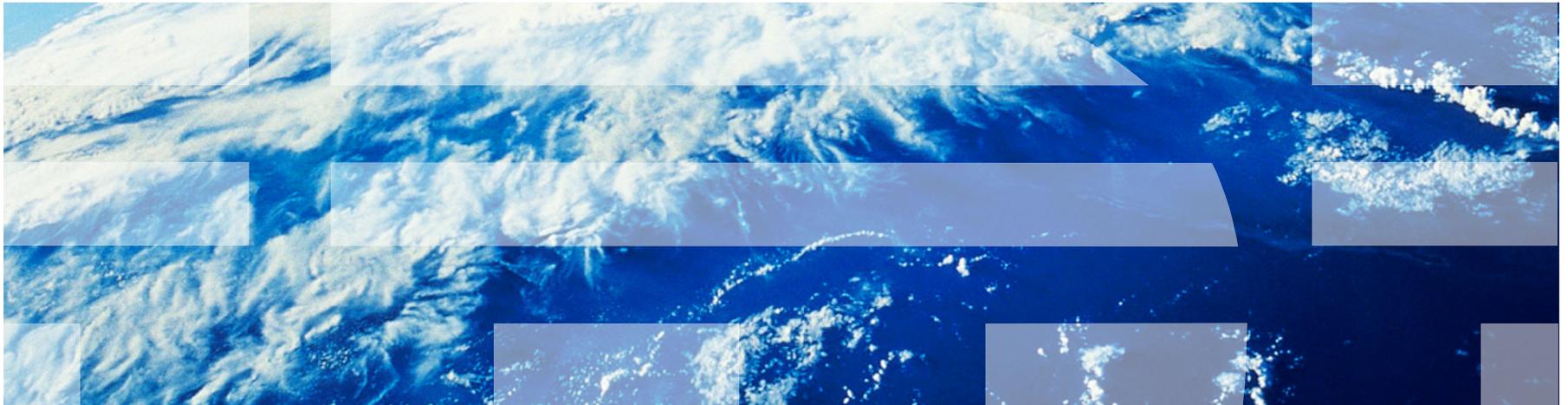


IBM's ODM Development Model

Bruce Smith



IBM Corporate Quality Management System (QMS)

Quality Policy:

“IBM has an overriding worldwide commitment to the quality of the products, solutions, and services we provide to our customers. Quality is recognized as a fundamental component of the value customers receive from IBM.

IBM is committed to the goals of achieving total customer satisfaction, delivering superior products, solutions, and services, and exceeding customer requirements. Recognizing that the marketplace is the driving force behind everything we do, IBM implements effective business processes that support value creation for our customers and our stakeholders.

IBM leaders are responsible for establishing objectives and using measurements to drive continual improvement in quality and in customer satisfaction. All IBMers are expected to contribute to continual improvement as an integral part of our quality management system.”

- Why Taiwan ?
- Process Overview
- Where do the ODM's fit ?
- Model Evolution
- Result

Original Design Manufacturer

From Wikipedia, the free encyclopedia

An **Original Design Manufacturer (ODM)** is a company which designs and manufactures a product which is specified and eventually branded by another firm for sale.

Drive Reductions in Cost & Expense

- Pioneer New Development Models
- Leverage our Development Partners



Portfolio Ownership – High Volume Servers



Leverage Geographic Location

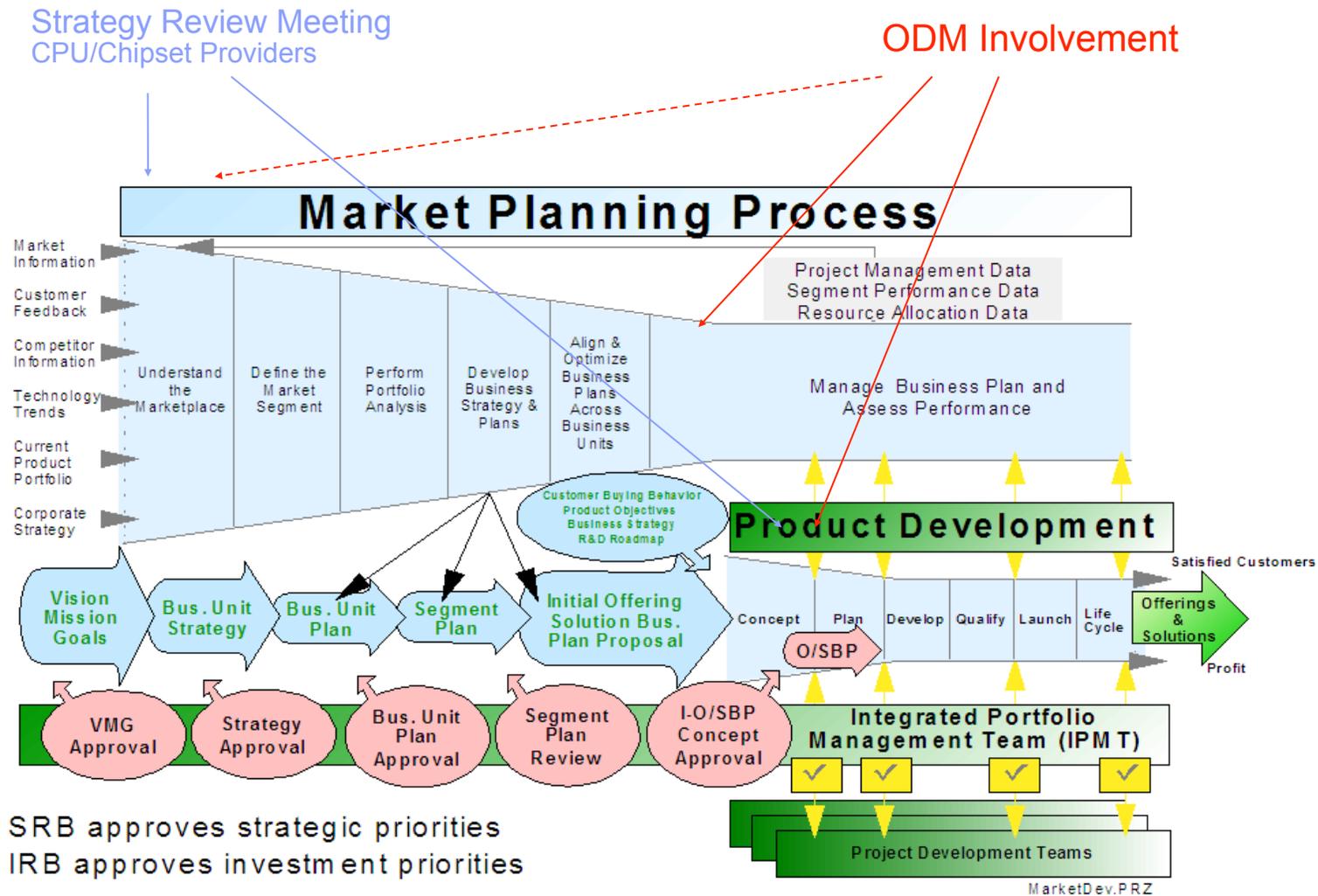
- Reach out to Customers
- Support our Sales Organization
- Competitive Insight
- Leverage Talent Pool



Integral Part of the Global Development Team

- Collaborate across geographic boundaries
- Extend contribution beyond product integration
- Ownership High Volume Portfolio (also Blade, iDataPlex, High End & Retail Store Systems deliverables)

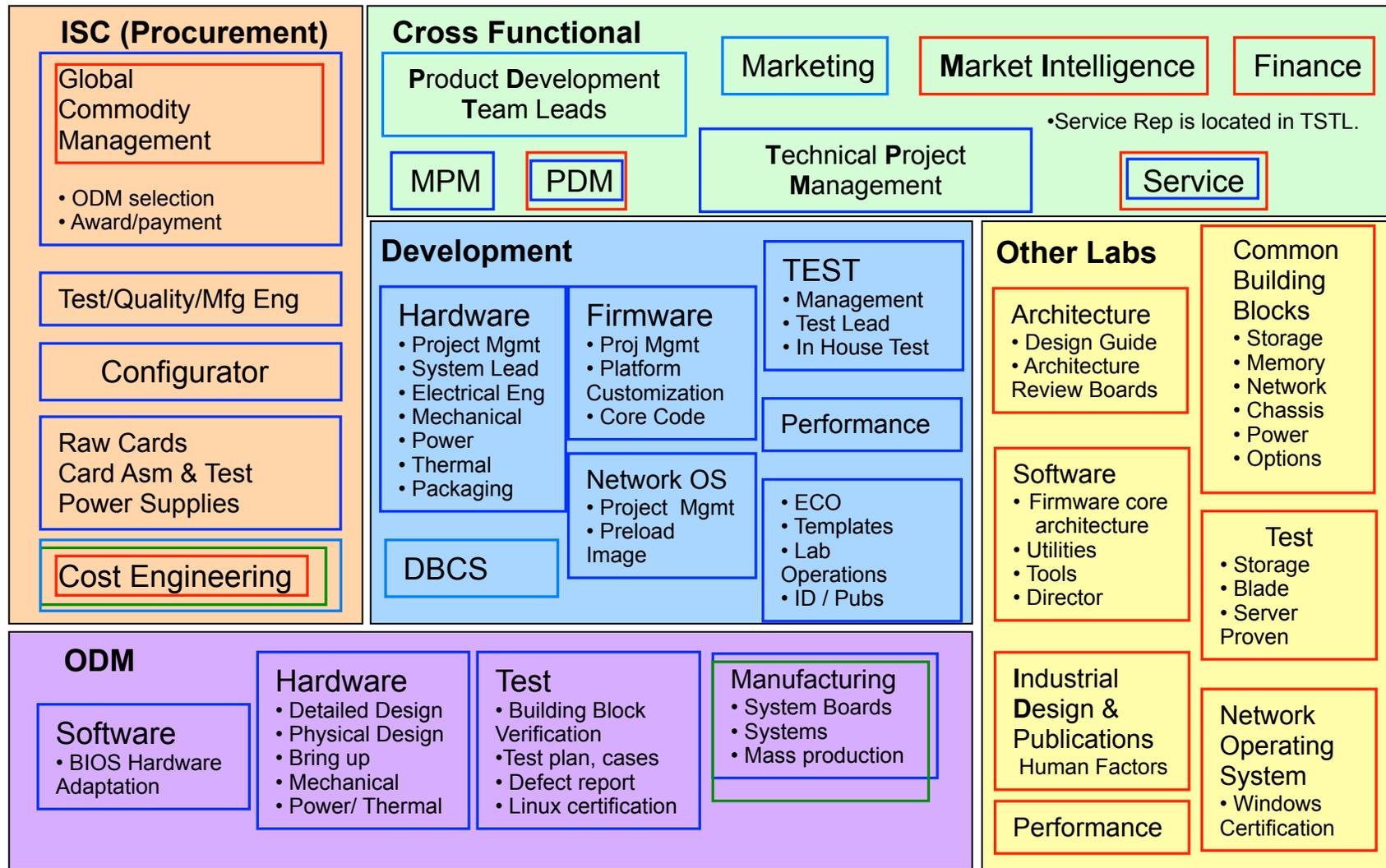
Early Engagement w/ Technology Partners



SRB approves strategic priorities
IRB approves investment priorities

- System X World Wide Development Process
- System X World Wide System Development
- Architecture Review Boards
- IBM Standards and the IBM Standards Compliance List
 - Shock and Vibration
 - Disk Drive Rotational Vibration Testing
 - Thermal
- System X Design Guide and System Design Council
- Common Building Block, Database, and Expert Common Building Block Owners
- Detailed Analysis of Critical Design Features
- Materials Use by IBM
 - Materials Selection Guide, World Wide Sourcing of Qualified Materials
 - Material Use Criteria, Plastic, Sheet Steel, Other

TSTL Development Model - Today



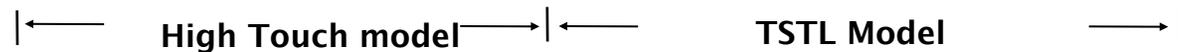
Notes:

1. RTP/TSTL in house testing is lower at Modular/iDataPlex, higher at Blade case.

ODM Business Model – High Level Overview



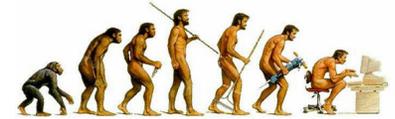
Development model	CM	JDM	ODM	White Glove
Product Marketing	IBM + Solution Provider	IBM + Solution Provider	IBM + Solution Provider	ODM + Solution Provider
System Architecture	IBM	IBM	IBM	off-the-shelf
Technical Direction / CBB	IBM	IBM	IBM	IBM + Vendor
Detailed Design / PD / Simulation / SI	IBM	IBM + Vendor	Vendor + Solution provider	Vendor
Bring-up	IBM	IBM + Vendor	Vendor	Vendor
PP&C	IBM	IBM	IBM + Vendor	Vendor
ESW	IBM	IBM	IBM + Vendor	IBM + Vendor
Validation	IBM + Solution Provider	IBM + Solution Provider	IBM + Vendor +Solution Provider	IBM + Vendor +Solution Provider
Systems Management /	IBM	IBM	IBM	IBM
System Board Mass	Vendor	Vendor	Vendor	Vendor
System MFG	IBM	IBM	IBM	Vendor



Strategic Outsourcing

Develop strategic, long term partnerships to produce product families to achieve efficiency & productivity growth

- Develop supplier capability on technology family products to reduce IBM effort & Expense
- Provide incentives to supplier to invest capital on required equipment for development & testing
- Share resource (both IBM and supplier) in product family development/test.
- Drive common technical designs for product families to save Development \$'s, product cost and fulfillment cost



“Smart Touch” Development Model is continually evolving...

Challenge

Continue to drive Development Model Efficiencies while protecting Brand Image / Value

Evolutionary Process (today’s “smart touch” model will be different from tomorrows)

Model will vary depending on product positioning / complexity / value attributes etc

Maximize/leverage supplier capability (as it develops)

Provide IBM Value Add on top of “industry standard” designs

Today ...

Suppliers do not yet have end-to-end Development Capability

IBM must bridge the gaps

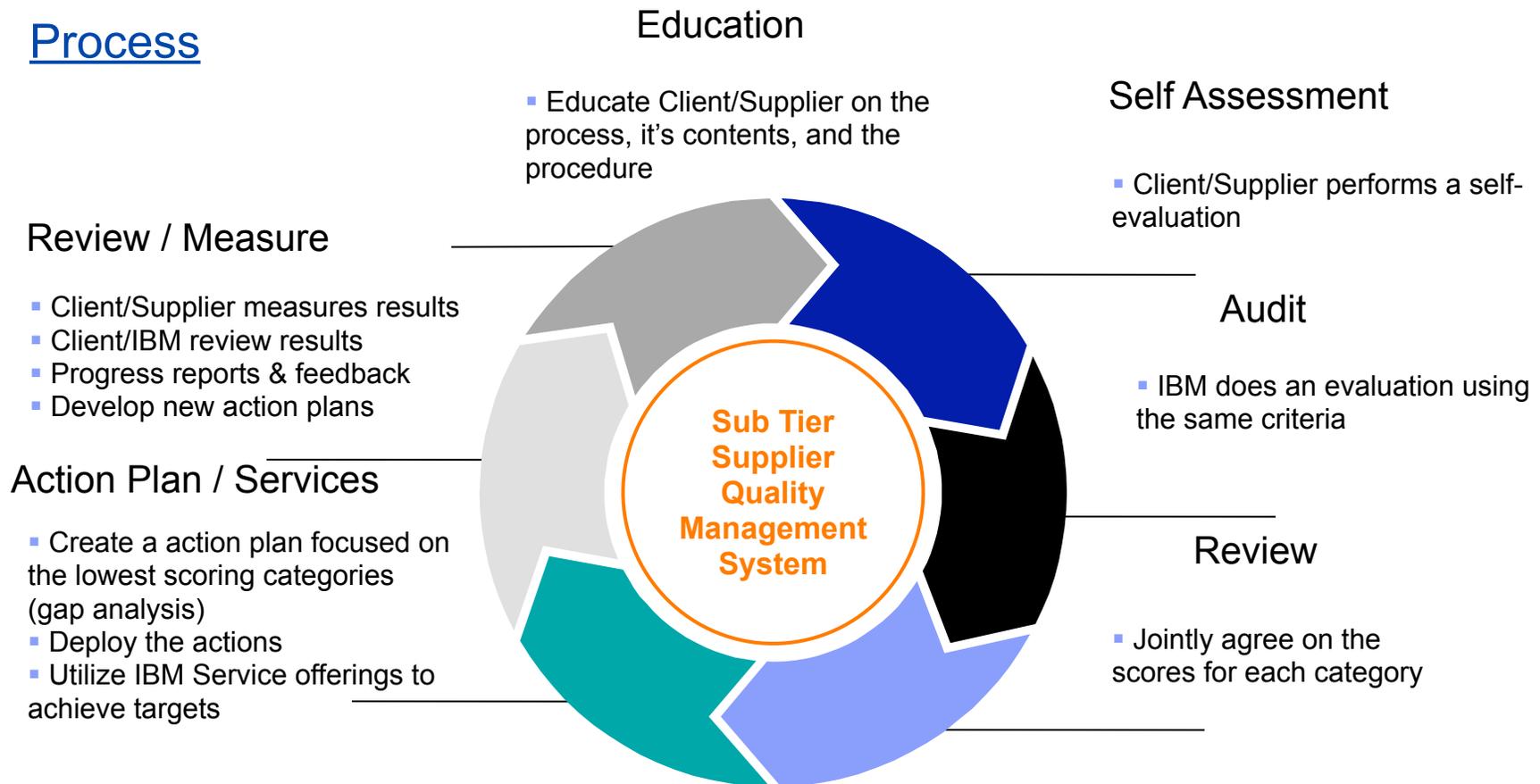
IBM must continue to support / grow supplier capability

IBM Value add today requires some customization (not Industry Standard based)

Philosophy

- Determine Supplier's capability and process to manage their sub-tier suppliers
- Based upon ISO 9001 and CMM (Capability Maturity Model) used in evaluating the maturity level of an organization
- Eight categories are defined and evaluated
- Ratings are in 5 levels (like the 5 maturity levels in CMM), 1, 2, 3, 4, 5

Process



- Right products at Right Time
 - Identifying & Protecting Brand Attributes
- Selecting the right Partner
 - Establishing Balance Point
 - Tactical vs Strategic Relationship
 - Picking the team
- Effective Management System
 - Communications / Trust / Integrity
 - Establish Clear Goals / Expectations
 - Managing Change
 - IBM Introspection
- Right Cost & Expense Structure
 - Maximize Re-use (Common building Block Strategy)
- Enablement for Success
 - Eco System
 - Teamwork / Attitude



Questions

System Development



	TSTL	ODM Partner
System & Electrical	<ul style="list-style-type: none"> Product specification and architecture Relationship with RTP CBB owners Guidance on IBM unique requirements Review design correctness and quality 	<ul style="list-style-type: none"> Detailed planar design (schematics/PD) Relationship with component suppliers Pilot-run, bring-up and mass-production Take conformance measurements
Power	<ul style="list-style-type: none"> ACDC: power supply (PWS) specs DCDC: technical direction on design 	<ul style="list-style-type: none"> ACDC: IBM buy direct from PWS supplier DCDC: design to meet power envelope
Mechanical & Packaging	<ul style="list-style-type: none"> Technical direction, high-level design First Article Inspection (FAI) 	<ul style="list-style-type: none"> Detailed drawings and implementation Tooling and modifications
Thermal & Acoustic	<ul style="list-style-type: none"> Technical direction and supervision Simulation and cross-check validation Fan curves and acoustic tuning 	<ul style="list-style-type: none"> Heatsink samples (on-planar) Validation and design improvements Fan curves and acoustic tuning
Defects	<ul style="list-style-type: none"> Technical resolution of system defects Coordination with RTP CBB owners Gauge severity level of each defect 	<ul style="list-style-type: none"> Technical resolution at planar level Joint defect ownership with TSTL Gauge severity level of each defect
Technical Schedule	<ul style="list-style-type: none"> Owns master schedule Drives internal stakeholders Coordinate SDV/SIT build Intel Samples 	<ul style="list-style-type: none"> Commits to API dates Manage detailed build/tooling dates SDV build
Documentation	<ul style="list-style-type: none"> IBM internal (PSRB, ERO, ePEP) System spec, pubs, various CDs 	<ul style="list-style-type: none"> Schematics and engineering drawings Evidence of design integrity
MFG enablement	<ul style="list-style-type: none"> Maintain system BOM EC/CTO/FRU release 	<ul style="list-style-type: none"> Potential BOM co-ownership Obtain secured access to IBM databases
Lifecycle Support	<ul style="list-style-type: none"> Support PE at GA+90 	<ul style="list-style-type: none"> RMA and warranty coverage