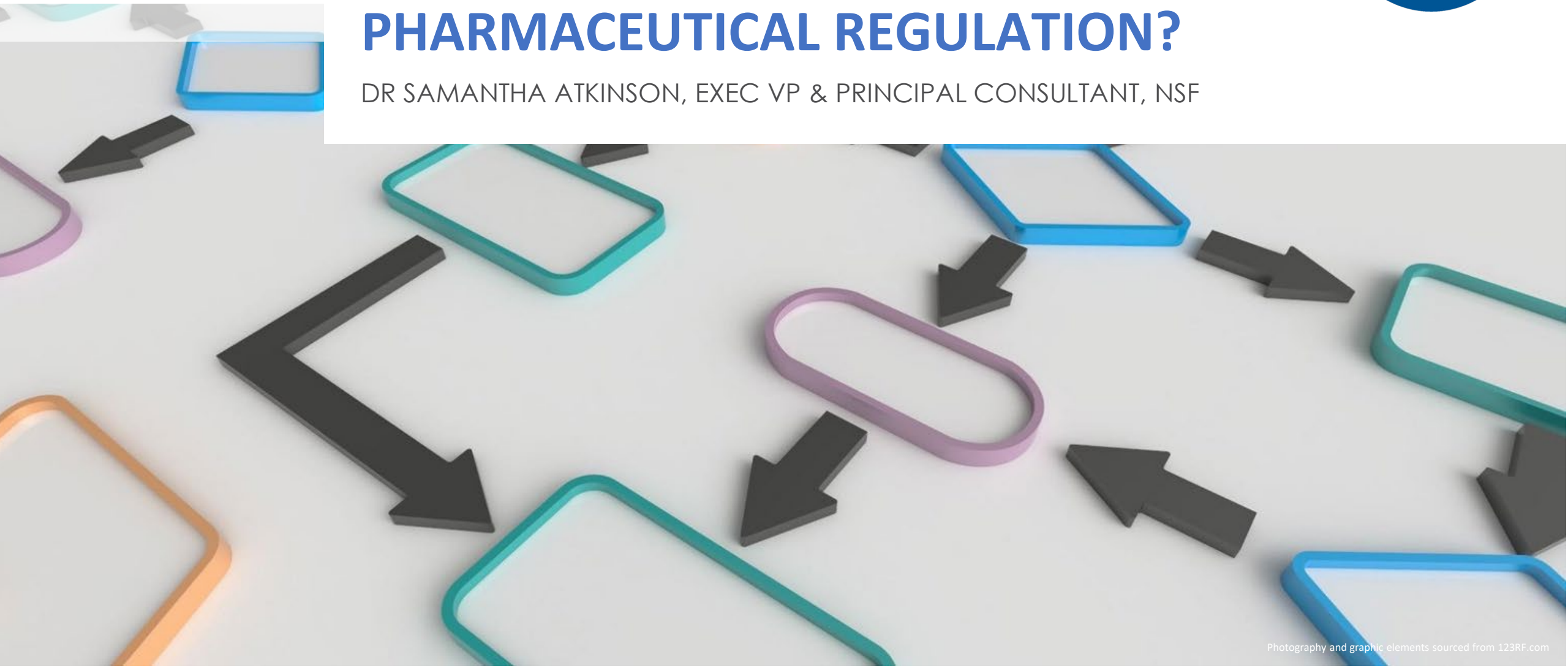
QMM – A NATURAL DEVELOPMENT OF PHARMACEUTICAL REGULATION?

DR SAMANTHA ATKINSON, EXEC VP & PRINCIPAL CONSULTANT, NSF



Dr Sam Atkinson

BSc (Hons), MSc, PhD, MBA, MRSC

Exec Vice President, NSF Health Sciences

- Former Chief Quality & Access Officer, UK MHRA.
- 20+ years experience of pharmaceutical industry, 16 years experience of which at the MHRA (Inspectorate through to Board level)
- Regulatory Compliance Strategy
- Business Strategy & Transformation
- Emergency Response & Incident Management
- Leadership Development
- Quality & Risk System Optimisation

NSF IS A GLOBAL LEADER IN PUBLIC HEALTH AND SAFETY

Developer of **85** currently active national consensus standards and **95** published protocols

> NSF offers services in **180** countries. We have **61** locations, in **30** countries, including **12** labs

Steadfast ties with key associations and government agencies – including **FDA**, **EPA**, and **USDA**

> **119,000+** companies served **BUSINESS-TO-BUSINESS**

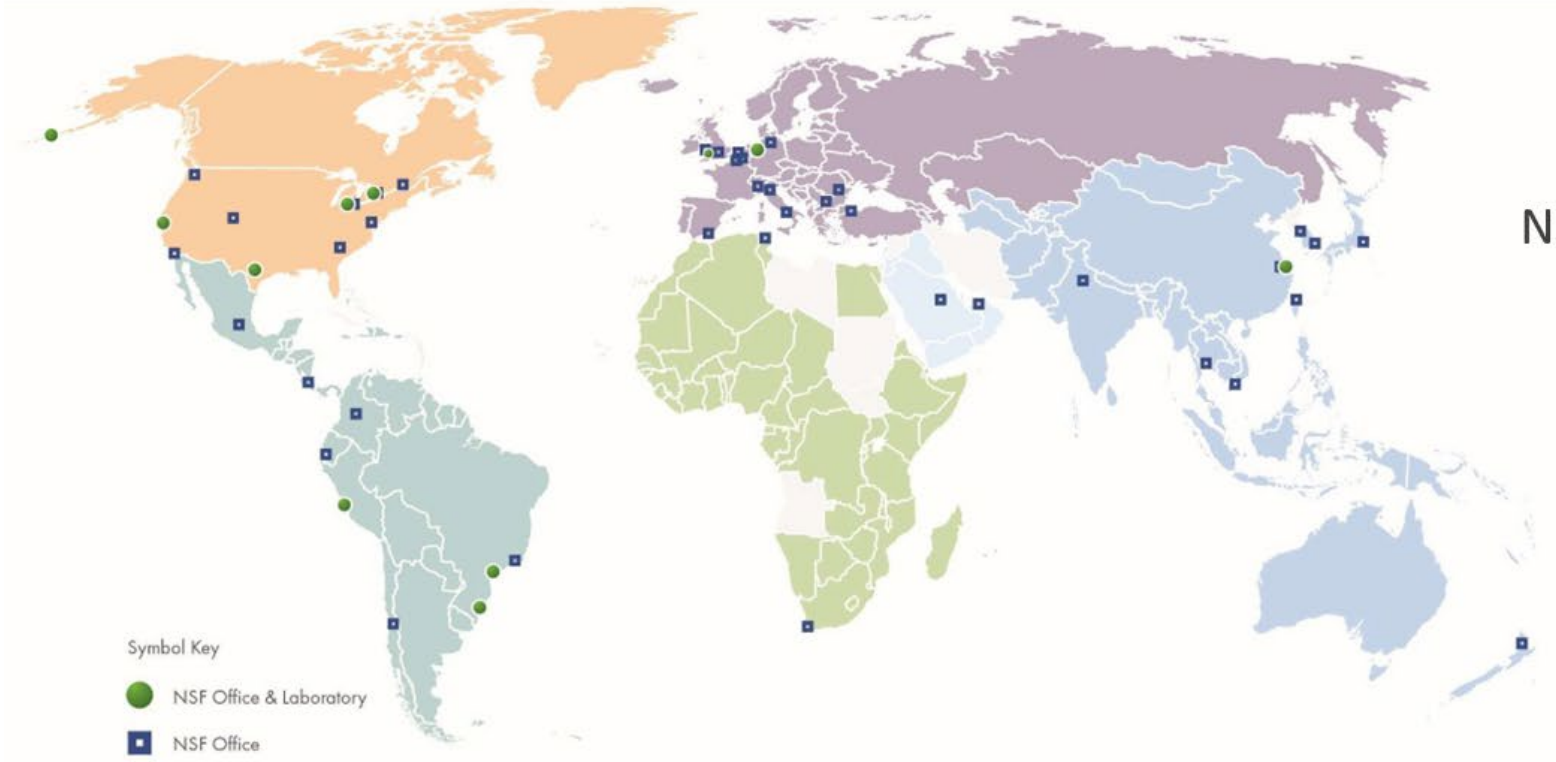
2,800+ experienced professionals, including microbiologists, toxicologists, chemists, engineers and public health experts

> **220,000+** audits are conducted annually with **1,500** field auditors working worldwide

75+ years of public health expertise

> **75+** unique accreditations, licenses and certifications including ANSI, IAS, and UKAS

NSF AROUND THE GLOBE



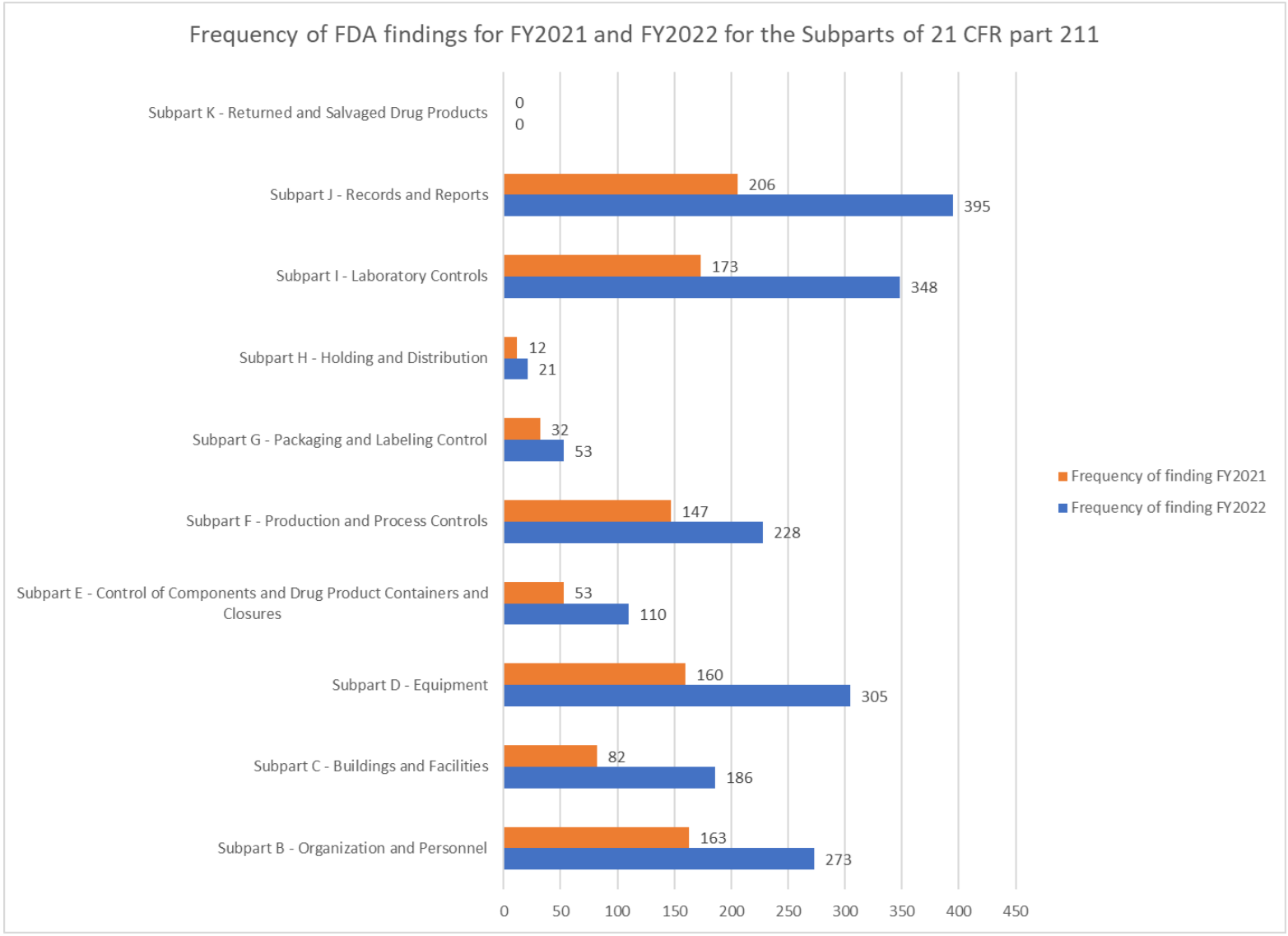
NSF provides services in **175+ countries** with **57 office and laboratory** locations.

Includes CRO Taiwan and resources (with FDA knowledge) in Australia.

AGENDA

- History – learnings from the past
- Influencing trends
- Regulatory Focus and Current Initiatives
- Focus on QMM and DI

HISTORY - LEARNINGS FROM REGULATORY CITATIONS



https://www.fda.gov/inspections-compliance-enforcement-and-criminal-investigations/inspection-references/inspection-observations

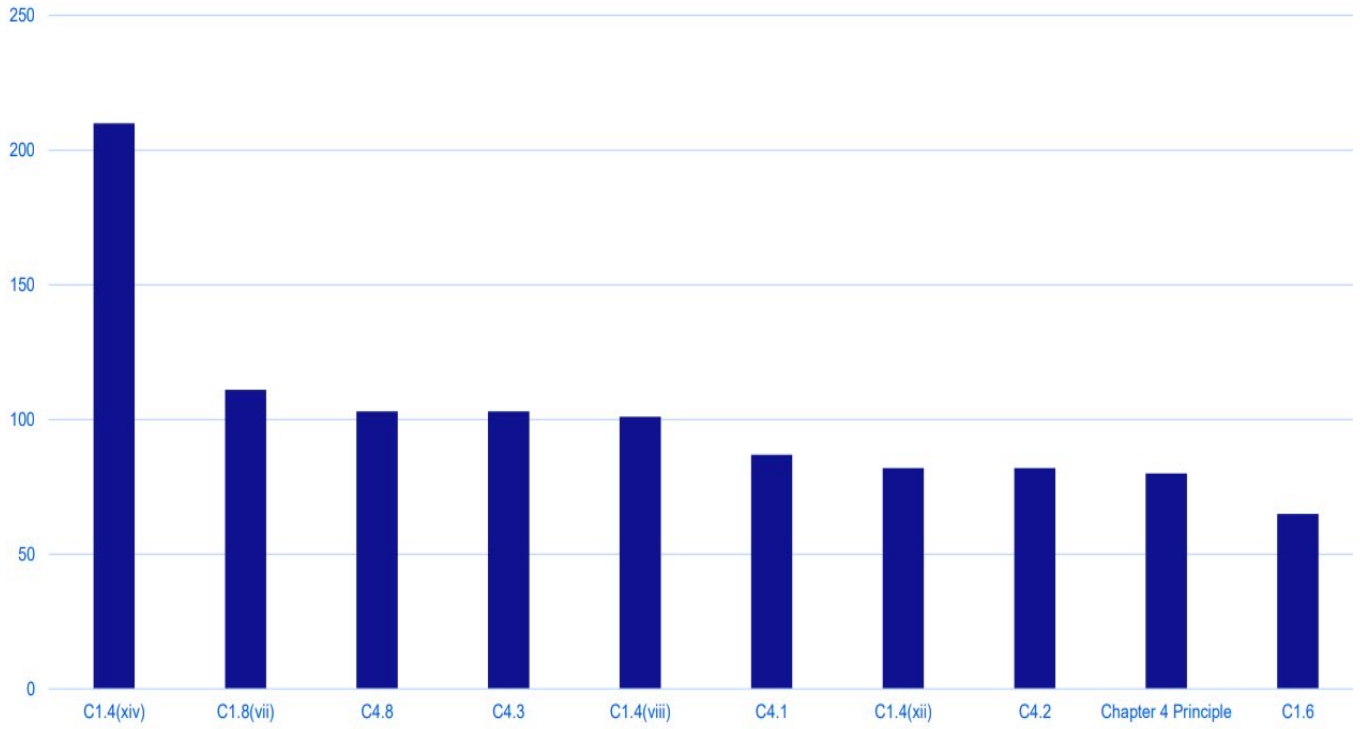
Highest Frequency:

- Records and Reports
- Laboratory Controls
- Equipment
- Organisation and Personnel

HISTORY - LEARNINGS FROM REGULATORY CITATIONS

Top 10 MHRA Citations 2019 (By Chapter Reference)

(Source: MHRA 2019 Deficiency Data)



Quality System (Standard Operating Procedures), Deviations Management and Investigations emerge as the areas with the most deficiencies

WHAT HAS INFLUENCED THIS NEW DIRECTION IN REGULATORY APPROACH?

- From the desire to ensure a robust and effective Quality System?
- From historical deficiencies?
- From the increased knowledge and awareness of culture?
- From the global nature of our supply chains?
- From the overarching drive for high quality, safe and effective medicines?
- Continued issues with Data Governance?

- Most likely, all of these and more…

"Compliance is a behaviour"

Laura Squire, Chief Quality & Access Officer, MHRA

TRENDS OF TODAY

- Pharma 4.0
- Outcome Based Co-operative Regulation
- Cultural Excellence and Quality Culture/Climate
- Sustained Quality Management Maturity
- Quality Management & Data Integrity Maturity Assessment Models

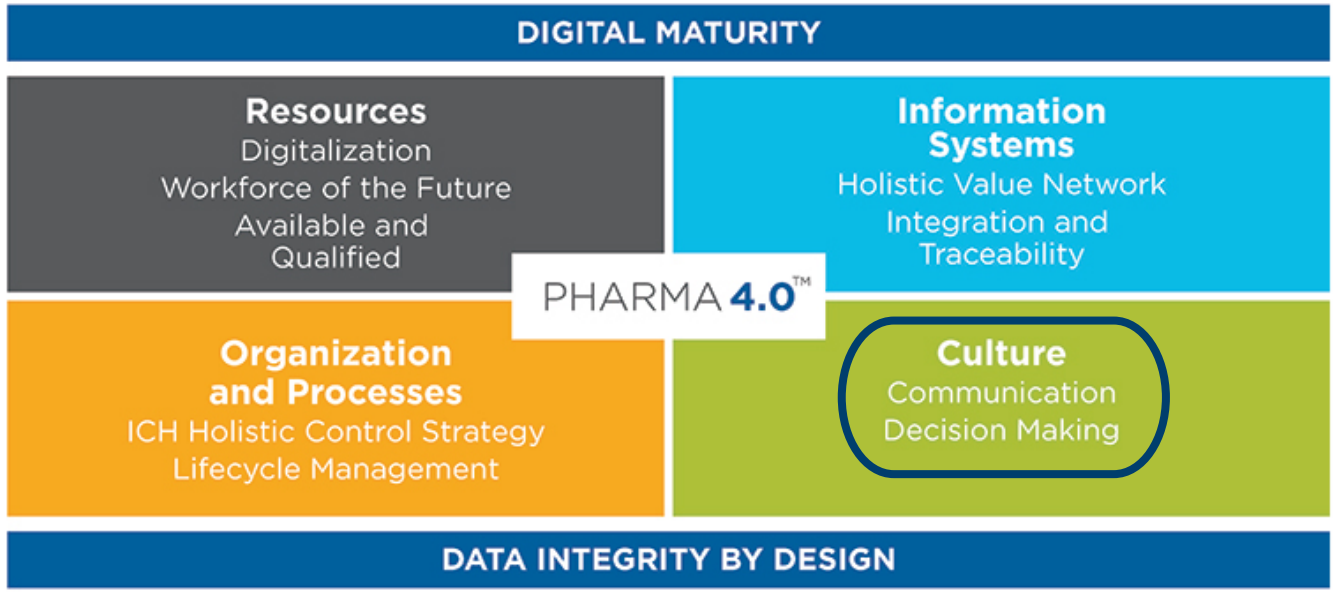
TRENDS – PHARMA 4.0

- Pharma 4.0
  - Digital Maturity
  - Data Integrity

- Culture incorporated into the Op Model

From Industry 4.0 to Pharma 4.0™ Operating Model

ISPE's Pharma 4.0™ CoP Steering Committee and Working Groups have developed an **operating model** to apply the principles of Industry 4.0 to Pharma 4.0™ which is summarized in the image below.



Pharma 4.0 Operating Model | Industry 4.0 | ISPE | International Society for Pharmaceutical Engineering

TRENDS – OUTCOME BASED CO-OPERATIVE REGULATION

Professor Christopher Hodges describes the key elements as:

Outcome-Based Cooperative Regulation | The Regulatory Review (theregreview.org)

- Supporting people
- Intrinsic motivations with supportive interventions
- Building trust
- Involving everyone

Christopher Hodges

Emeritus Professor of Justice Systems

Christopher Hodges | Faculty of Law (ox.ac.uk)

TRENDS – CULTURAL EXCELLENCE & CLIMATE

ISPE Cultural Excellence

ISPE Cultural Excellence - APQCULTDL-Watermarked-1105355.pdf`

- Advancing Pharmaceutical Quality (APQ) Program builds on the ICH Q10 PQS model to incorporate cultural excellence.
- Working through 6 Dimensions of Cultural Excellence to deliver sustained quality management performance.
- Integration of Operational Excellence with Cultural Excellence
- Supported by industry led approach for assessing and improving Quality Management Maturity
  - Assess->Aspire->Act->Advance

TRENDS – CULTURAL EXCELLENCE & CLIMATE

CIPD's Quality Culture

organisation-culture-change-factsheet_20230322T163219.pdf

- Organisational climate – "the way an individual understands their workplace guides their behaviour"
- Strong links and overlap between climate and culture
- Defined and considered through a number of dimensions
  - Safety climate
  - Innovation climate
  - Learning climate
  - Ethical climate
  - Inclusion climate
- Recognises importance of leaders in influencing climate

TRENDS – SUSTAINED MATURITY

- How do you sustain the maturity level of your QMS/PQS within an ever evolving regulatory landscape?
  - Focus on continuous improvement, innovation and (some level of) investment
  - There is a need to understand and measure maturity.
  - Development of enhanced KPIs and metrics for better decision making.

- Reduces risk of non-compliances or recalls
- Could lead to reduced regulatory burden via risk based inspection approaches (and OBCR)

TRENDS – QUALITY MANAGEMENT MATURITY

WHY QMM?

Current	Understand the current state of the Quality System beyond just metrics and audits. The model aligns to the **latest thinking and strategies** of global regulatory authorities.
Future-Proofing	It supports **proactive continuous improvement** of an organisation's QMS.
Strategic	It examines the **robustness and effectiveness of the QMS**. It looks beyond the immediate environment (i.e., what is in place/in use) and considers the wider influencing factors.
Quality Culture	Critically, it also considers the **organisational culture** and the impact on the effectiveness of the QMS.
Flexible	The model can be used in order to undertake an organisational/site **health check**, or to consider QMS **maturity improvements** following a regulatory inspection, for example.
Client Focused	The model can be **tailored to suit a client's need** and focus in on key areas of concern/risk. The subsequent report can provide recommendations for those highlighted areas.


NSF's Quality Management Maturity (QMM) Assessment Model

Future-Proofing Quality and Supporting Supply Chain Robustness

Executive Summary

It is well recognized that the Quality Management System (QMS) — whether documentation, deviation and event management or CAPA — is the focus of Regulatory Inspections and indeed the cause of many findings. Given the requirements have been broadly the same for so long, why is this still an area of non-compliance?

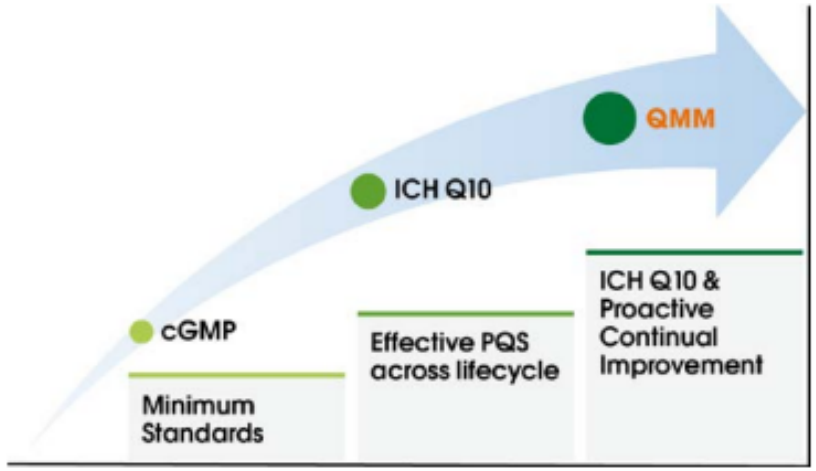
Historically, and perhaps a harsh and simplistic assertion, is that the QMS has been managed as a function with a comprehensive set of instructions. However, more recently regulators, industry and quality professionals are looking at the QMS slightly differently. The QMS must be the heart and lungs of an organization — it needs to breathe life into the organization and must ensure that each operational part — from individuals, technology, equipment, to functions, teams and the leadership — operate in unison. This shift in mindset recognizes the need to understand the impact and risk of people and culture in the successful deployment of a mature QMS.

So, how does the QMS feed every part of the organization with oxygen and that those within the organization recognize the importance of the QMS? How do regulators assess the impact of these intangible elements on the effectiveness and robustness of a QMS, and therefore compliance?

The NSF QMM Assessment Model (developed and introduced in 2022, following the publication of the US FDA Drug Shortages Task Force report in 2019) responds directly to this challenge. It is a disruptive innovation tool to assess organizational quality maturity across the regulated landscape. It requires a different mindset, taking a holistic view of the QMS, in parallel to the traditional considerations of compliance.

The NSF model has been designed to align and respond to the FDA's findings, to the assessment process considered

TRENDS – QUALITY MANAGEMENT MATURITY



Quality management maturity is the state attained when drug manufacturers have consistent, reliable, and robust business processes to achieve quality objectives and promote continual improvement

CDER has proposed the development of a rating system that will help encourage drug manufacturers to achieve QMM at their facilities.

FDA

FDA will benefit from QMM ratings by being more informed about the quality management practices at sites which will facilitate robust risk-based decision-making.

Industry

Transparent QMM ratings could empower manufacturers to identify ways to improve the effectiveness of their pharmaceutical quality systems, realize regulatory flexibilities described in ICH Q12.

A transparent rating system could also inform purchasers about the maturity of quality management practices at sites where they purchase drugs or drug products.

Patients

Patients and consumers will have more reliable access to drugs when industry has a stronger commitment to continual improvement.

Source: CDER Quality Management Maturity

TRENDS – QUALITY MANAGEMENT MATURITY

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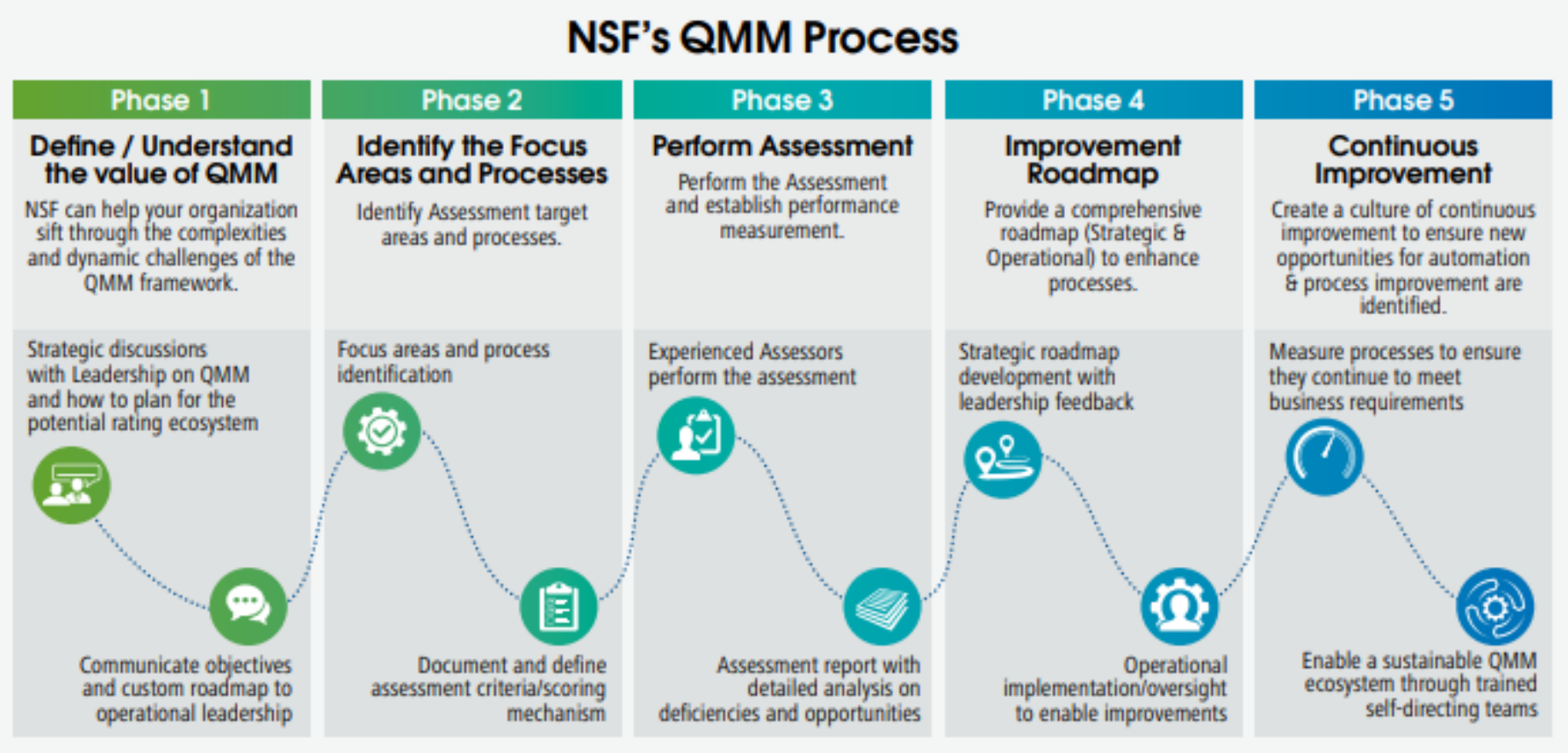
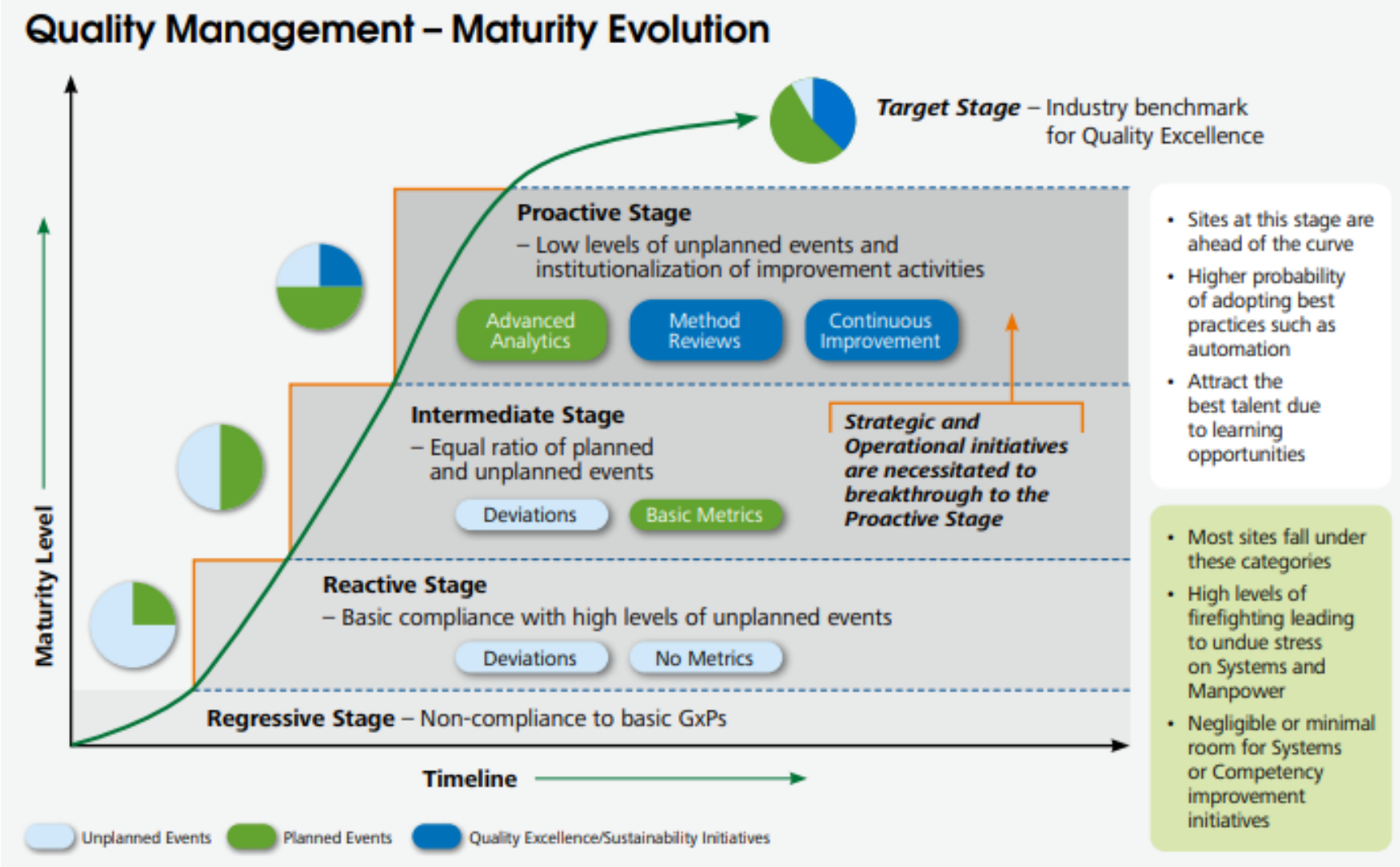
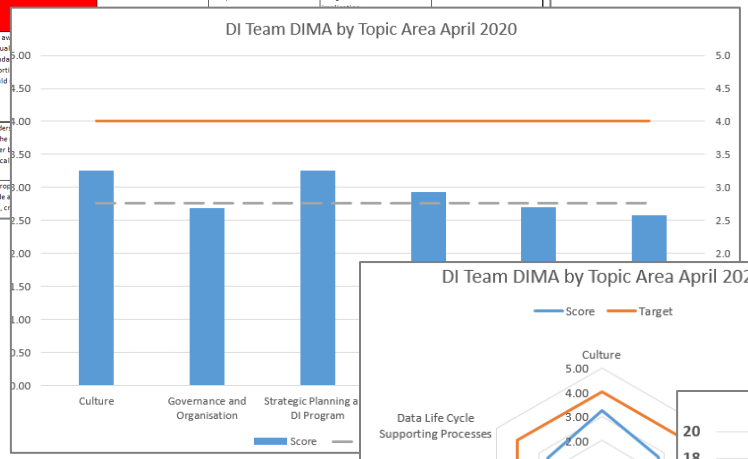


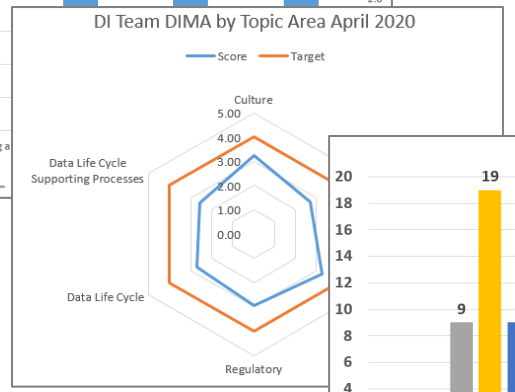
TRENDS – QUALITY MANAGEMENT MATURITY

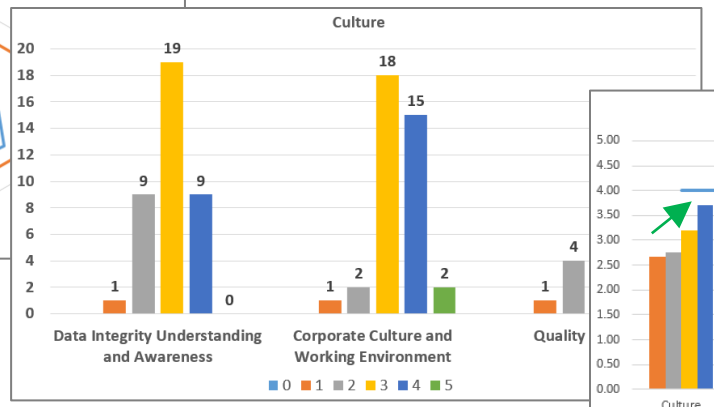


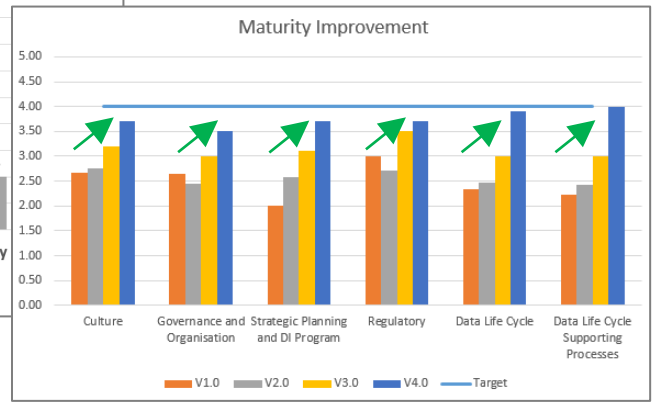
DATA INTEGRITY MATURITY ASSESSMENT (DIMA)

	Maturity Area	Maturity Factors	Level 1	Level 2	Level 3	Level 4	Level 5
Culture	Data Integrity Understanding and Awareness	Awareness of the importance of data integrity and understanding of data integrity principles	Low awareness, limited to SMEs and specialists	General awareness of the topic, but not fully reflected in working practices	Principles reflected in working practices, but not consistently applied	Data integrity principles fully incorporated and applied in established processes and practices	Formal ongoing awareness program, proactively keeping abreast of industry developments
	Corporate Culture and Working Environment	A culture of willing and open reporting for errors, omissions and atypical results, and willing collaboration to achieve data integrity objectives	Unwillingness or no motivation to report errors and atypical results	Data integrity problems may be reported but mitigation is either inadequate or ignored	Policies and procedures encourage openness, but not implemented in all cases. Mitigation generally limited to the specific instance	Full openness and collaboration achieved through such behaviour being motivated by management behaviour. Mitigation considers wider	Anticipating potential future data integrity weaknesses and applying appropriate controls
	Quality Culture	An environment in which employees habitually follow quality standards, take quality focused actions, and consistently see others doing so	Low av... of qua... standa... reporti... would				
	Leadership	Leadership Objectives defined and communicated by executive management	Leader... on the... Other t... typical				
	Sponsorship	Executive management providing appropriate resources and support	Approp... made a... (e.g., cr...				







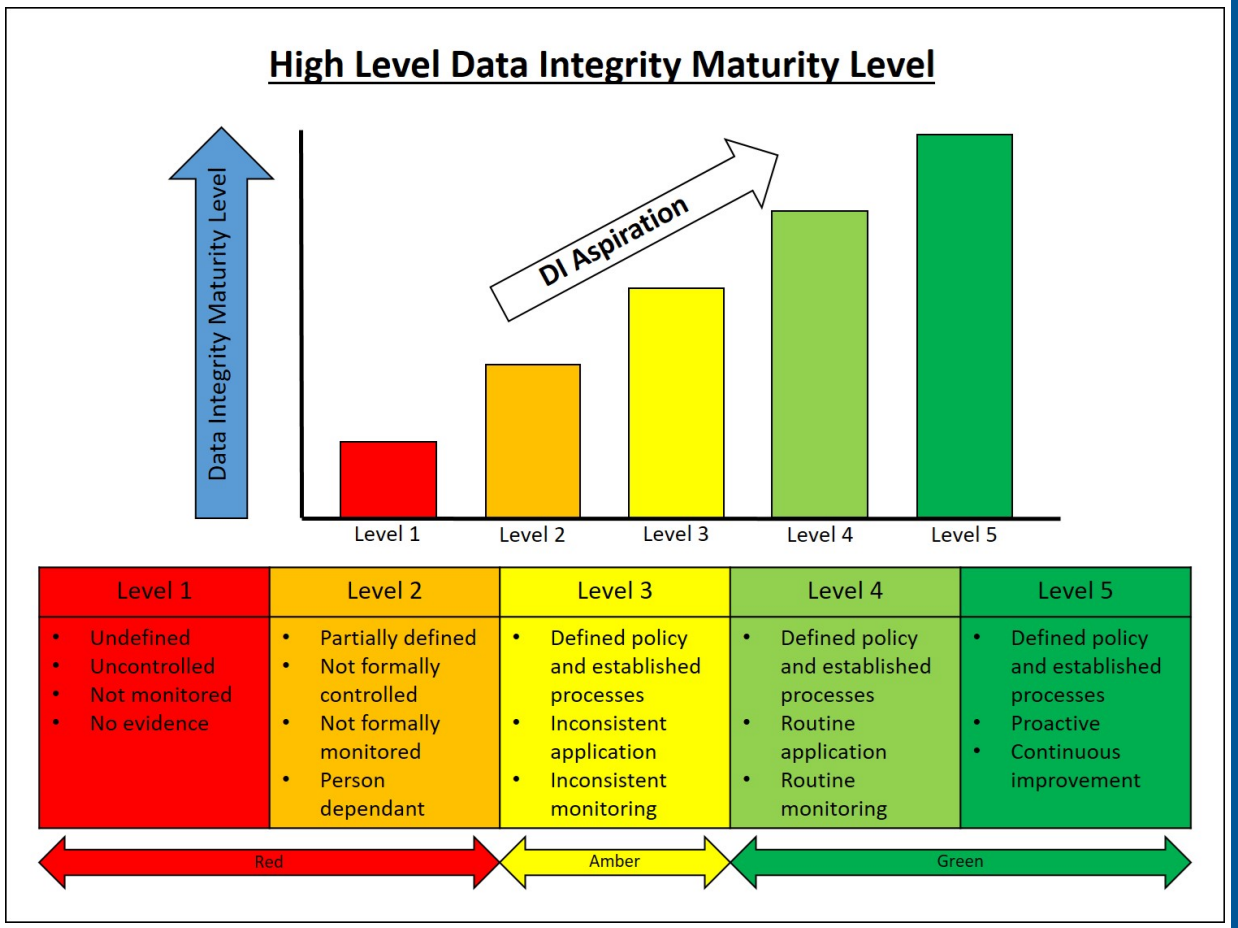


NSF *in partnership with:*

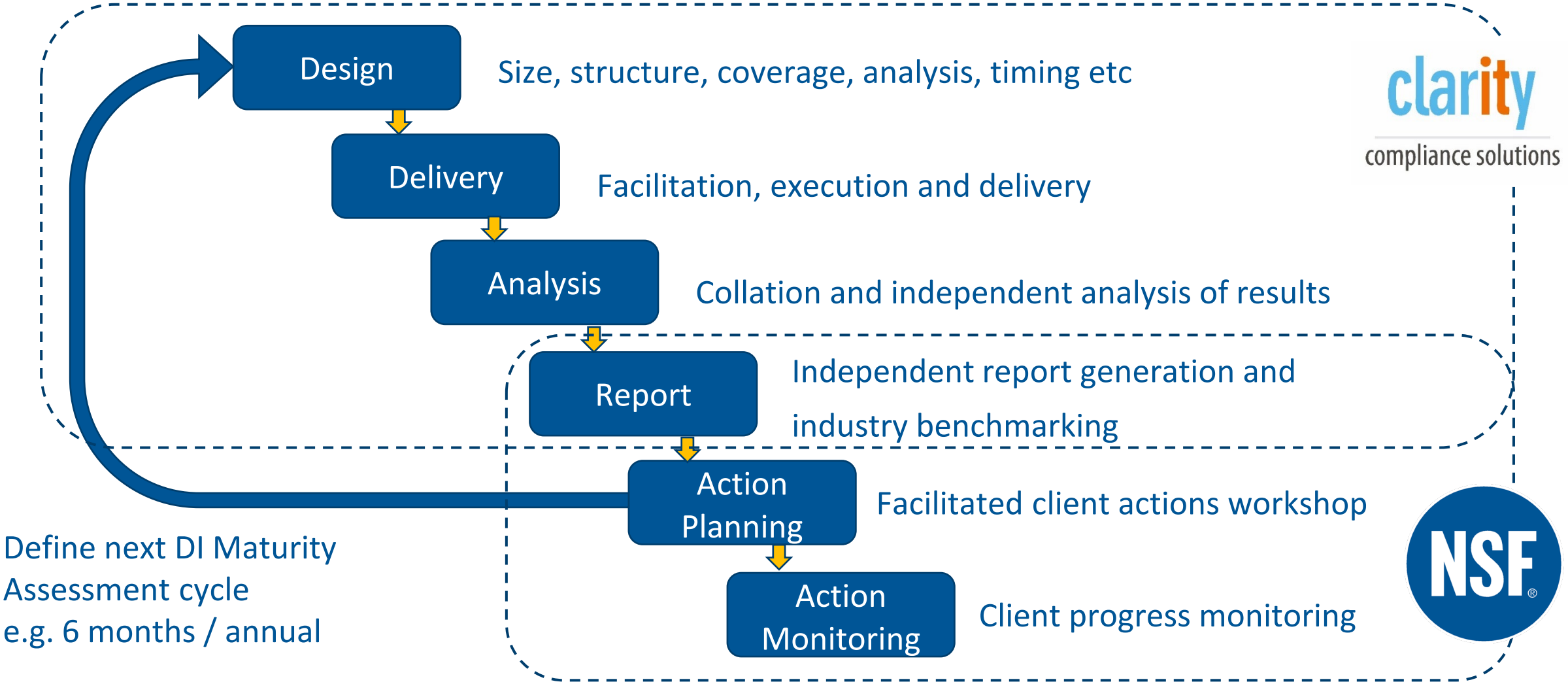
clarity compliance solutions

ISPE GAMP® MATURITY MODEL

- Repetitive process to demonstrate improvements
- Key Topic Areas
  - Culture
  - Governance and Organisation
  - Strategic Planning and Data Integrity Project
  - Regulatory
  - Data Life Cycle
  - Data Life Cycle and Supporting Processes
- 5 Levels (1-5)
- 38 Questions

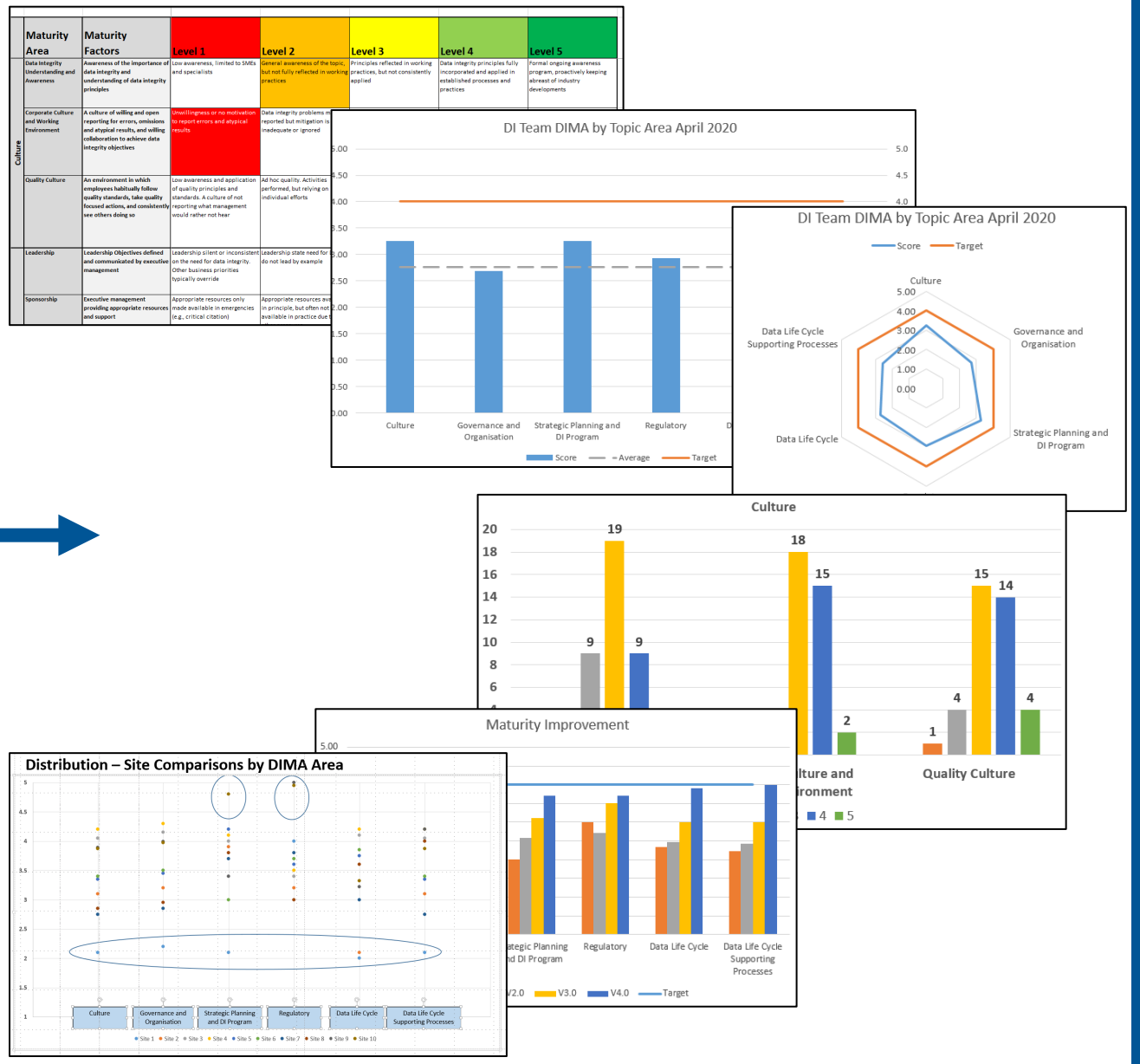


DIMA PROCESS



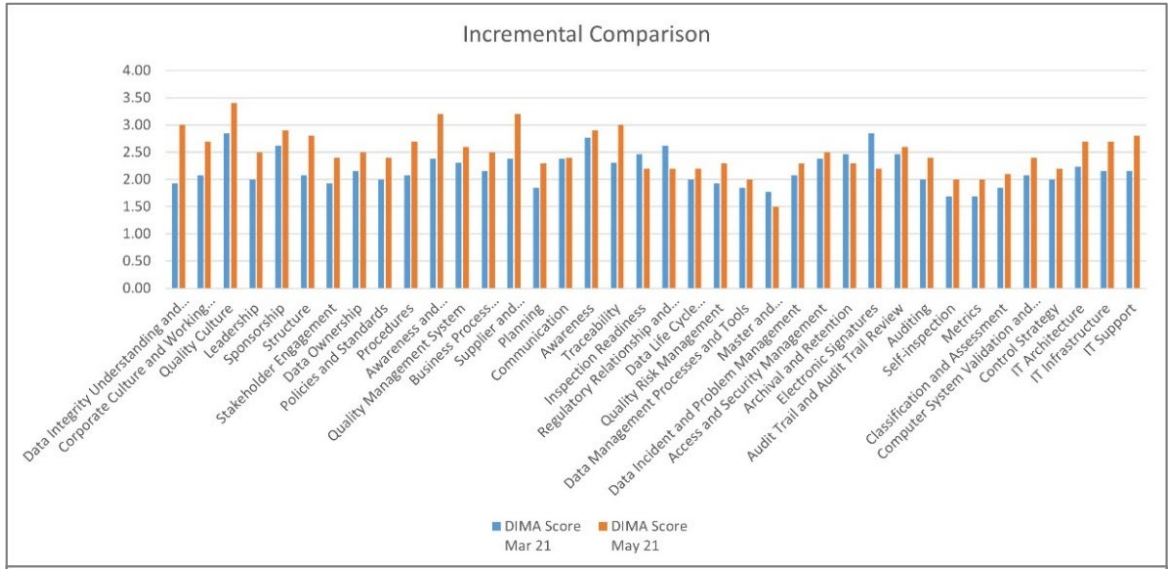
RAPID & INFORMATIVE

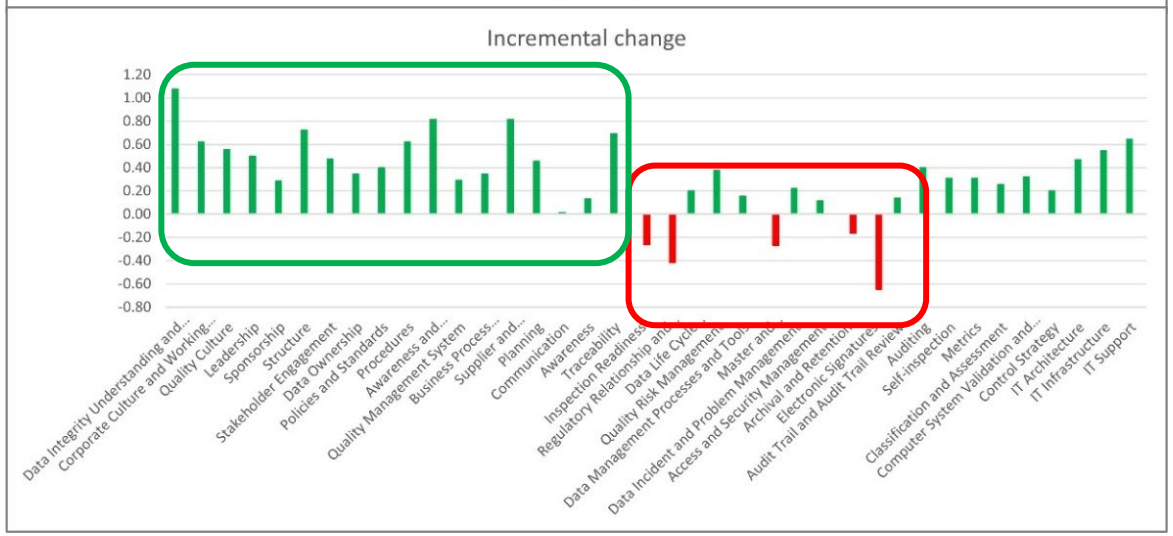
NSF_Taster_DIMA



DEMONSTRATING IMPROVEMENT

- Comparing to previous DIMA
  - DI Improvement
    - Learn and apply
  - DI Reduction
    - Provide attention





- Rehearse for Inspections
  - Show you take DI seriously
  - Show you are improving
  - Show your Data Governance system is comprehensive
  - Show you are on top of DI

FINAL THOUGHTS…

THANK YOU!

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If you would like to know more about the QMM or DIMA services, and how we can help you, please contact:

Dr Samantha Atkinson
Executive Vice President, NSF
satkinson@nsf.org

Why NSF?

Experienced

NSF employees have **significant experience** of working in/with regulatory authorities and in industry.

Professional

We are dedicated to providing **high quality** outputs that **add real value** to an organisation.

Strategic

We look beyond the immediate environment and consider the wider regulatory landscape to provide **tailored advice**.

Flexible & Competitive

We can work onsite, hybrid or remotely, as needed. We offer **best-in-class** services at a **market competitive rate**.

Evidence Based

NSF have **access to leading benchmarking data** to support development of the NSF QMM model.

Track Record

NSF have **successfully used the QMM model** to assess other organisations and provide recommendations for further maturity.

