Production Management for Real-Time PLM

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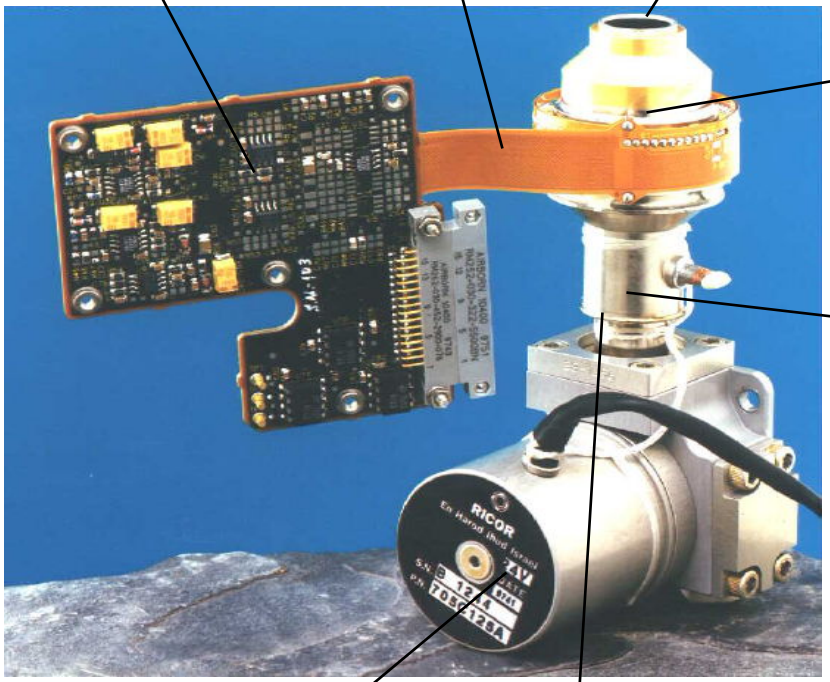
Premium Partners:

What are we doing?

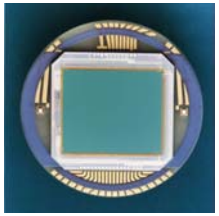
Proximity Board

Flex Harness

Window



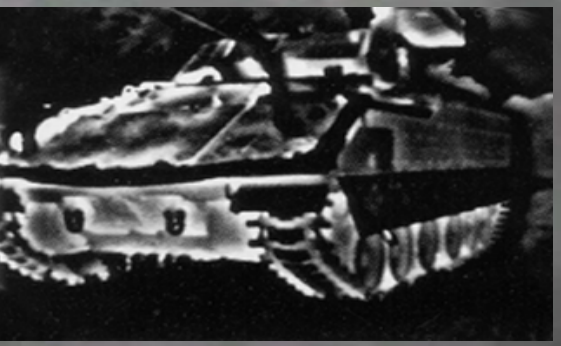
Detector Chip

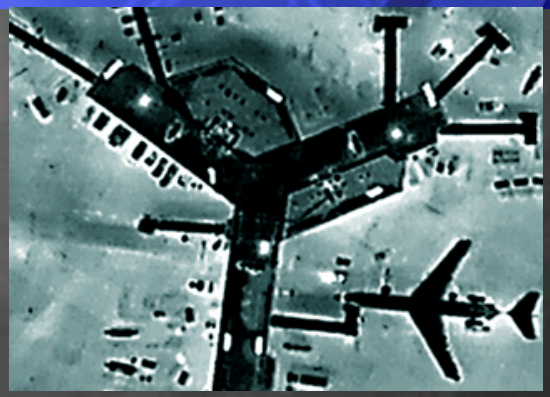


Cold Finger

Cooler

Dewar





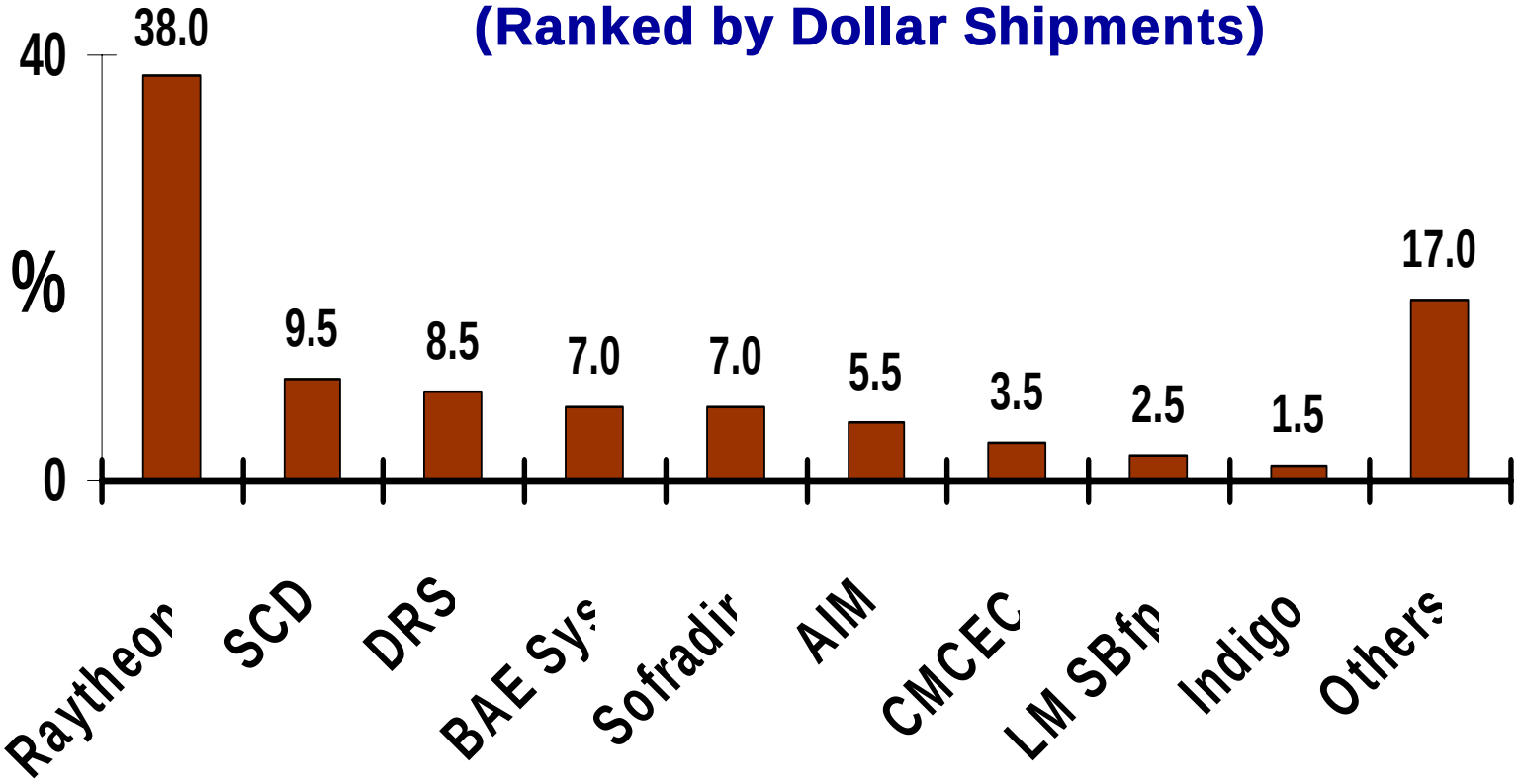
The changes around the eyes after telling the truth (upper image) and telling a lie (lower image) are detected (Photo: Pavlidis et al)

SCD - Technology with vision !

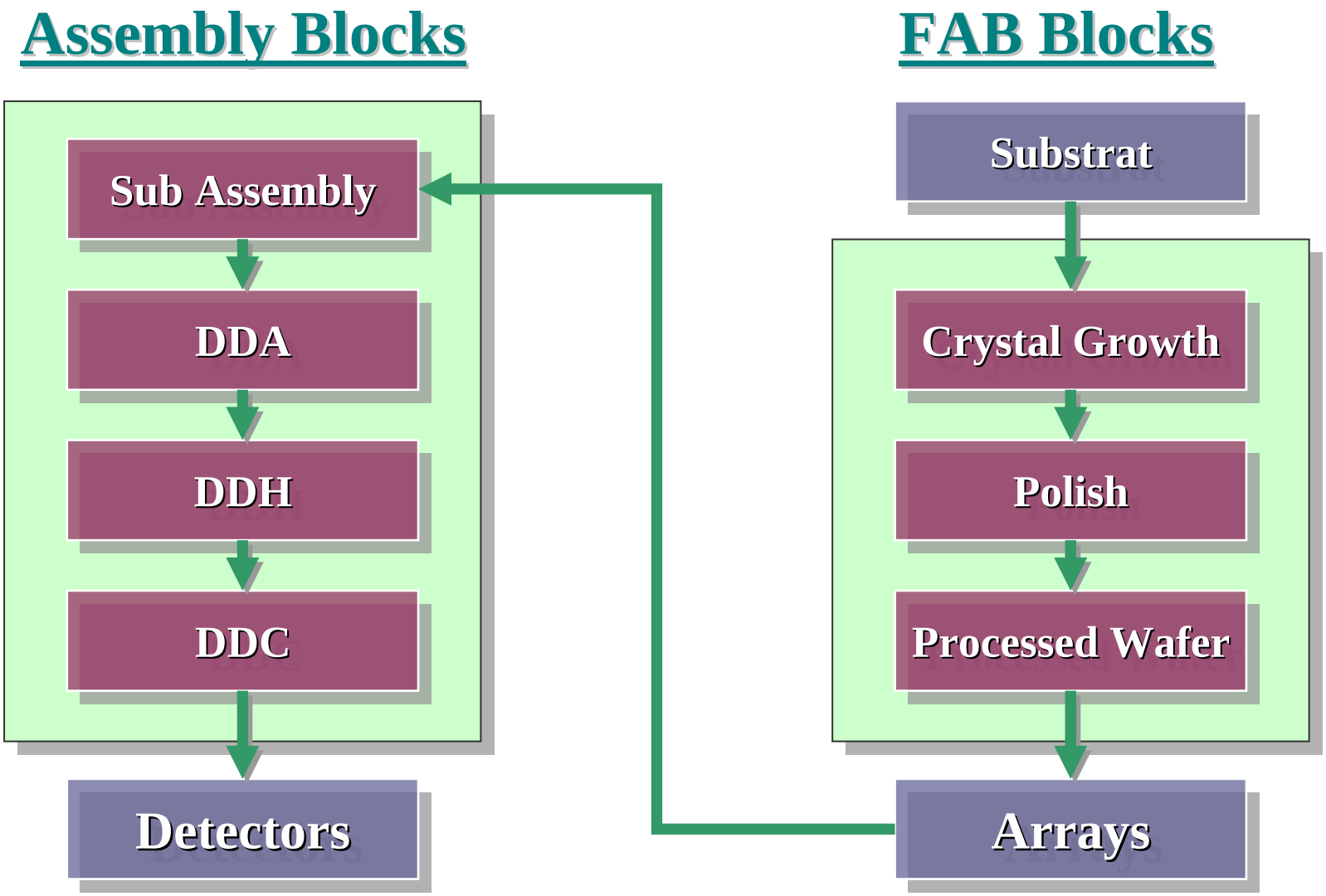
SCD – Reveal the invisible…

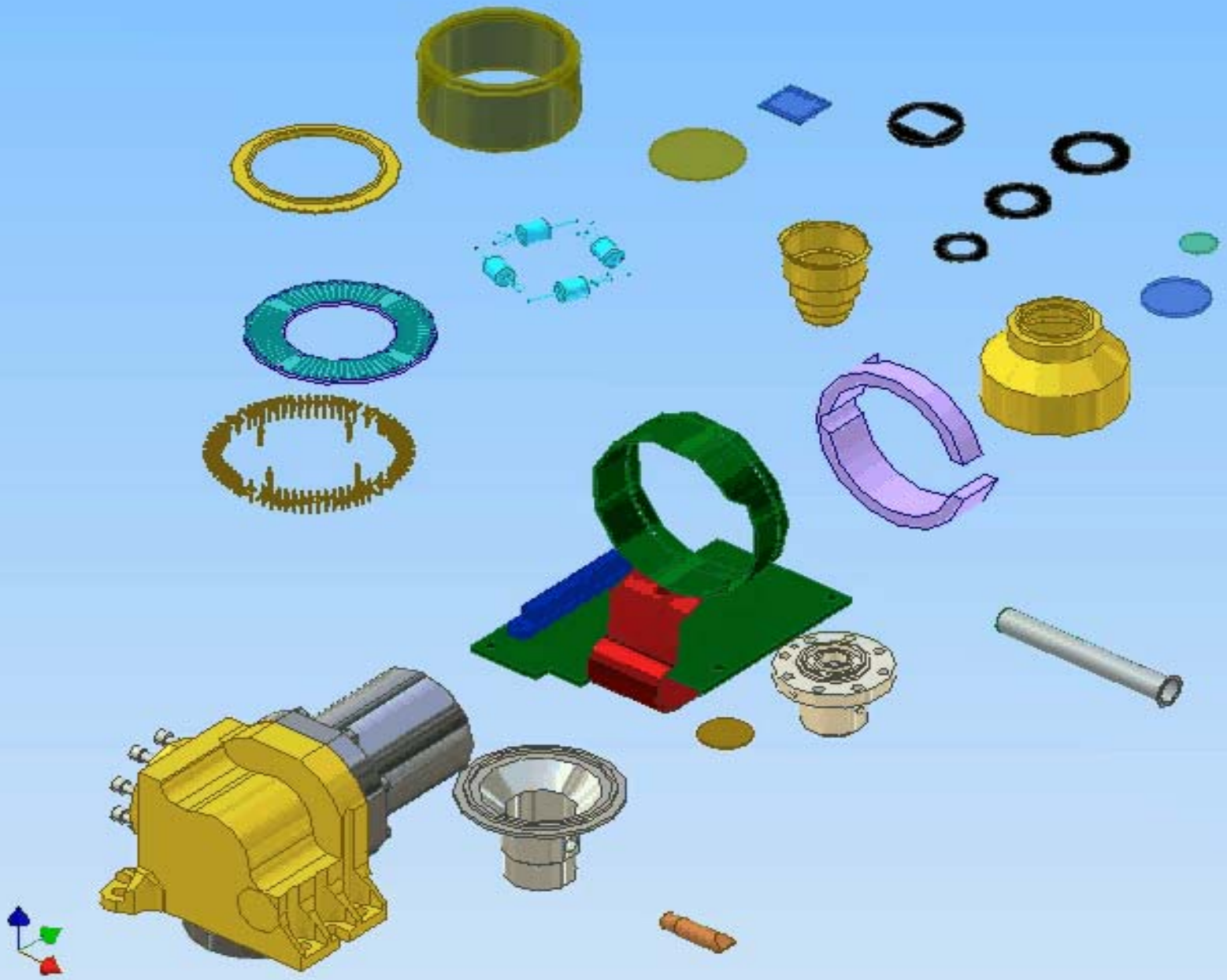
While our Infrared detectors help our customers reveal the invisible, Tecnomatix MES helps us reveal the invisible of our shop floor…

Market Shares for Suppliers of Infrared Detectors and Detector Modules (All Detector Types) (Ranked by Dollar Shipments)



Production Process





Drivers for Buying an MES System

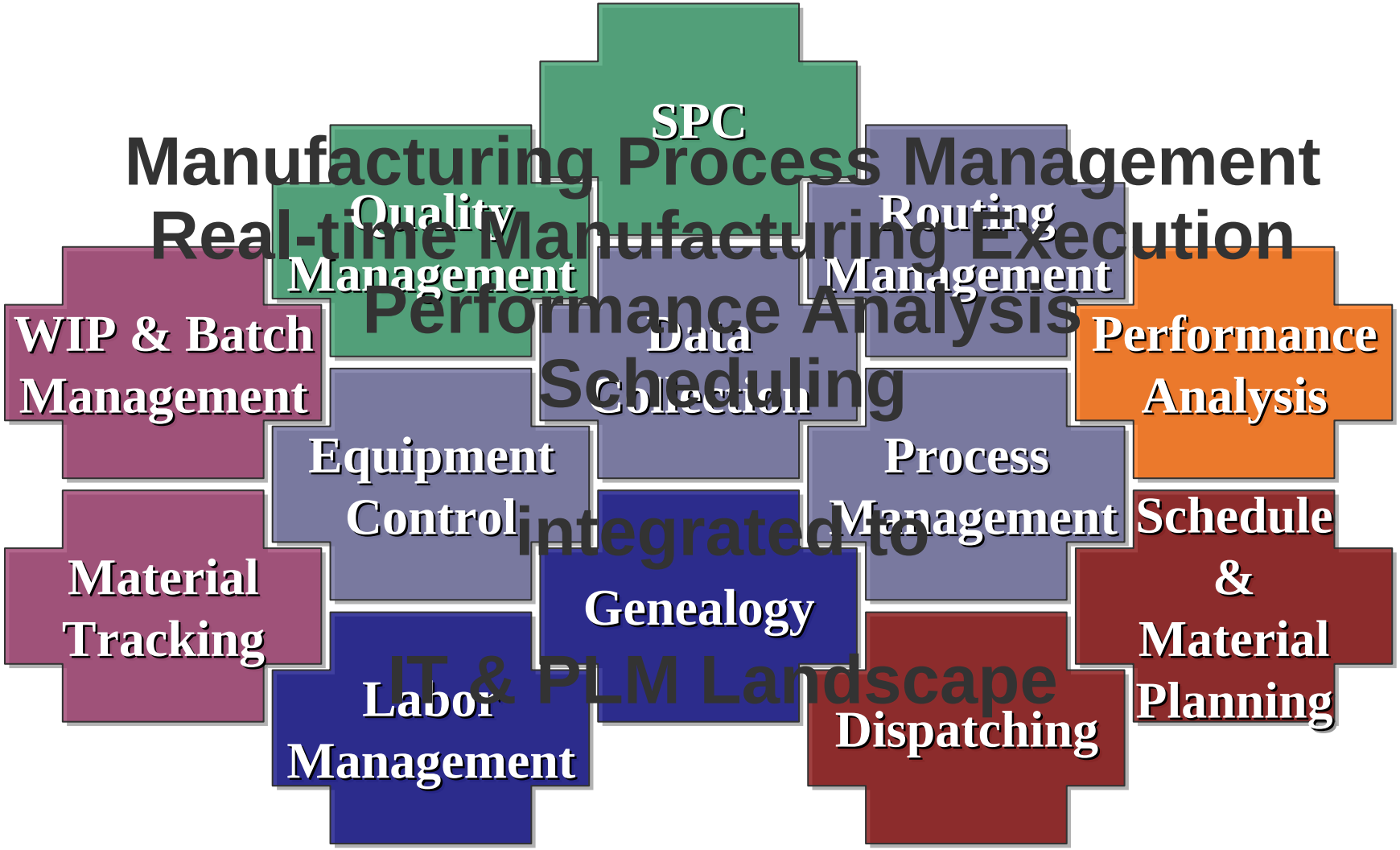
- Connecting the engineering department to the shop floor for planning, engineering processes, SPC and corrective actions
- High requirements for flexibility, openness and future extendibility
- The need to manage the day-to-day plant operation
- SCD is a fast growing company with many new requirements

Selection Process

- Four main players: Brooks, Promise, SAP, Tecnomatix MES (formerly: USDATA Xfactory)
- Tecnomatix MES was selected due to the following unique factors:
  - Unique ability to manage a hybrid manufacturing process (FAB + Assembly)
  - Unique customization and flexibility capabilities to support various requirements and to add business logic easily
  - Open architecture
  - Strong implementation capabilities with references in our segment
  - User friendly and price competitive

- Risks: USDATA was a small company compared to competitors (e.g. Brooks, SAP)

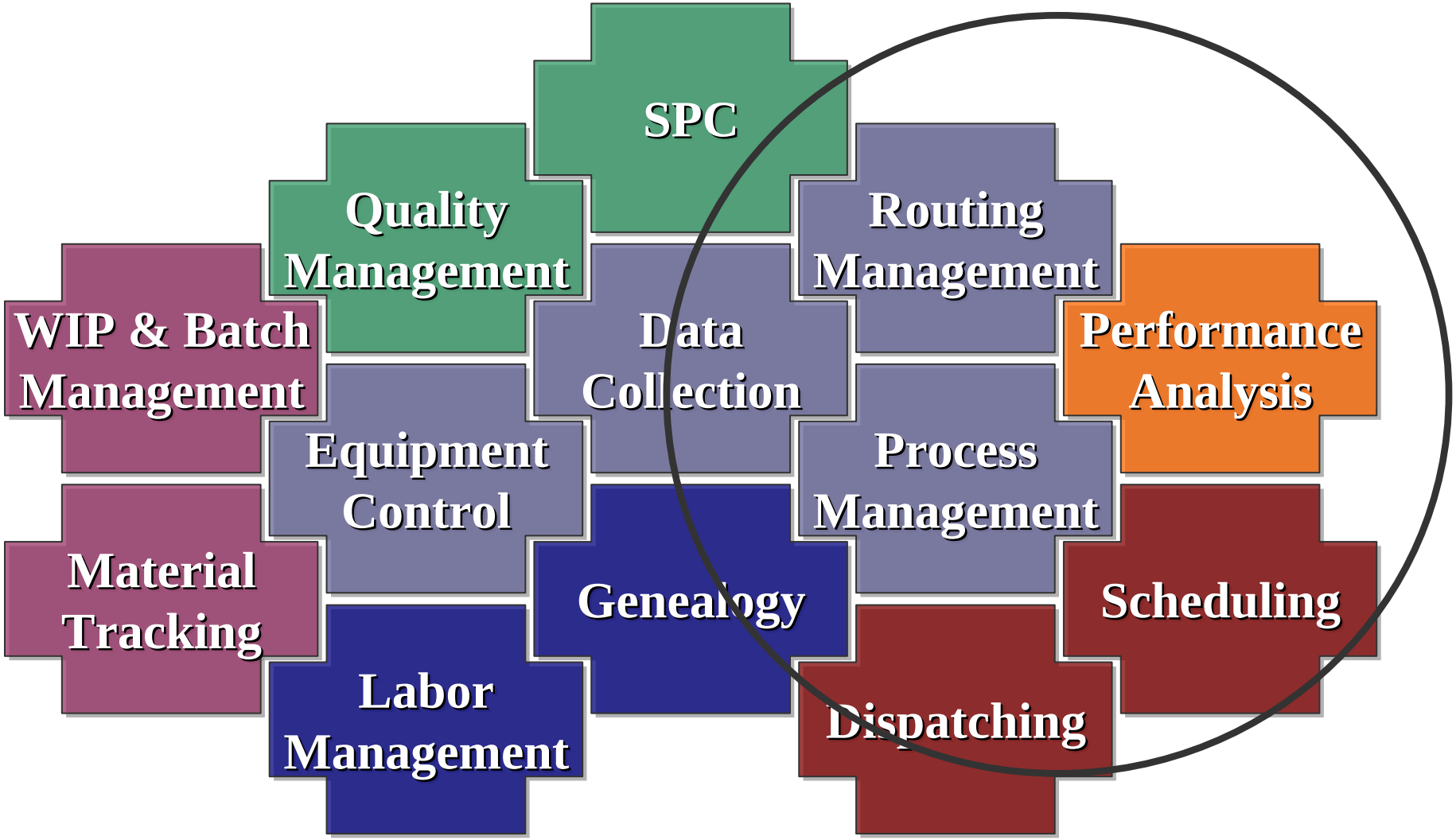
Production Management – Functions



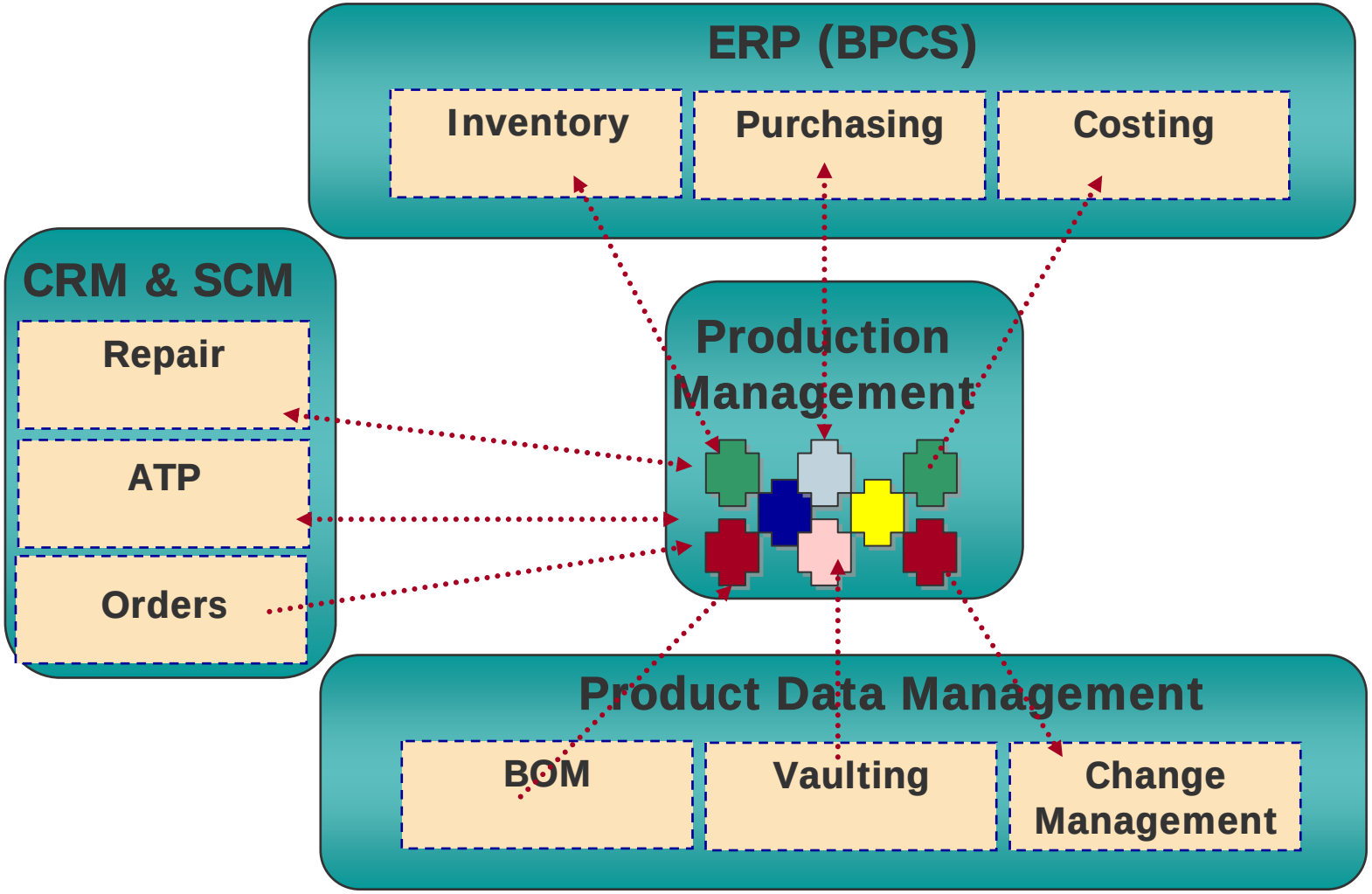
Schedule and Milestones – Phase 1
Real-time Manufacturing Execution

Activity	*Duratin (months)*	*Start Data*	*Finish Date*	*Milestone*
Contract Signing		10/06/2002	10/06/2002	
Draft FRS	1	24/08/2002	23/09/2002	2
Prototype	1	23/09/2002	24/10/2002	
Final FRS	1	24/10/2002	23/11/2002	3
ATP Document	1	23/11/2002	24/12/2002	
Module Development	4.5	23/11/2002	09/04/2003	
User Training	0.5	09/04/2003	24/04/2003	
Integration Lab & Site & Tests	0.5	24/04/2003	09/05/2003	4
User Trasition "Go Live"	1.5	09/05/2003	24/06/2003	
Hand Over - User Responsibility	2	25/06/2003	25/08/2003	
End of Project		25/08/2003		

Production Management – Phase 2

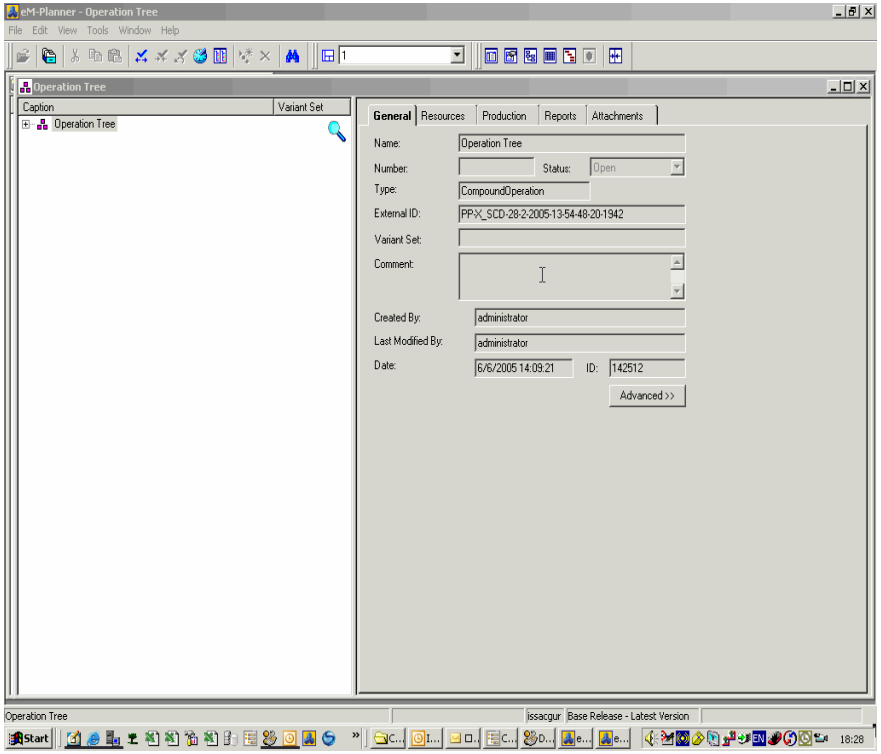


Interoperability Requirements



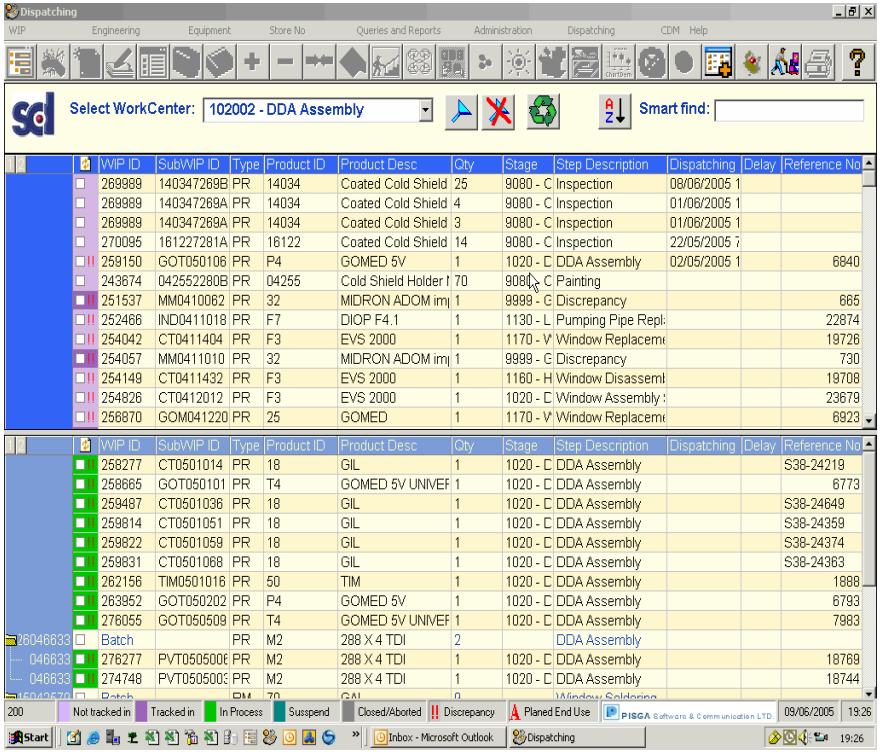
The Solution: Manufacturing Process Planning

- Model the manufacturing process
- Share the knowledge and best practices
- One route for multiple products
  - Different consumables and process parameters
- Define the SPC parameters
- Initiate and manage ECRs
- Release to production



The Solution:
Real-time Production Management

- Real-time WIP management
- Monitor workcenters
- Real-time SPC
- Instant CDM modifications
- Monitor available material quantities
- Collect data from different sources
- Flexible reports and data analysis
- Wafer mapping



The Benefits

- Full real-time control of the production line
- Reliable data and information across all stakeholder
  - “Show me the data”
- By getting the right information at the right time and in the right format, we witness the following tangible results:
  - Increasing yield
  - Reducing in-process inventory
  - Reducing cycle-times

More Benefits

- Better analysis processes
- Engineering can react better to problems on the line
- Collaboration between engineering and production managers to fine-tune manufacturing processes and increase product quality and reliability
- ECR processes reduced from weeks to days
- Platform to continuously improve our production processes to support our growth