25 YEARS
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International SEMATECH e-Diagnostics Program

www.sematech.org/public/resources/ediag/index.htm

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INTERNATIONAL SEMATECH

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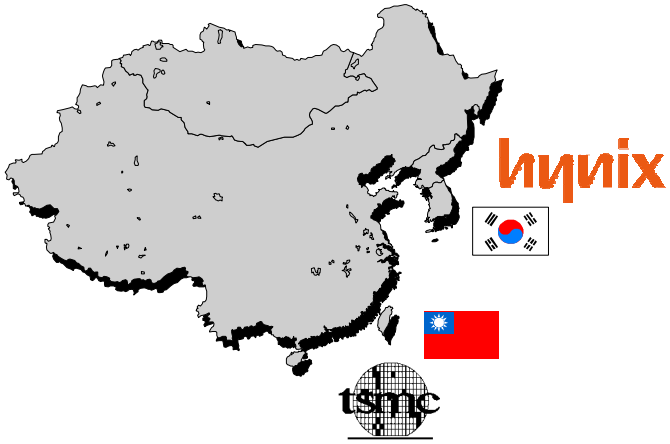
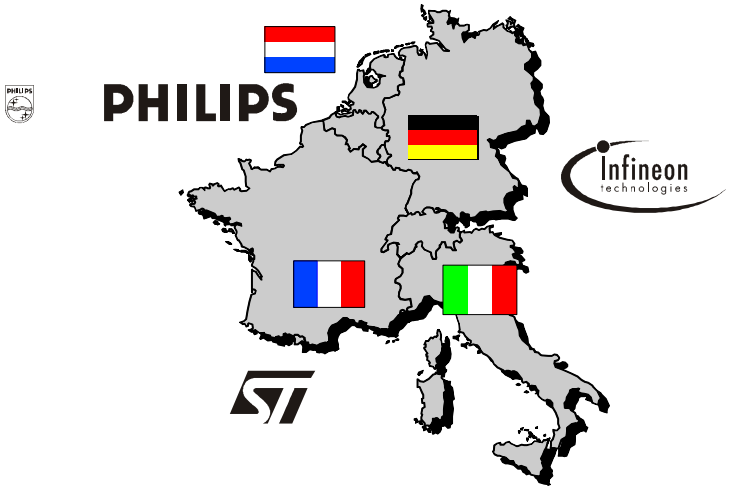
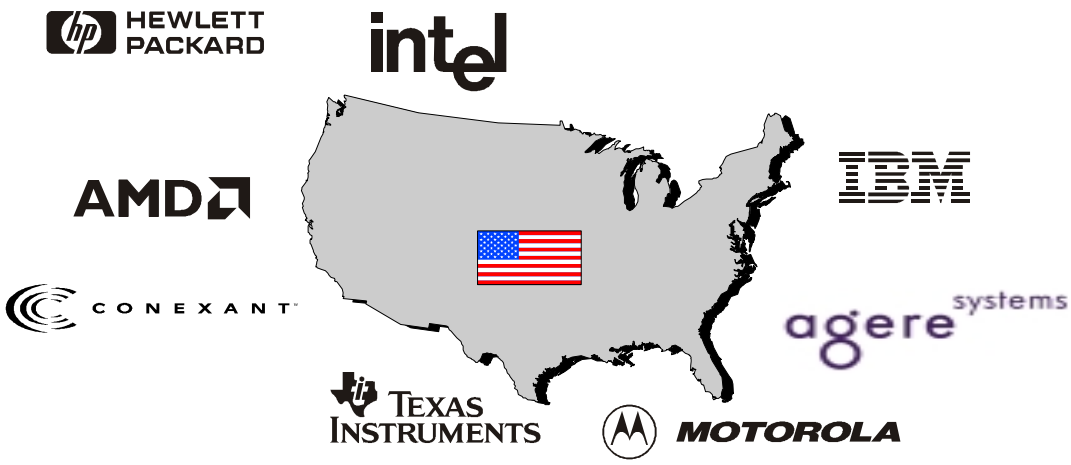
13 IC Makers Cooperating







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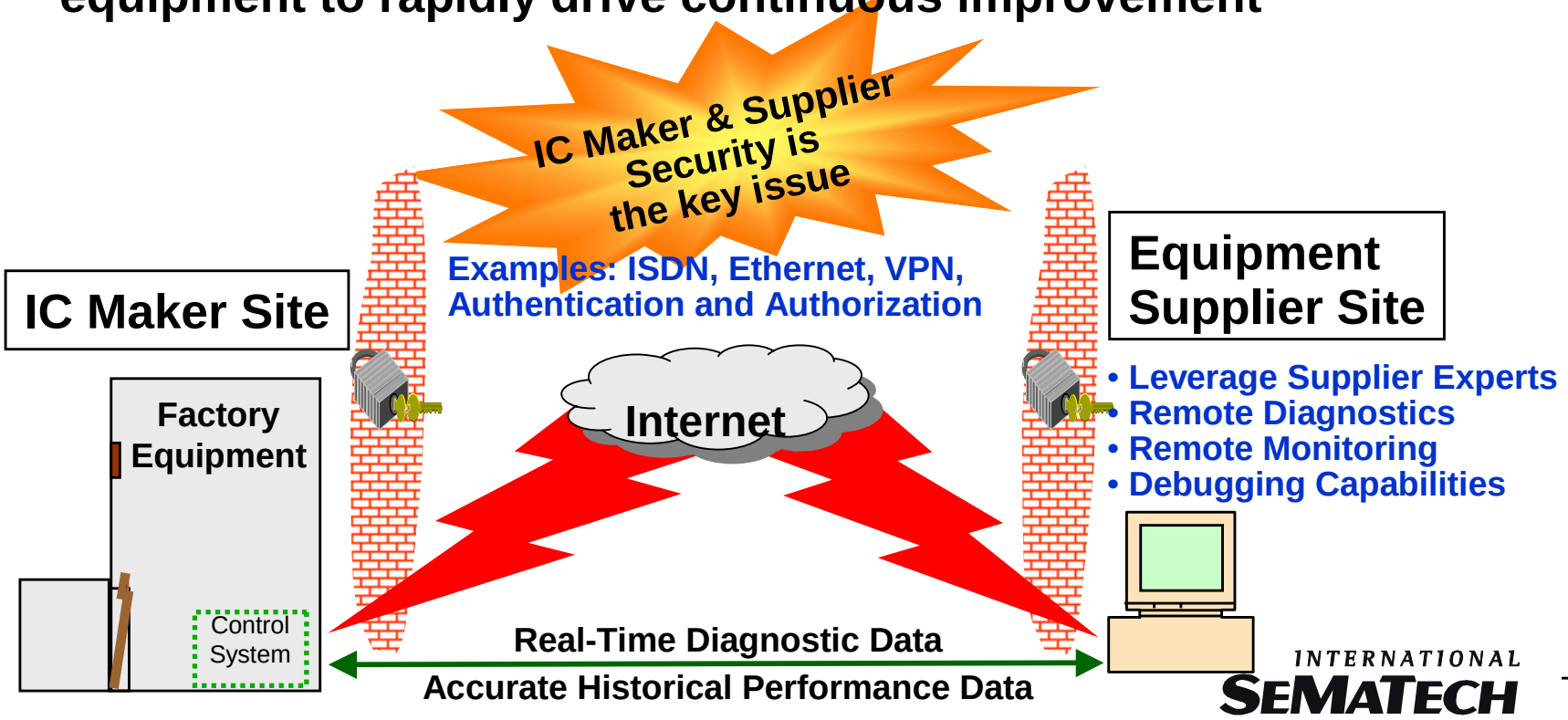
e-Diagnostics Overview

- **Remote monitoring & diagnostics allow supplier experts to rapidly fix factory equipment issues from their sites**
- **Time to money – Remote diagnostics enable IC makers and Equipment suppliers to reduce upfront Install and Qual durations**
- **Suppliers need accurate historical performance data from factory equipment to rapidly drive continuous improvement**



e-Diagnostics Working Group

MISSION:

Create guidelines

share best practices

drive commercialization of open architecture

Internet-based access for suppliers to ...

monitor equipment

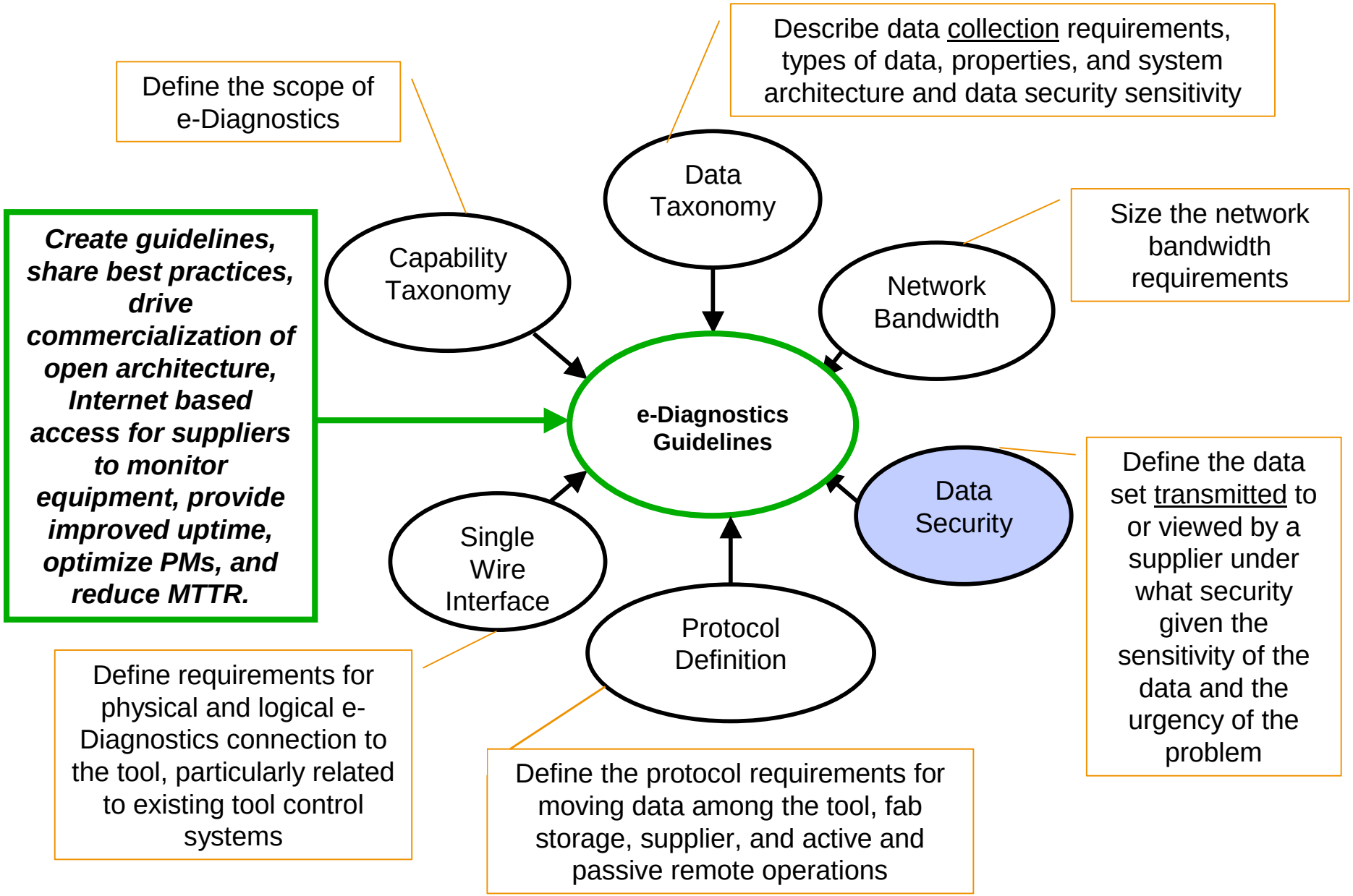
provide improved uptime

optimize Predictive Maintenance

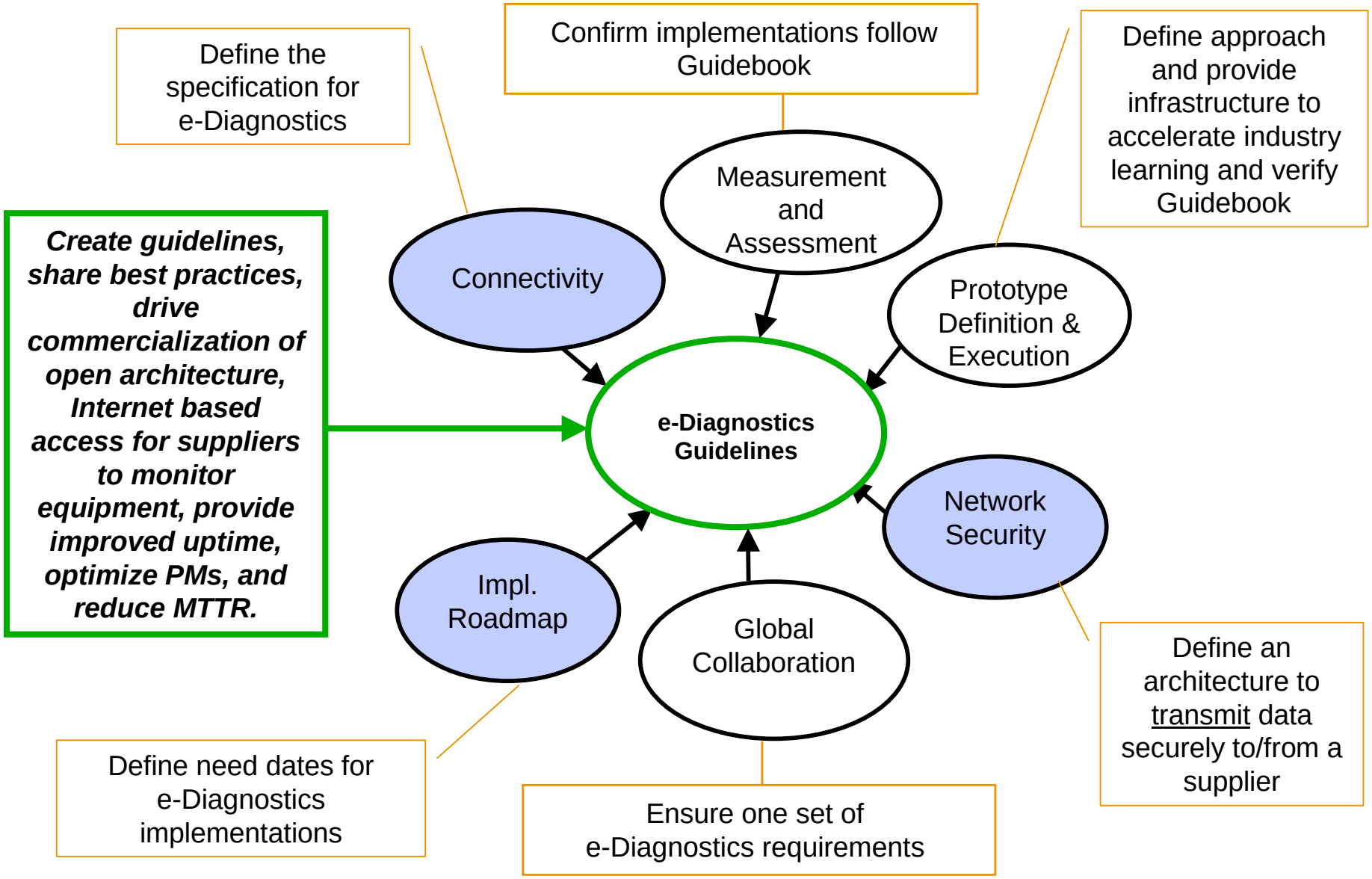
and reduce Mean-Time-To-Repair

e-Diagnostics Progress and Participation

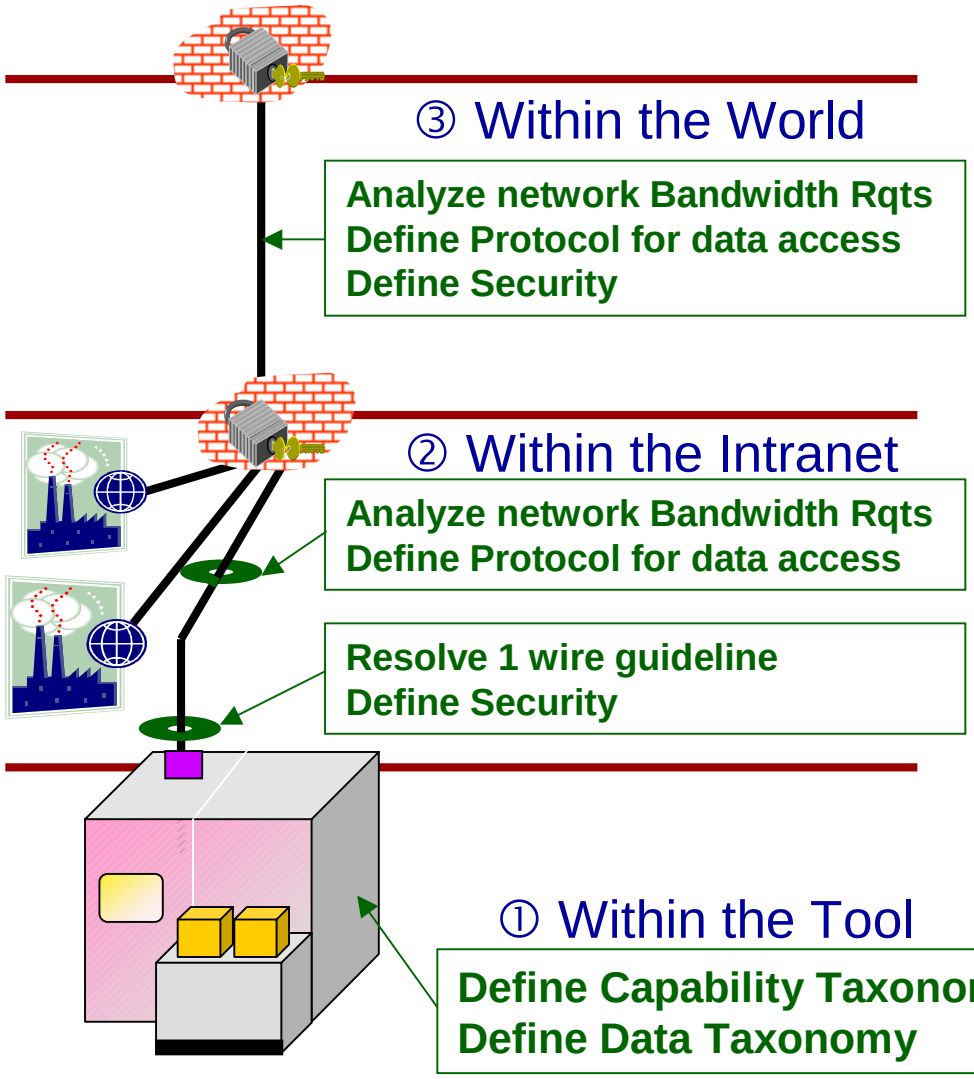
How do the Original Teams fit?



How do the New Teams fit?



e-Diagnostics Capability Definition



③ Predictive / Preventative Maintenance

- **Automatic identification of pending failures by the process tool**
- **Automatic action of tool to fix the issue**

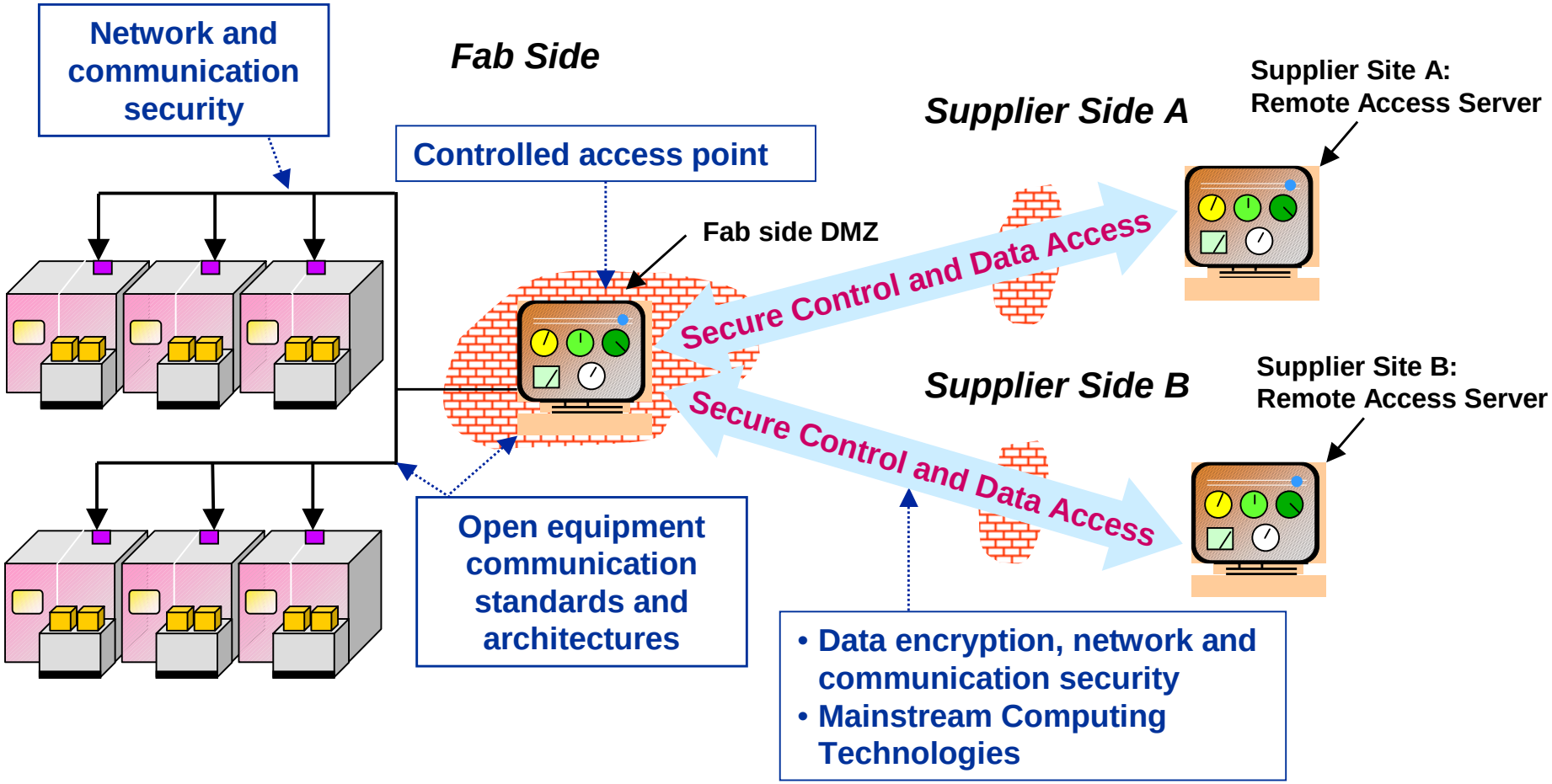
② Proactive Monitoring

- **Monitor leading indicators / summary data**
- **Some external system or people analyze the data and predict future tool behavior**

① Reduce MTTR

- **Basic remote access to tool data**
- **Equipment experts can review and analyze 'raw data' from anywhere in the world**

ISMT e-Diagnostic Guidelines



Full guideline document available at:
http://www.sematech.org/public/resources/ediag/index.htm

ISMT e-Diagnostic Capability Definitions

Level 3 - Prediction:
Predictive Maintenance, Self Diagnostics, Automated Notification

Level 2 - Analysis:
Automated Reporting and Advanced Analysis with SPC capability

Level 1 - Collection and Control:
Remote Tool Operation, Remote Performance Monitoring, Remote Equipment Configuration

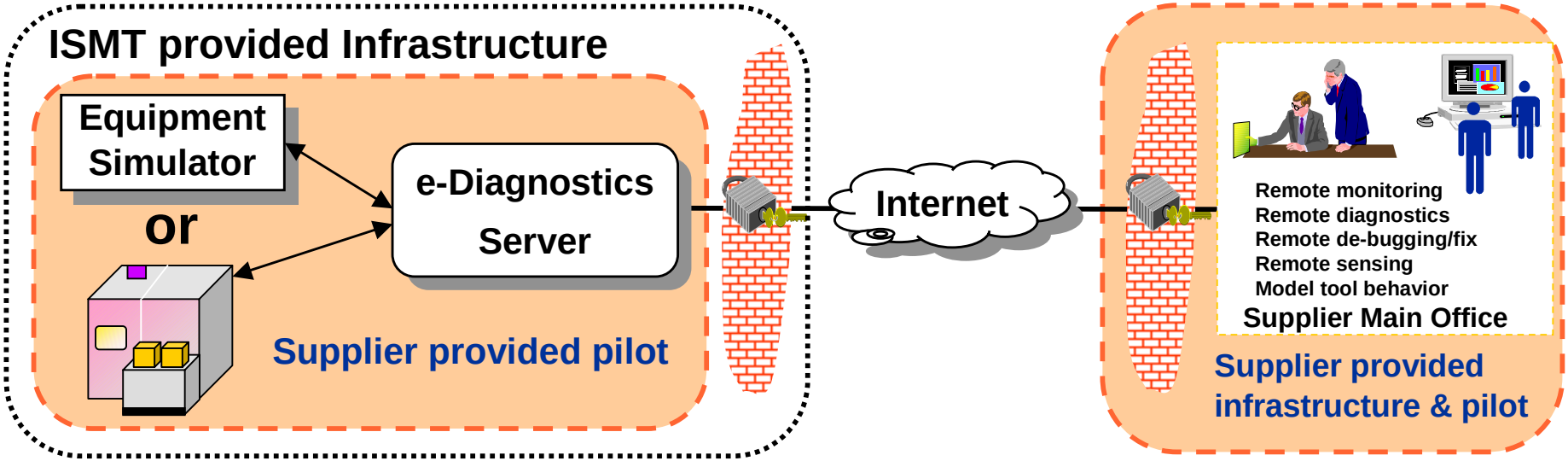
Level 0 - Access and Remote Collaboration:
Remote connectivity to the tool and remote collaboration capabilities (text, audio, video)

Full capability definition document available at:
http://www.sematech.org/public/resources/ediag/index.htm

e-Diagnostics Deliverables

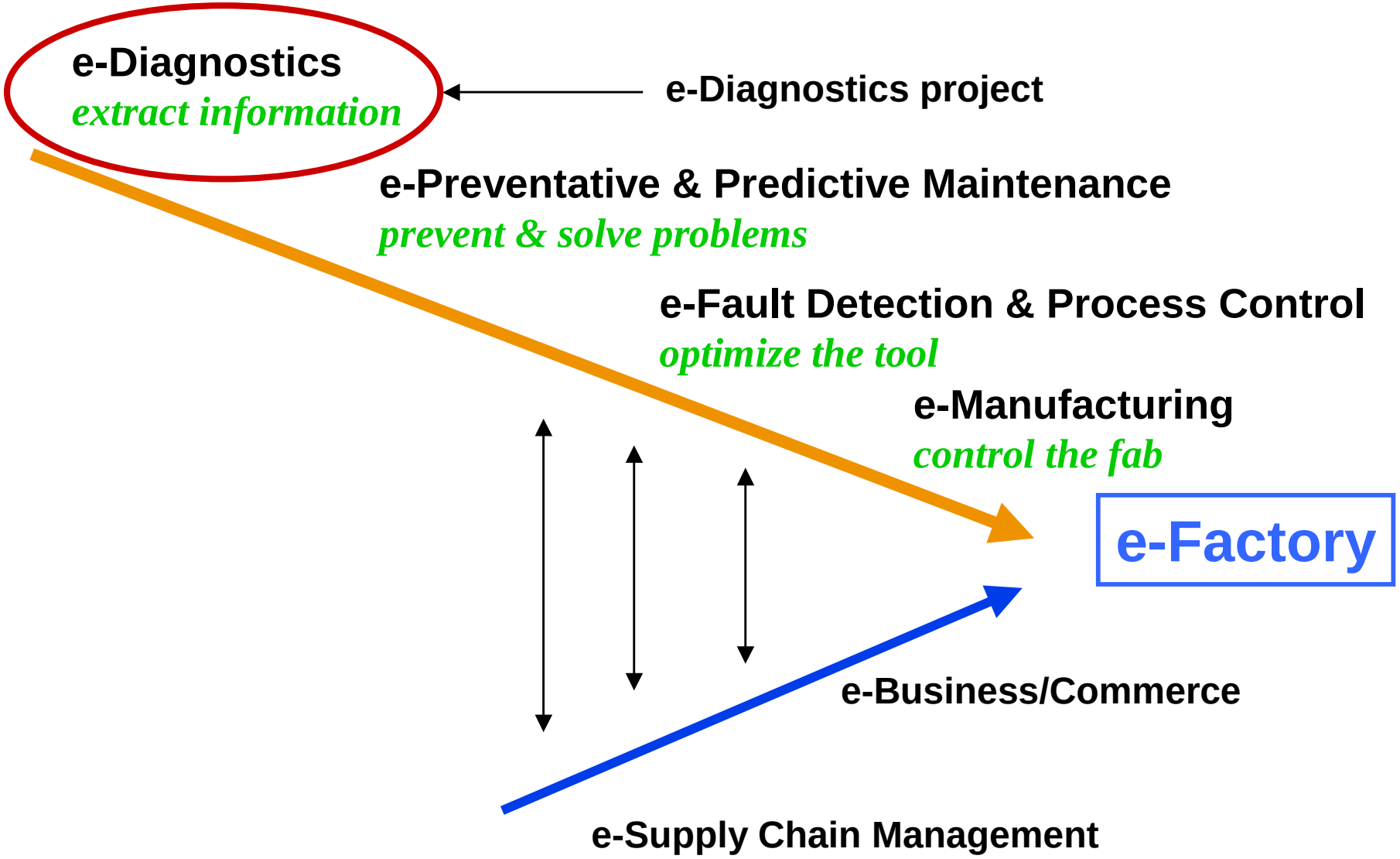
- Key Program Outputs
  - ✓ e-Diagnostics Guidelines 06/29/00
  - ✓ e-Manufacturing included in the ITRS 07/10/00
  - ✓ IT Security Council Guidelines 08/24/00
  - ✓ SEMICON SW seminar, e-Diagnostics Guidebook 10/19/00
    - ✓ Network Bandwidth requirements 08/03/00
    - ✓ Data Definition 08/24/00
    - ✓ e-Diagnostics Capability Definition 08/24/00
    - ✓ e-Diagnostics Protocol Definition 10/05/00
  - ✓ SEMICON Japan workshop 12/05/00
  - ✓ Validation / Proof of Concept plans 12/20/00
  - ✓ Initiate SEMI standards activity 03/22/01
  - ✓ LaJolla seminar, e-Diagnostics Guidebook update 03/23/01
    - ✓ Data Security Model 01/11/01
  - – SEMICON Europa seminar 04/25/01
  - – Measurement and Assessment Method 06/30/01
  - – SEMICON West seminar, EEC Guideline Rollout 07/16/01
  - – C/Prototyping at ISMT, Report 09/30/01

e-Diagnostics Prototype



- **ISMT Provides**
  - Network infrastructure, internal firewall, hosts pilot activities
- **Supplier Provides**
  - Equipment simulator or tool, e-Diagnostics pilot, remote pilot
  - Must include OEM, but may also include 3rd party
- **e-Diagnostics Working Group provides**
  - Prototype (Guidebook) evaluation criteria, evaluation results

Path to e-Factory - ISMT



e-Diagnostics Summary

- **e-Diagnostics is an outstanding ISMT example of IC makers and suppliers working together on a win-win initiative**
  - e-Diagnostic guidelines and capability definitions developed in H2'00
  - For the industry to reap the benefits, we must adhere to the Guidelines
  - e-Diagnostics solutions should follow these Guidelines
- **e-Diagnostics Guidelines are complete, they are now transitioning into a standard**
- **Moving into prototyping and implementation**
- **Suppliers and IC makers developing roadmap for standards and implementations**

For further information please contact:
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