



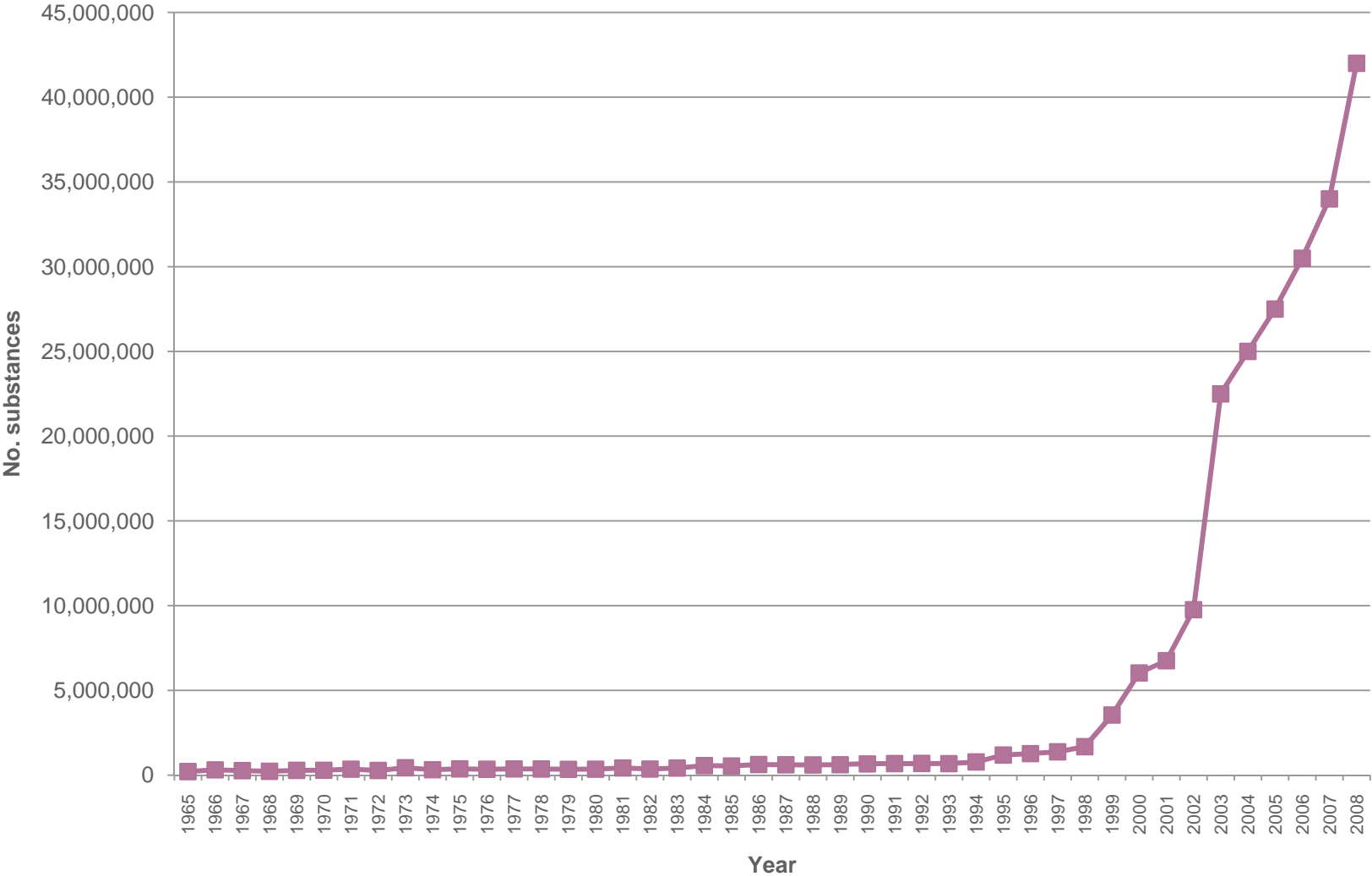
Stakeholders Perspective on Emerging Risks

John O'Brien
Nestlé

Complexity: Number of chemical substances

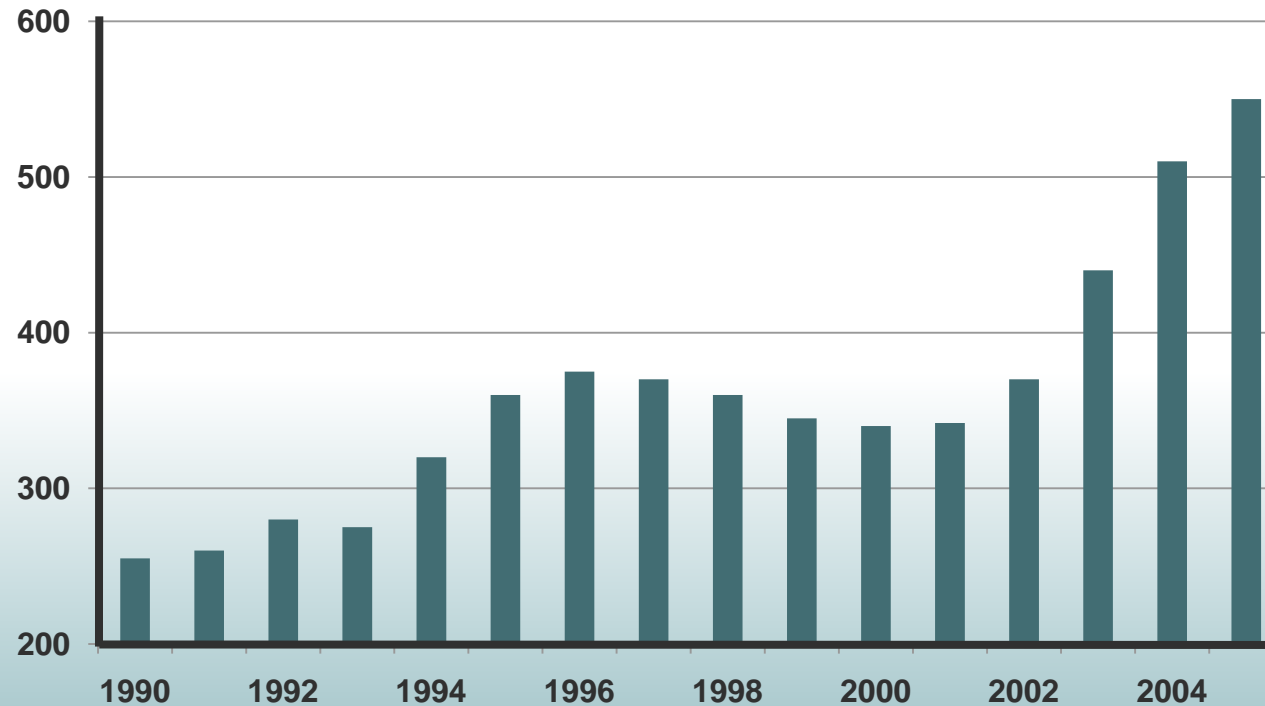
- CAS (Chemical Abstracts Service) Database
 - organic, inorganic & biosequence substance information
- CAS registry numbers
 - unique
 - can be validated quickly and reliably
 - internationally recognized
- registry of substances 1957- present
 - some going back to early 1900s
 - ~ 12,000 new substances added per day
 - **55 million** unique organic and inorganic substances listed (Oct 2010)

Complexity: CAS registrations 1965-2008



Complexity: Regulations & Global Trade

World food exports (billions US\$)



Source: Food and Agriculture Organization of the United Nations

More than:

- 1 000 maximum limits for food additives and contaminants
- 3 000 maximum residue limits for pesticides and veterinary drugs

Source: Codex Alimentarius Commission

Factors influencing the emergence of new food risks

- Growing complexity of the global food supply
- Differences in regulatory controls throughout the global supply chain
- Longer supply chains and more rapid distribution
- Fluctuations in commodity prices
- Developments in analytical science
- Consumer demands
- Differences in consumer vulnerability to foodborne hazards
- Growth in use of agricultural land for other uses (eg crops for biofuels, pharmaceuticals)
- Climate change
- Differences between risk perception by groups in society and scientific risk assessment

Pitfalls in the handling of emerging risks and food safety incidents

- Limited data availability and quality
- Differences in problem formulation
- Time required to conduct risk assessments
- Differences in risk management and communication
- Possibility of risk management decisions driven by available data in advance of analysis of data suitability, strengths, weaknesses, gaps
- Possibility of undue weighting given to hazard data
- Imbalance in the pace of developments in risk analysis and new analytical science tools
- Gaps in harmonization of analytical methods

Horizon Scanning: Two caveats

1. *Information is not knowledge*

Einstein

2. *The illusion of understanding..how everyone thinks he knows what is going on in a world that is more complicated than they realize.*

Taleb, in the Black Swan

Industry measures to address emerging risks

- Early warning systems: awareness through expert networks, literature and web scanning and communication with buyers, suppliers, others
- Targeted surveillance programmes
- Targeted research projects
- RASFF and other alerting tools
- Food Safety Management Plans
- Trade association working groups

Handling of Emerging Risks: Industry activities (CIAA)

- Food Safety Management Group
- Incident Management Group
- Food Safety Platform

CIAA Incident Management Group

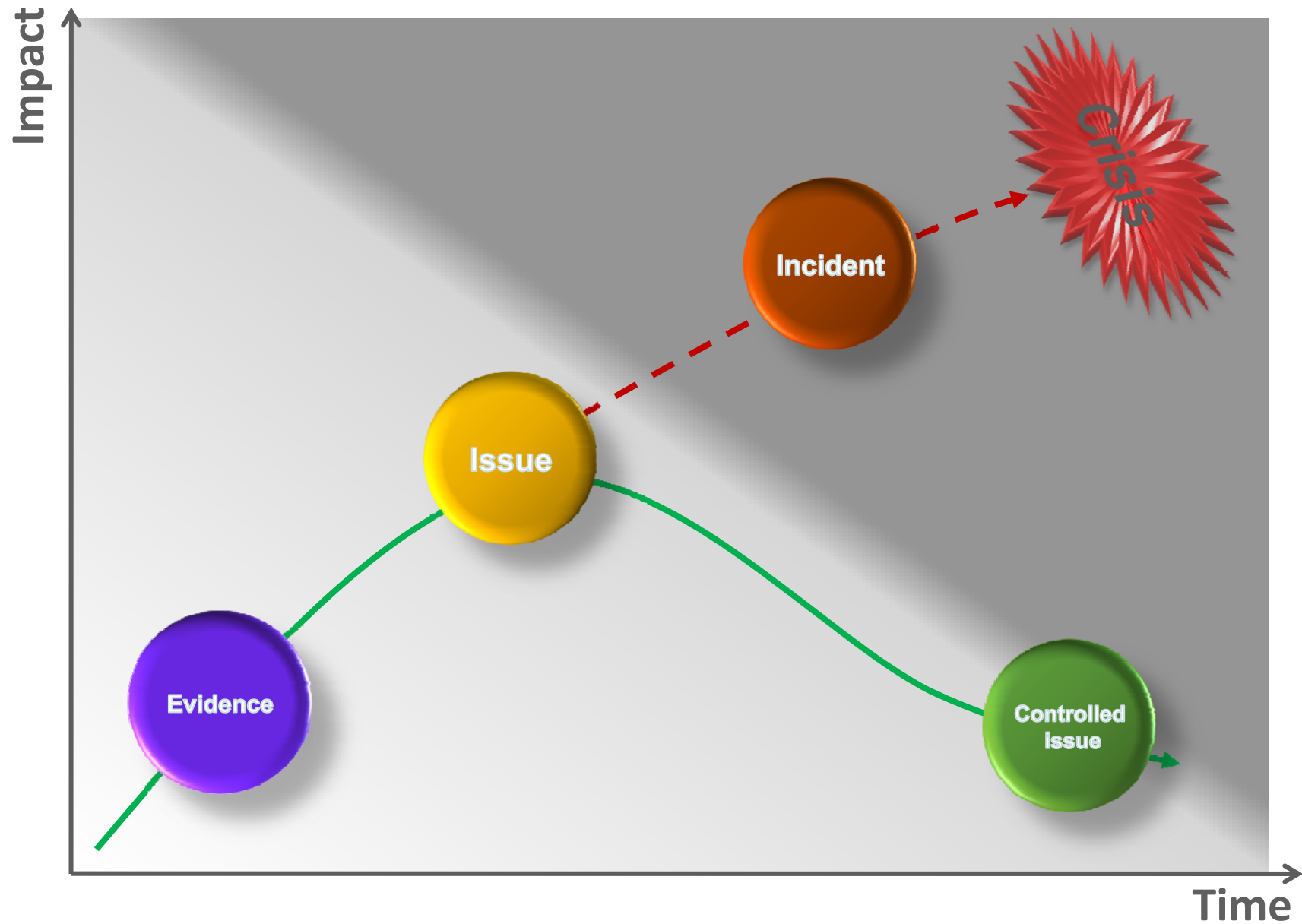
- Only food safety risks
- Only industry-wide issues (not single company)
- Emerging issues when there are limited data and in the absence of specific regulations
- Consumer/media perceived risk
- Rapid response (within 48 hours)
- Communication with the European commission and other public bodies

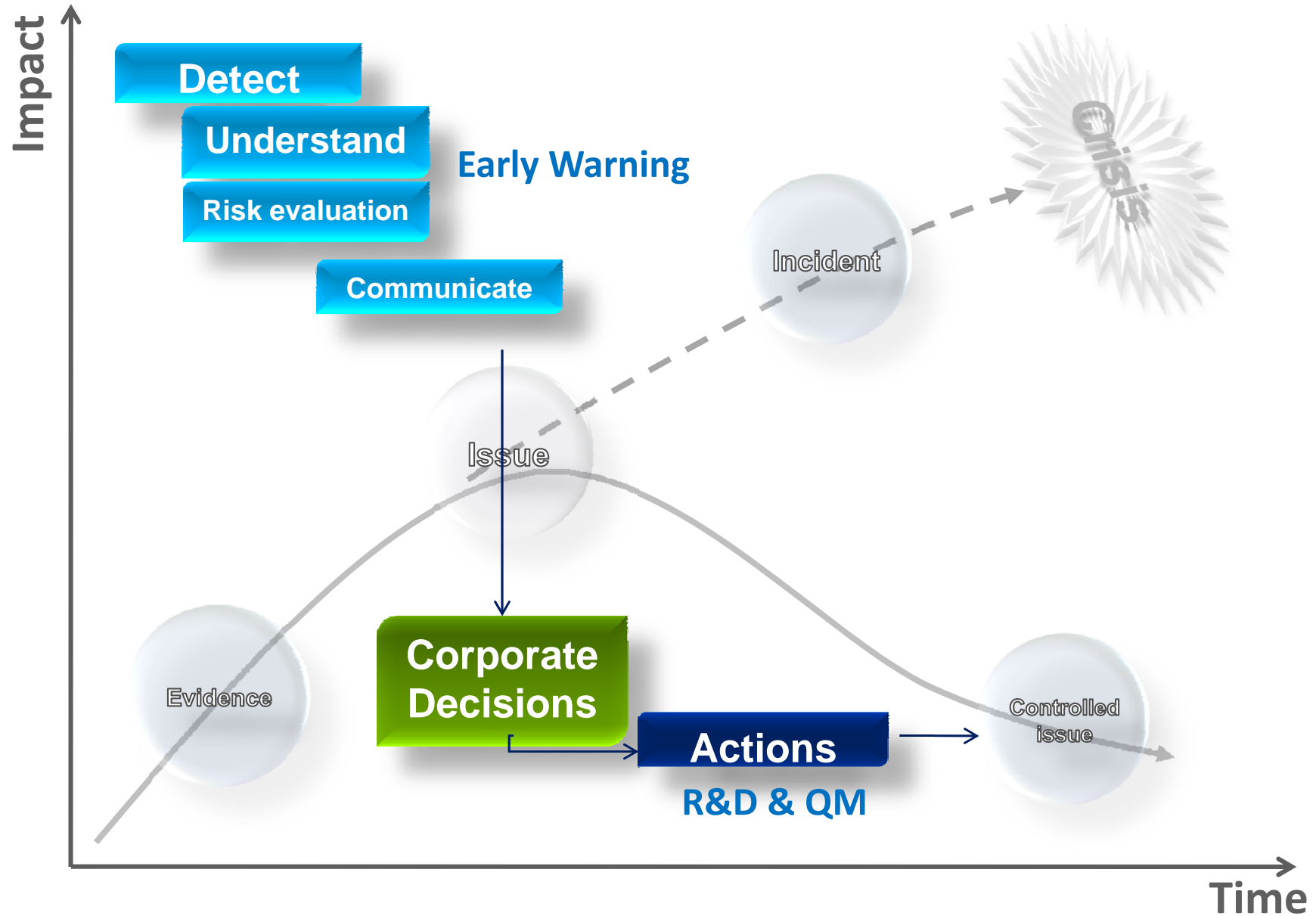
Scientific tools for rapid assessment of emerging risks

- Qualitative and (semi)-quantitative approaches such as TTC, MOE,
- Computational toxicology and quantitative microbiology tools
- Risk-Risk and Risk-Benefit assessments where appropriate
- Hazard-based high-throughput in-vitro screens
- New analytical technology



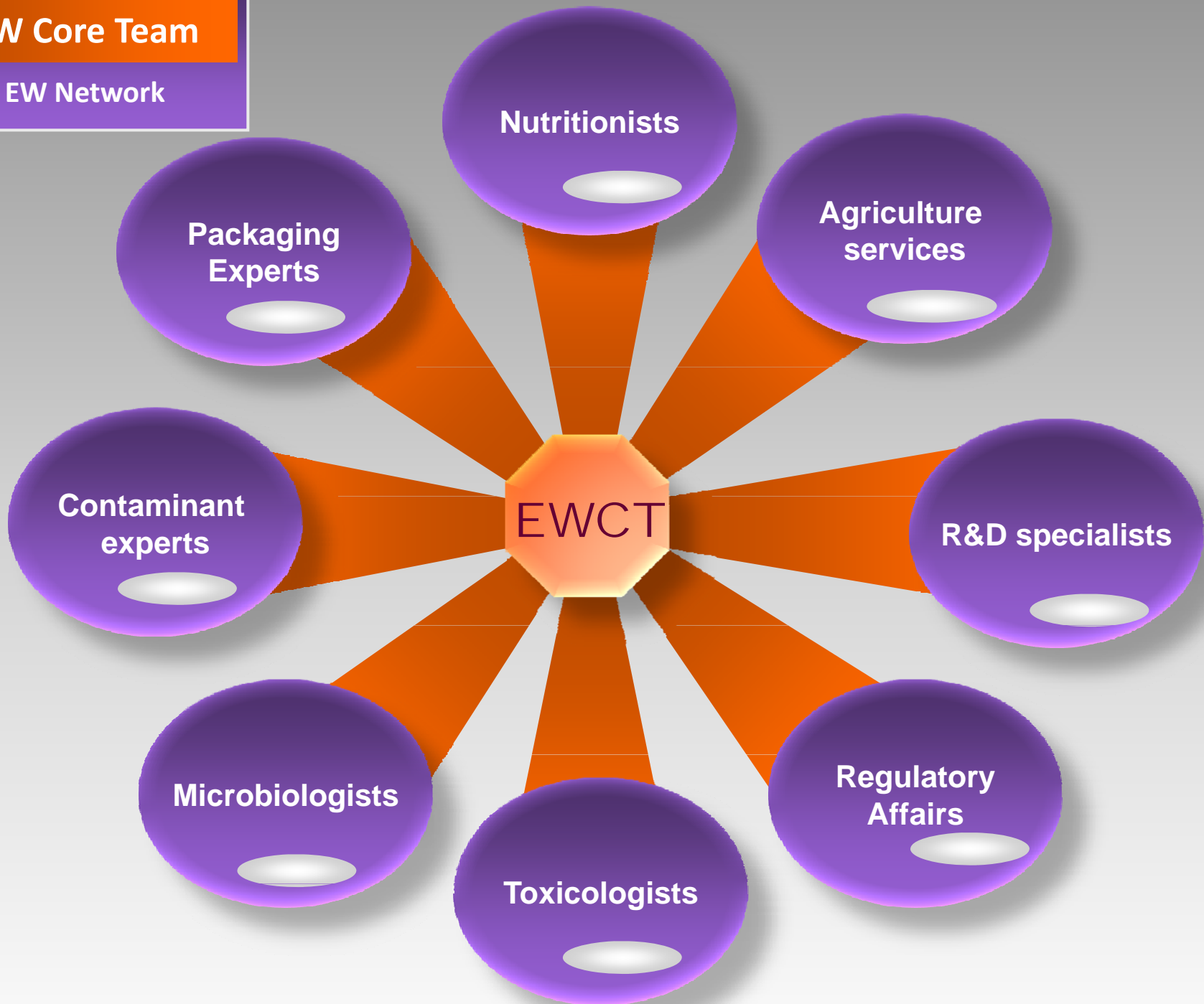
- GOAL: BETTER/FASTER MANAGEMENT OF RISKS





EW Core Team

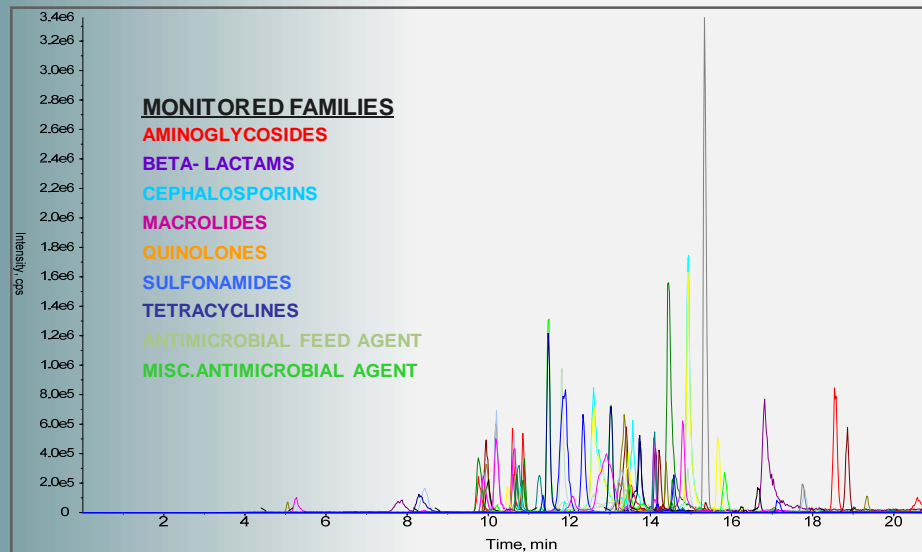
EW Network



New Technology: e.g. Multiscreening by TFC-MS/MS

Skimmed milk powder

79 Analytes spiked at 50 µg/L



- Analysis of 79 veterinary drug compounds belonging to 8 families of antibiotics
- Screening at MRPL 4-10 µg/L for a large majority of analytes and 100-200 µg/L for aminoglycosides

- Validation according to EU recommendations: - Commission Decision 2002/657/EC
- CRL Guidelines 2010
- Positive samples confirmed in a second injection (standard addition)
- Method applicable to skimmed milk powder and infant formula

Golden Rules

- Networking to understand food chain vulnerabilities
- Ensure access to necessary risk assessment and analytical expertise
- Application of validated FSMPs ensuring compliance with current standards
- Verification programmes including supplier audits
- Prompt review/root-cause analysis of incidents coupled with continuous improvement programmes
- Targeted contaminant surveillance plans

Emerging Risks: Challenges

- Risk Communication
- Difficulty to prioritize food safety concerns (absence of tools, acceptability of approaches)
- Ensuring risk management measures proportionate to risk
- On-going lack of harmonization of approaches internationally
- Absence of food safety alerting systems in many regions of the world
- Limited food consumption data for many regions of the world



An ounce of prevention is worth a pound of cure

Benjamin Franklin