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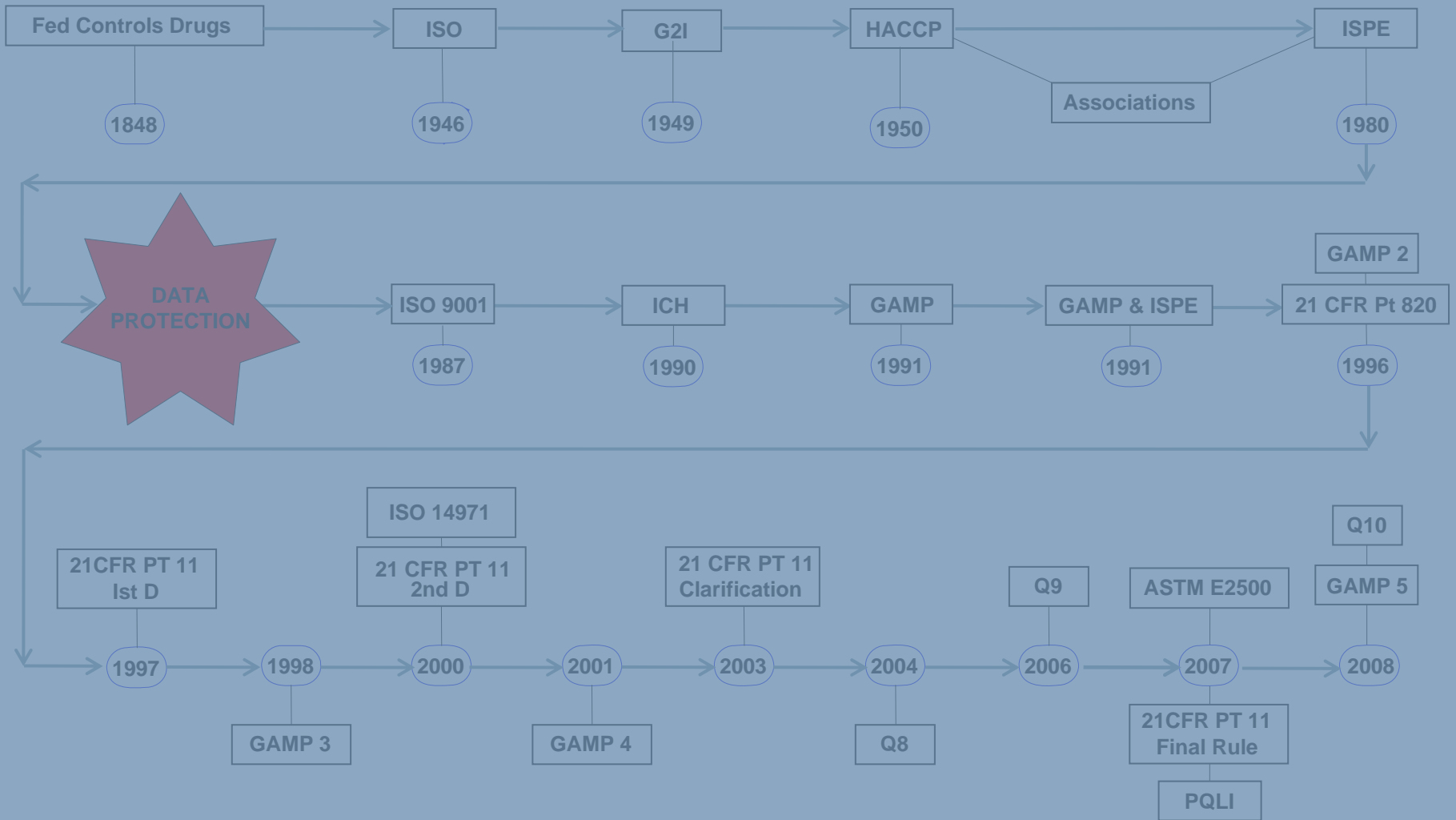
GAMP5 and the Alignment to International Guidelines

FDA's GMP Initiative

Lester M Crawford, FDA Deputy Commissioner, 21st August 2002

- Integration of quality systems and risk management approaches.
- Enhancement of the integration of pre-approval review and cGMP programs.
- Use existing and emerging science and analysis.

Tracing the History



GAMP 5 Background

After over 4 years of re-work GAMP 5 was released in Feb 2008, and is a major rewrite of GAMP 4 with significant changes having as primary goals:

- bringing procedures in line with the dynamic Life Science industry and
- reducing the cost of compliance.

GAMP 5 Drivers

- The need to develop a Guidance that will satisfy the regulatory requirements for CSV
- Scalable approach to GxP Compliance through the complete life cycle
- Drive towards Risk Based Approach
- Effective Supplier Relationships
- Use of Existing Documentation and Knowledge
- Continuous Improvement within QMS
- Quality by Design
- Effective Governance to Achieve and Maintain GxP Compliance

History, Alignment, Application

- GAMP 5 leverages risk management from GAMP 4 and addresses the entire lifecycle of automated systems
- GAMP 5 aligns with major industry developments including PQLI1, ICH Q8, Q9, Q10, and ASTM E2500 and points to the future of computer systems compliance
- GAMP 5 is applicable to a wide range of information systems, lab equipment, integrated manufacturing systems, and IT infrastructures

ASTM E2500

- Based on sound scientific, engineering and quality principles
- Intended to separate business risk from patient safety risk
- Verification is “a systematic approach to prove that critical elements acting singly or in combination are fit for intended use, have been properly installed, and are operating correctly.”
- The standard indicates the approach must be documented, to an extent based on risk.

Semantics

- *Myth 1 – “It’s not validation it’s verification”*
- **Concentrate not on the semantics but on what is to be accomplished**

Focus on Risk!

- *Myth 2 – “ISO14971 is Medical Device and I am Pharma”*
- **So what? A risk is a risk and the methodology and principles remain the same!**

A Note on Risk Management

- Systematic process for identifying, assessing, mitigating, controlling, and communicating risk, based on
 - Good science
 - Process and product understanding
- Zero risk is impractical and unattainable
 - Aim is for acceptable risk
- Aligns with GAMP and ISO 14971
- Aligns with ICH Q9
- GAMP 5 also aligns to ASTM E2500

GAMP – The Core Purpose

- The GAMP guidance aims to achieve computerized systems that are **fit for intended use** and meet current regulatory requirements, by building upon existing industry good practices in an **efficient and effective** manner.

Practical Guidance

- Facilitates the interpretation of regulatory requirements.
- Establishes common language and terminology.
- Promotes a system life cycle approach based on good practice.
- Clarifies roles and responsibilities.

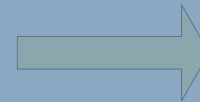
Drivers - Automation



Procedures & Records



Processes & Products



Patients & Consumers

Other Drivers

- **FDA 21st Century Risk & Science Based GMP Initiative.**
- **ICH Q9 – Quality Risk Management**
- **ISPE Product Quality Lifecycle (PQLI) Initiative.**
- **ASTM Standards – E2500 Standard Guide for Specification, Design and Verification of Pharmaceutical and Biopharmaceutical Manufacturing Systems & Equipment.**

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- FDA 21st Century Risk & Science Based GMP Initiative.
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ICH Q9 – Osaka 03 – Chicago 05

- Principles of Risk Management
- Responsibilities
- Initiating a QRM process
- Risk Assessment
- Risk Factors
- Tools

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ISPE - PQLI

- The ISPE “Product Quality Lifecycle” Initiative for the implementation of Q8, Q9 & Q10.
- ‘Quality by Design’ – QbD
“Quality should be built into a product as opposed to being tested for after manufacture”

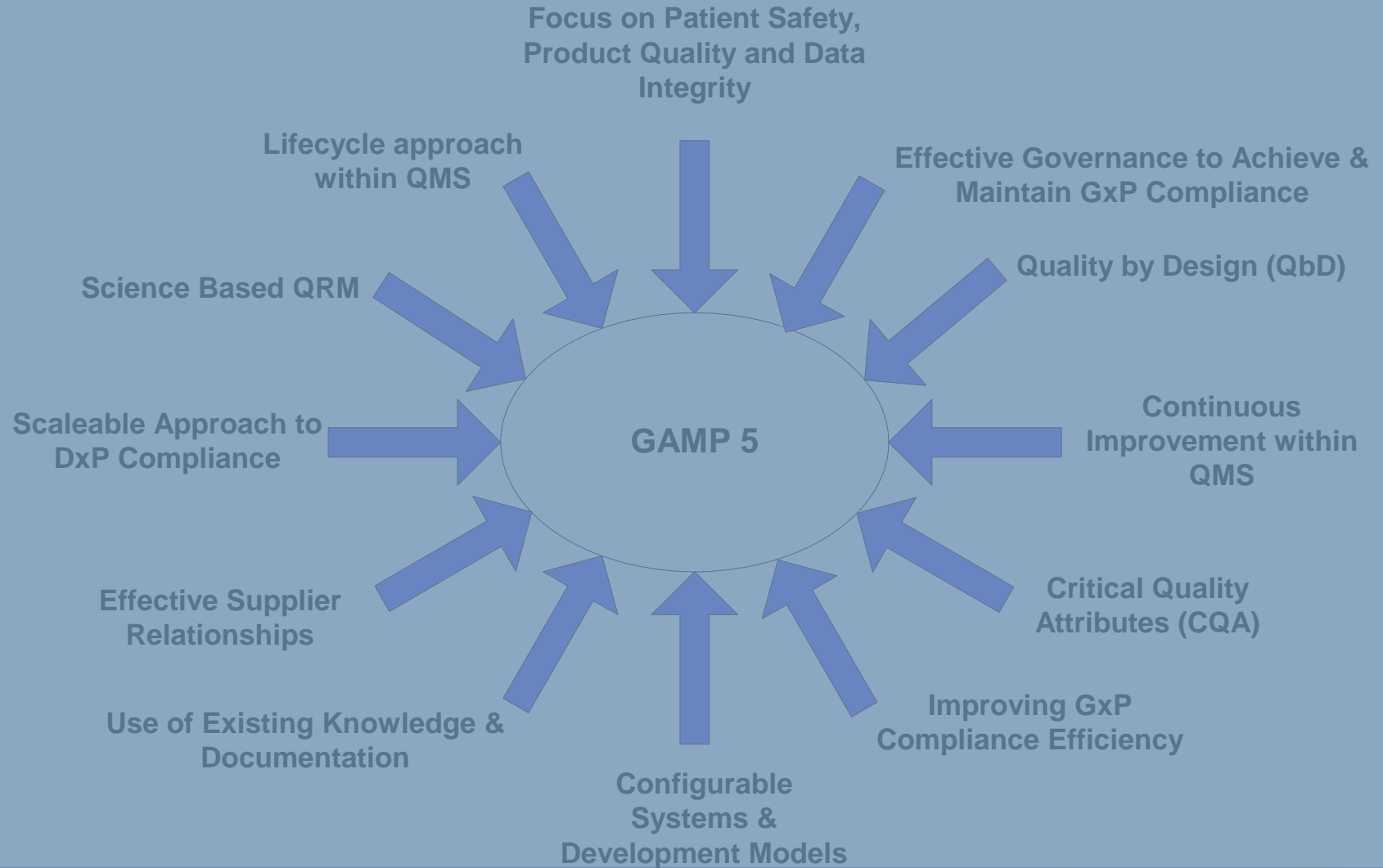
ASTM – E2500

- High Cost of Qualification
 - Due to lack of understanding of the ‘spirit’ of cGMPs.
 - Was the equipment installed properly?
 - Do they operate properly?
 - Do they meet the requirements?
 - Do they control risk to product quality?
 - Will they support process validation?
- ‘FIT FOR INTENDED USE’

E2500 – Breaking the Chains

- Force by Terminology?
- The Role of Quality
 - Ensure critical aspects and associated acceptance criteria have been identified.
 - SME's on the application Quality principles.
 - Final Determination

Many Drivers



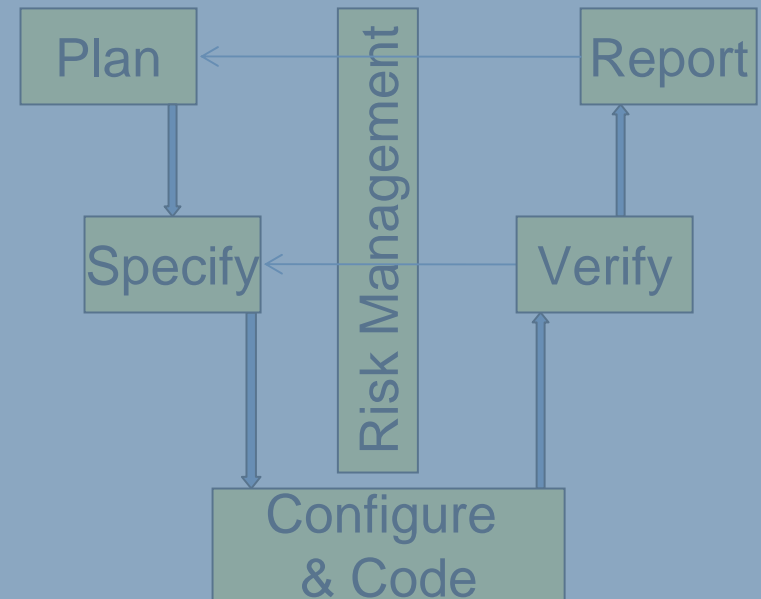
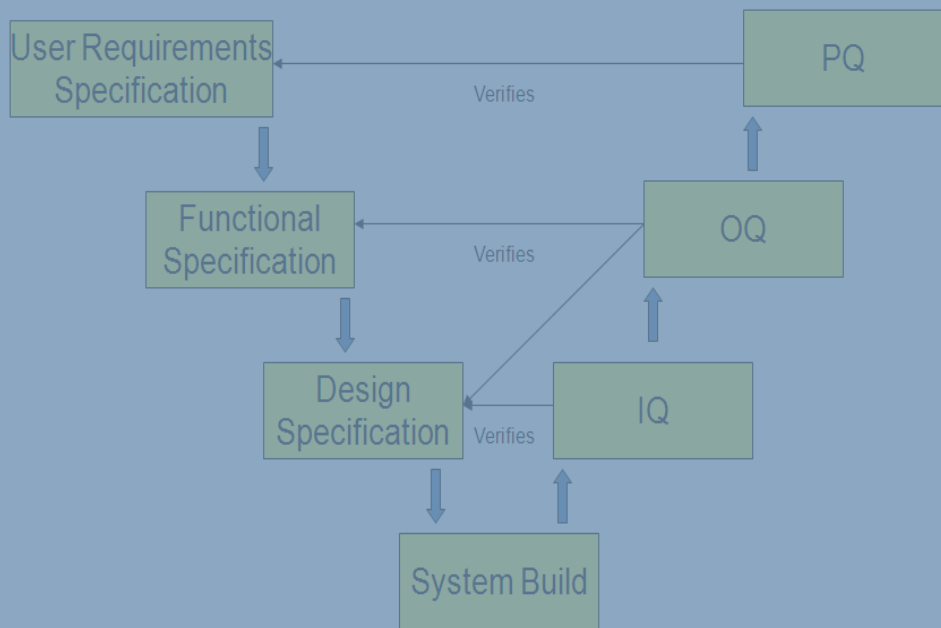
KEY CONCEPTS

- Lifecycle Approach within QMS
- Scalable Lifecycle Activities
- Process and Product Understanding
- Science Based Quality Risk Management
- Leveraging Supplier Involvement

Real Examples of Benefits

- The number, scope & naming convention for project deliverables are standardized.
- The variability in size of key specification documents has been reduced in magnitude.
- Number of project roles reduced by as much as 50%
- Reduction in the number of approvers by as much as 54%
- Procedures are easier to use (better written, simplified, use of standard templates)
- Average time to review documents reduced by as much as 34%
- Number of document versions needed before finalization down by as much as 45%
- Validation is easier to audit and inspect
- Validation costs now down to 2-5% of project.

The GAMP “V” Model



E2500 Process & GAMP 5



Ten Principles

1. Focus on what affects product quality.
2. Requirements are key to acceptability.
3. Risk assessments to identify critical features.
4. Focus on critical features for formal qualification
5. All activities must contribute value.
6. Different systems & equipment require different levels of attention.
7. Documents must serve a useful purpose.
8. Leverage Supplier documentation.
9. Test planning
10. Foster Innovation

Global Trends

The image displays a central diagram with a triangle. The left side of the triangle is labeled "Medical Device", the right side is labeled "Pharmaceutical", and the bottom side is labeled "Bio-Technology". In the center of the triangle is a box containing the "Gamp" logo.

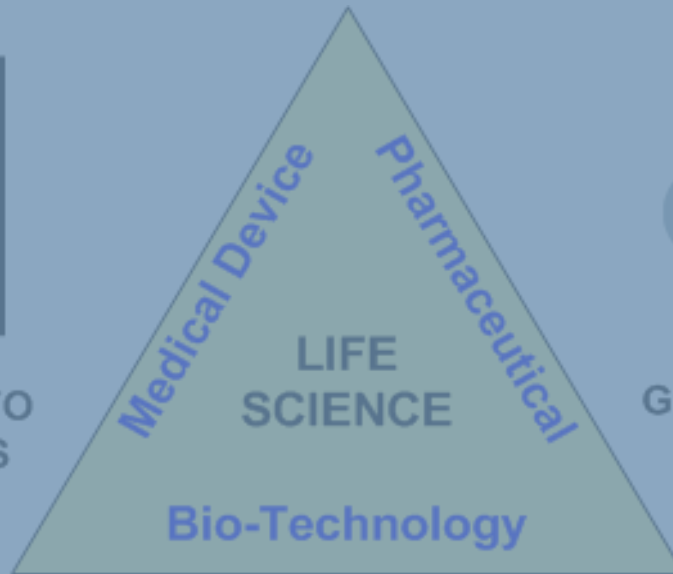
Surrounding this central diagram are numerous logos of regulatory agencies and organizations from various countries and regions:

- ANMAT** (Administración Nacional de Medicamentos, Alimentos y Tecnología Médica)
- Ministério da Saúde**
- 厚生労働省** (Ministry of Health, Labour and Welfare)
- MINISTERIO DE SALUD** (Chile)
- Ravimiamet** (State Agency of Medicines)
- 中華人民共和國香港特別行政區政府** (The Government of the Hong Kong Special Administrative Region of the People's Republic of China)
- DEPARTEMEN KESEHATAN REPUBLIK INDONESIA**
- Ministry of Health** (Sweden)
- Health Canada / Santé Canada**
- SFDA** (State Food and Drug Administration, P.R.China)
- Australian Government Department of Health and Ageing Therapeutic Goods Administration**
- BfArM**
- World Health Organization**
- MHRA**
- FDA**
- SWISSmedic**
- European Medicines Agency (EMA)**
- bmsk: SOZIALES UND KONSUMENTENSCHUTZ**
- federal public service HEALTH, FOOD CHAIN SAFETY AND ENVIRONMENT**
- State Institute for Drug Control**
- LÆGEMIDDEL STYRELSEN DANISH MEDICINE AGENCY**
- LAAKELAITOS LÄKEMEDELVERKET NATIONAL AGENCY FOR MEDICINES**
- afssaps**

Industrial Trends



COMPLIANCE TO
REGULATIONS



GUIDELINES & GOOD
PRACTICES



SUBJECT MATTER
EXPERTIZE

Summary

- GAMP 5 is evolutionary, not revolutionary.
- It aligns with ASTM E2500 and the global regulatory movement to push the Risk Management process throughout the lifecycle.
- When established within a business GAMP 5 provides cost effective measures for implementing systems within the Life Science industry.

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