



Introducing manufacturing best practices benchmarking

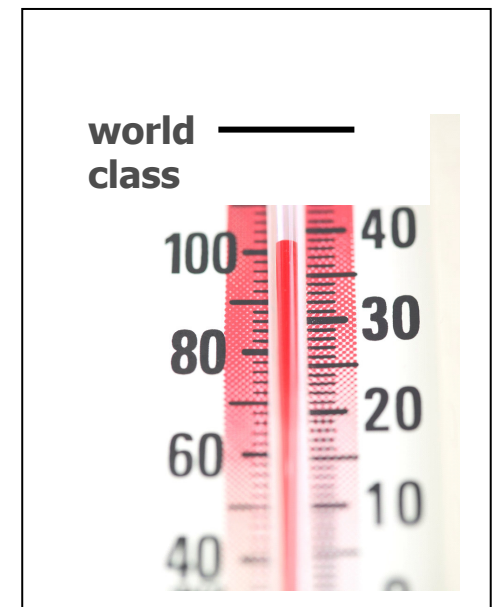
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Is your firm a World Class manufacturer?

How competitive is your manufacturing?

- How do your key performance metrics compare to competitors?
- What is the state of your key underlying business practices?

What is the gap between your firm and the best in your sector?

- What does 'World Class' look like in our sector?
- How big is the gap and is it in practices or performance?

What is the gap between your company and world class manufacturers?

- What does a 'World Class' manufacturer look like?
- You may be a leader in your sector, but can you learn from other sectors?

Where should you focus your improvement efforts?

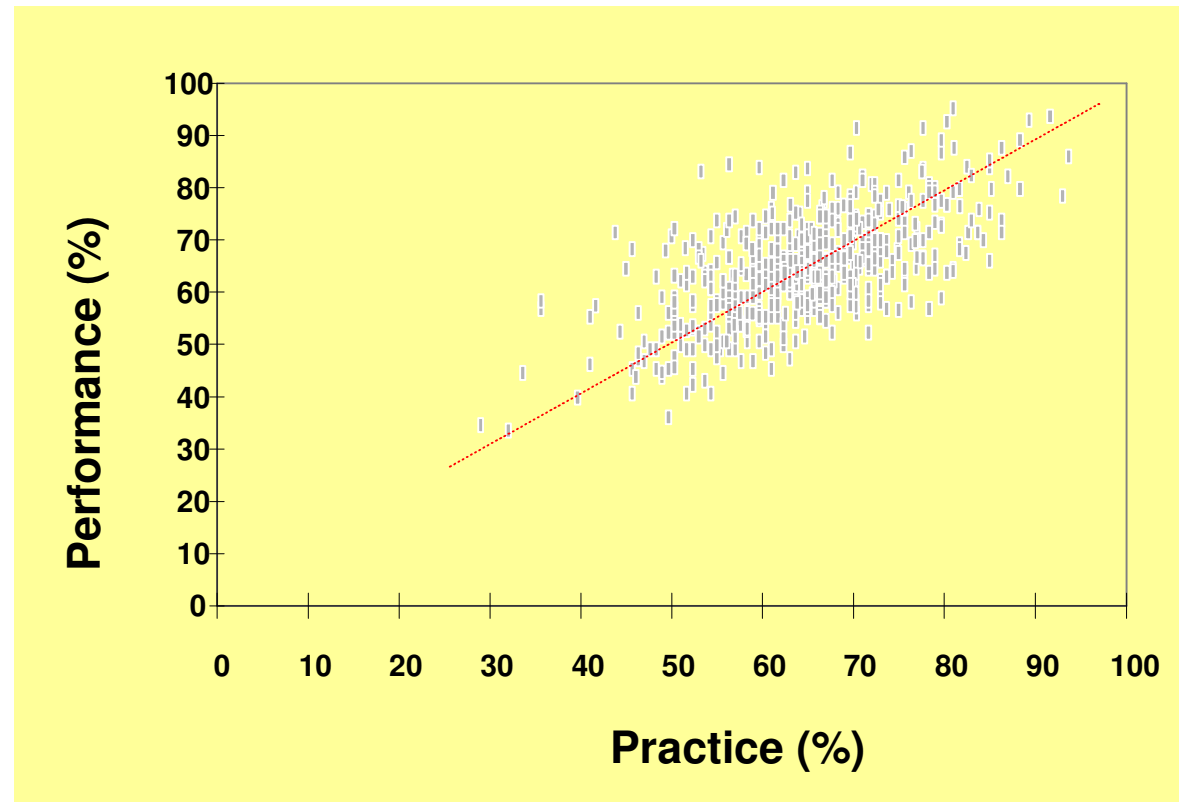
- By understanding the nature of your competitive gap you can focus your resources
- By quantifying the practice and performance gap you can catalyse improvement



Best Practices Benchmarking is a powerful way to help manufacturers develop to World Class

- Benchmarking helps companies look outside and compare themselves to best practices
- Research has shown that adopting best practices will deliver significantly improved performance
- Performance benchmarking does not answer the question of ‘Why are we performing in this way?’
- Best Practices benchmarking identifies weak practices as the root causes of performance weaknesses – helping identify improvement needs

"The adoption of best practices will result in strong operational performance."

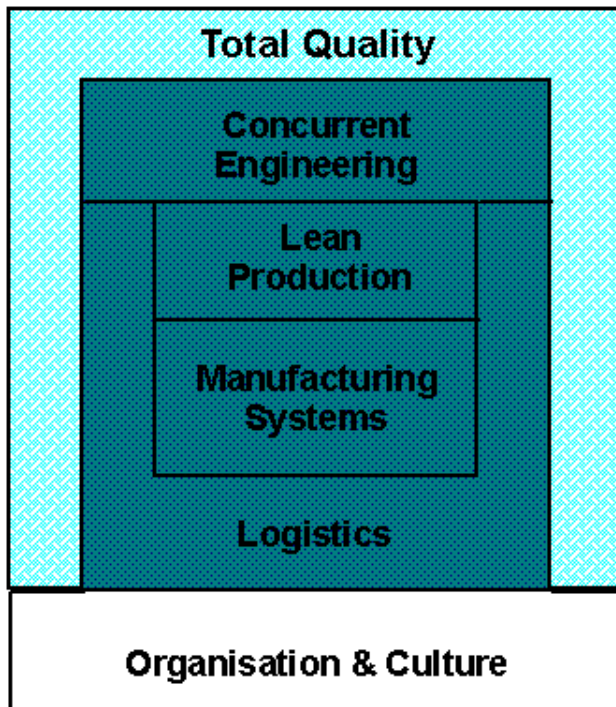


PROBE is used to assess the factories against World Class manufacturing practice and performance

- Probe was started in 1993 by IBM and London Business School
- Now owned by the UK CBI
- Over 2000 sites assessed
- Based on a model of World Class practices & performance
- Codexx is a licensed Probe facilitator
- We have developed an effective manufacturing assessment using Probe

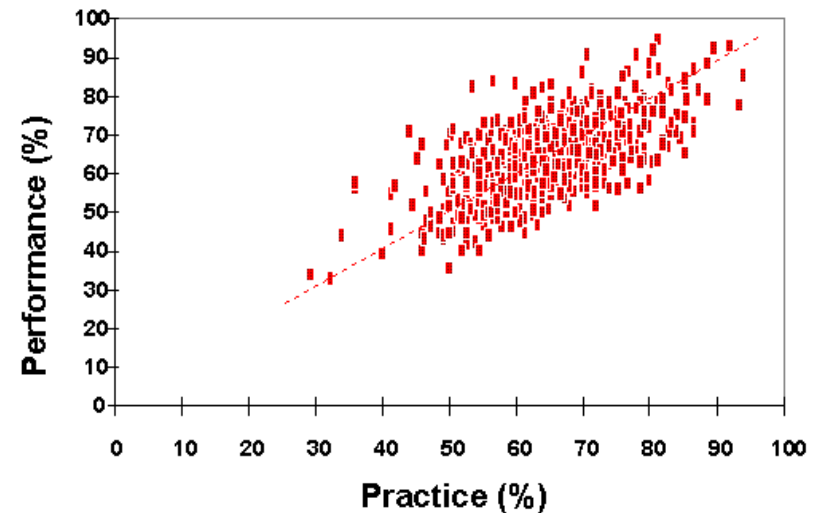
Questions on Practice & Performance

	1	3	5	score
Production cycle time	More than 10 x Raw Process Time	5 - 7 x Raw Process Time	2 - 4 x Raw Process Time	
Kanban	High WIP, no specified location	Pull production, some Kanban	Reduction in kanban sizes, continuous improvement	



Probe Model

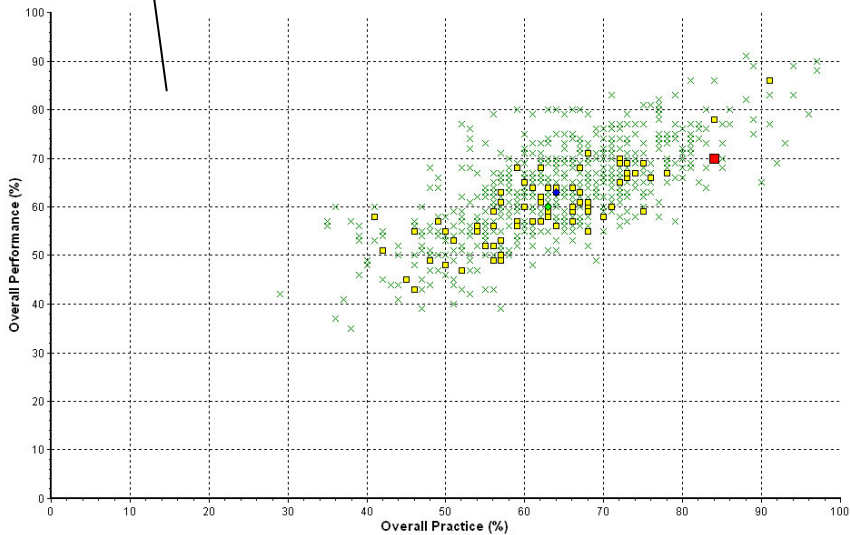
Operational Performance



PROBE provides detailed scoring output and comparison against the other companies on the database - anonymously

Scatter Chart

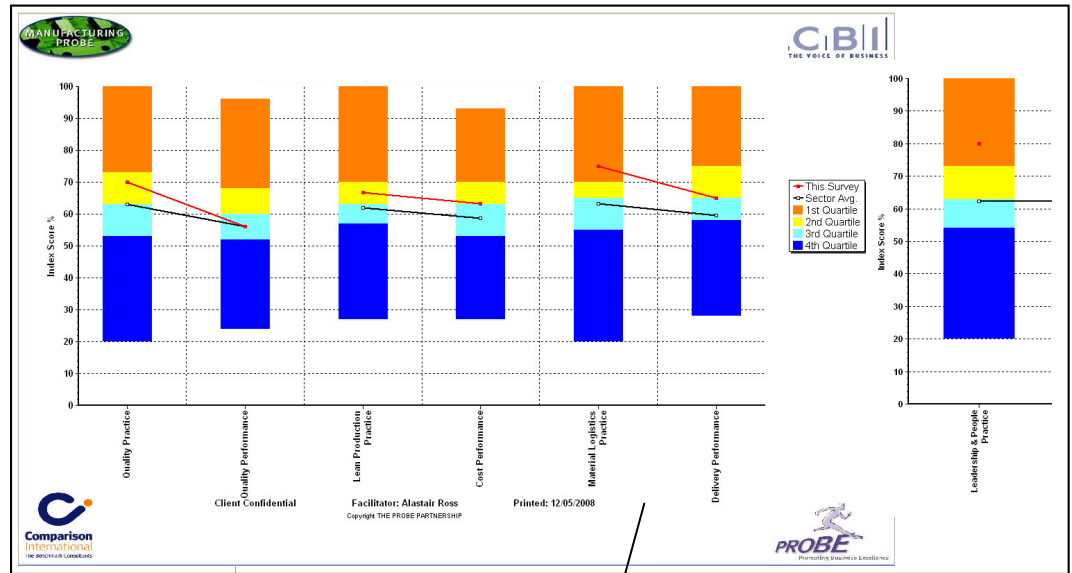
- Shows site scoring of practices and performance v Probe database against relevant SIC group for your business
- World Class is considered 80%+ in Practice/Performance



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- x Overall Sample
- Industry Sector
- ◆ Sector Avg. (63,60)
- ◆ Overall Sample Avg. (64,63)
- This Survey



Quartiles Chart

Shows site scoring of key practice and performance areas All the companies on the database are represented by the 4 quartiles

Scoring Areas:

- Quality Practice – e.g. quality vision, strategy and methods
- Quality Performance – e.g. process defects, field failures
- Lean Practice – e.g. batch sizes, layout, housekeeping,
- Cost Performance – e.g. inventory turns, warranty claims costs
- Logistics Practice – supplier relationships, scheduling
- Delivery Performance – e.g. supplier & customer delivery performance
- Leadership & People practices – e.g. leadership style, measurement



Over the past 15 years of using PROBE, we have developed an effective assessment approach

Daily schedule for factory assessment

Day One

08.30 – 09:00	Briefing to plant management team
09.00 – 10:30	Factory tour
10.30 – 11:30	Interview Plant Manager
11:30 – 12:00	Analysis
12.00 – 12:45	Interview Planning Manager
12.45 – 13:30	Lunch
13.30 – 14:15	Interview Production Technology Manager
14:30 – 16:00	Operational forum (6 people)
16.00 – 16:45	Interview Maintenance Manager
16:45 – 17:30	Analysis
17.30	Finish day

Day Two

08:30 – 09:30	Tour of Production Groups
09:30 – 11:00	Supervisors forum (4 people)
11:00 – 11:30	Analysis
11:30 – 12:30	Order Desk forum
12:30 – 13:15	Lunch
13:30 – 14:15	Interview Purchasing Manager
15:00 – 15:45	Interview Quality Manager
15:45 – 16:00	Analysis
16:00 – 17:00	Planner Forum
17:00 – 17:30	Analysis & Scoring
17.30	Finish day

Day Three

08:30 – 09:30	Review with Plant Manager
09:30 – 10:30	Purchasing Forum
10:30 – 11:00	Analysis
11:00 – 12:30	Time in production area
12:30 – 13:15	Lunch
13:15 – 16:00	Preparation of draft report
16:00 – 17:00	Initial feedback to management team
17:00	Finish assessment

Manufacturing Assessment Approach

Core

- Kick-off meeting at each factory with management team
- Interviews with factory managers
- Workshop with production personnel
- Workshop with Supervisors
- Production tour and assessment
- Review of key performance metrics
- Initial feedback to each factory on provisional findings
- Once assessments completed:-
 - analysis and creation of overall report
 - Probe scoring
 - overall conclusions & improvement recommendations
 - presentation of report to client

Optional

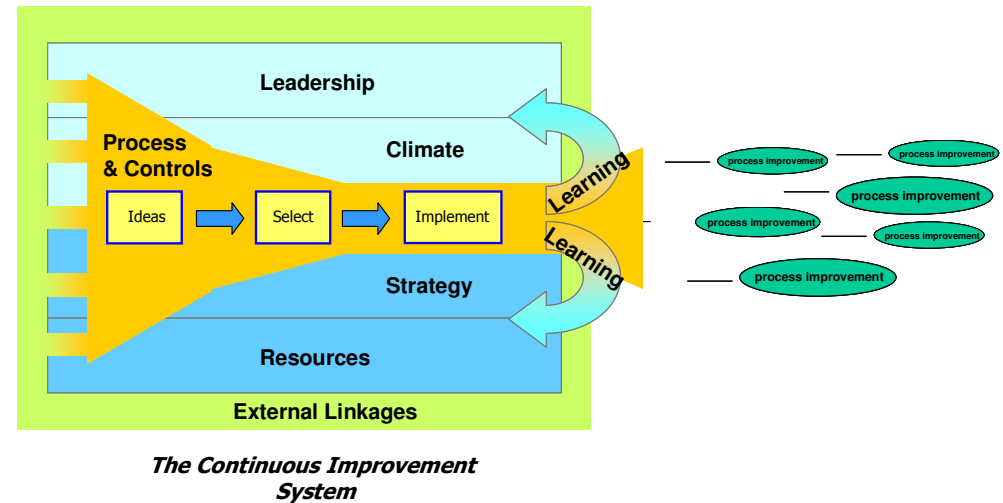
- Pre-visit questionnaires with production & supervisors
- Assessment of Continuous Improvement practices using F4i
- Assessment of supply chain practices using SCAN

Example of factory assessment schedule

In addition to PROBE, we can also apply additional assessment tools to explore other key business areas

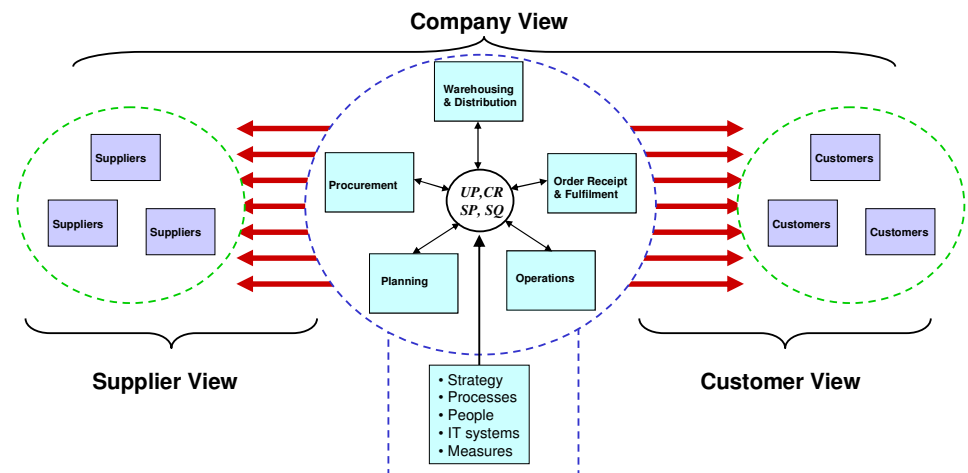
F4i – Continuous Improvement & Innovation best practices assessment

F4i was developed by Codexx with the support of Professor John Bessant, Head of Innovation Management at Imperial College Business School, London. It provides a detailed assessment of Continuous Improvement against best practices and performance.

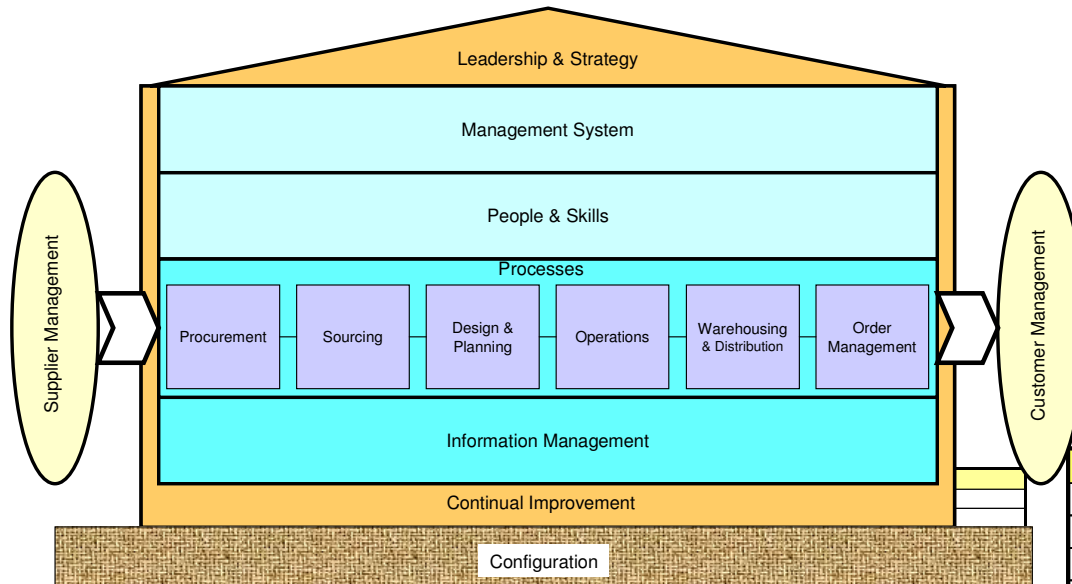


SCAN – Supply Chain Management best practices assessment

SCAN is owned by Codexx and is based on a best practices approach to supply chain benchmarking developed with BSI, Nottingham University Business School and Supply Chain Analytics Ltd. It has been used to assess companies' supply chain practices and performance against world class standards.



SCAN assesses a company's supply chain practices and performance using a best practice template



SCAN MODEL

2. Leadership	6	Strategic intent
	7	Strategy development
	8	Communication and deployment of goals
	9	Organisation
	10	Waste elimination
	11	Supply Chain Efficiency
	12	Return On Net Assets
	13	Market share
3. People	14	Expertise
	15	Training & development
	16	Teaming
	17	Empowerment
4. SC Processes & IT	18	Supply Chain design & optimisation
	19	Supply Chain information network
	20	Demand & Supply Planning
Sections 5-8	21-61	

Assessment based on 3 questionnaires

Company assessment:
• 61 practice questions per supply chain

Customer view:
• 9 practice questions per customer

Supplier view:
• 8 practice questions per supplier

Templated assessment against best practices

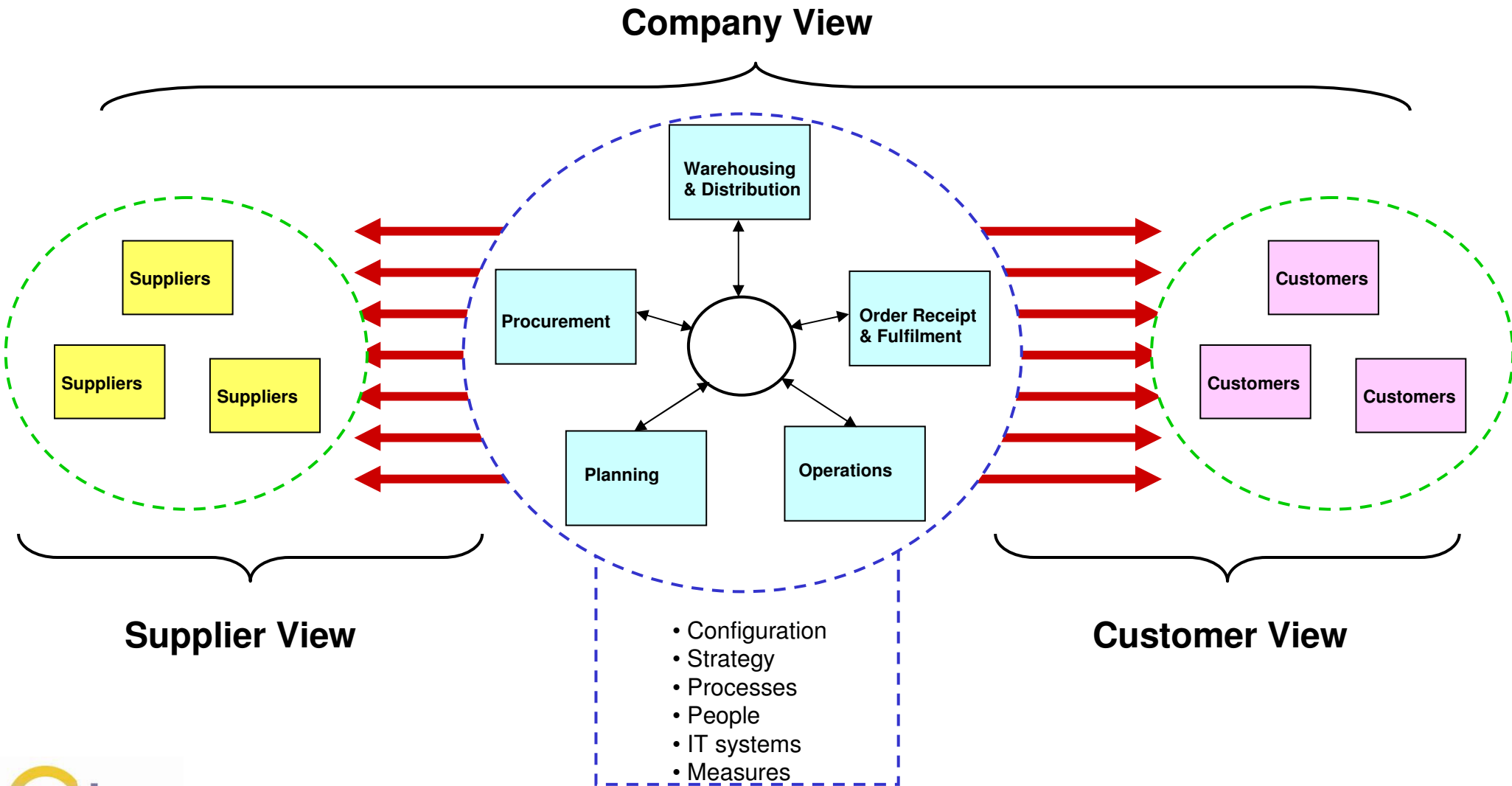
METHODS
Interviews
Forums
Workshops
Questionnaire
Analysis

PERSONNEL INVOLVED
Director of Supply Chain / Operations
Planning Team personnel
Procurement personnel
Operations / Manufacturing personnel
Distribution / Warehousing personnel
Sales, Marketing personnel
Quality Manager
Customers & Suppliers (Optional)

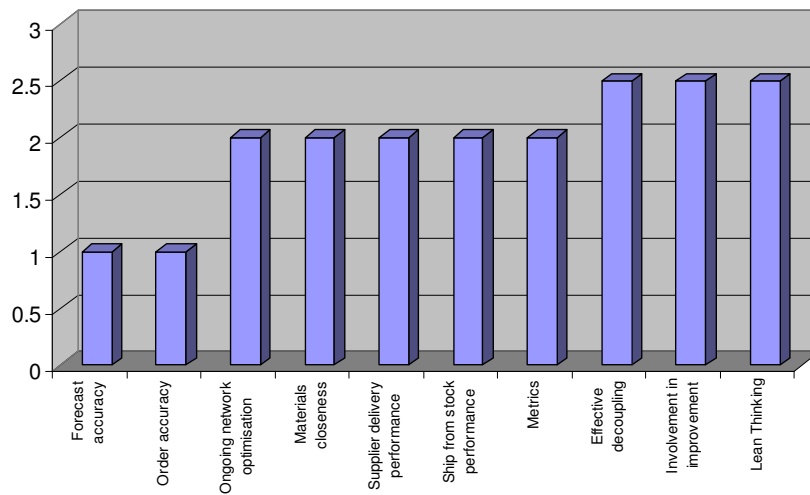
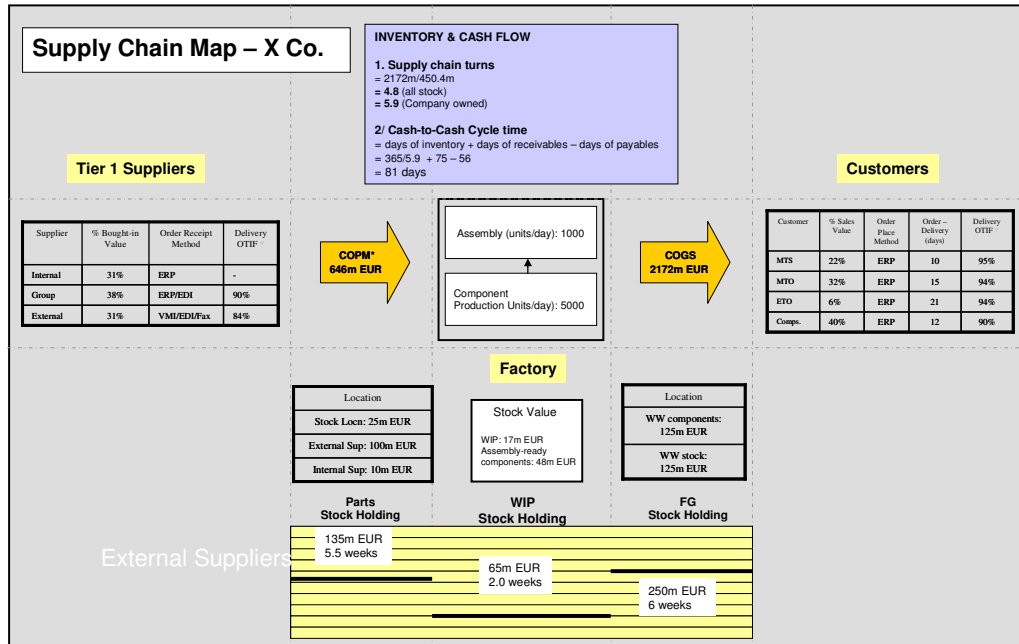
Assessor determines company rating against each practice area

No.	PRACTICE	LOW (1)	MEDIUM (3)	HIGH (5)	SCORE
20	Demand & Supply Planning	S&OP not in place. Forecasting based on judgement only and not formally incorporated into supply chain decision-making. Typically reactive to orders only.	S&OP run by Supply Chain group, but with little involvement of Sales & Marketing. Forecasting, based on formal methods, used to provide basis for supply chain planning, some informal customer input via Sales personnel.	Formal Sales & Operations Planning (S&OP) process in place, supported by the board and operated as a core supply chain process. Coordinated planning between global, regional and individual operating sites. Formal demand planning process, understood and supported by Sales, Marketing and Supply Chain leaders. Collaborative forecasting in place with customers. Demand Plan owned by Marketing/Sales Director. Supply Plan owned by SCM Director.	3

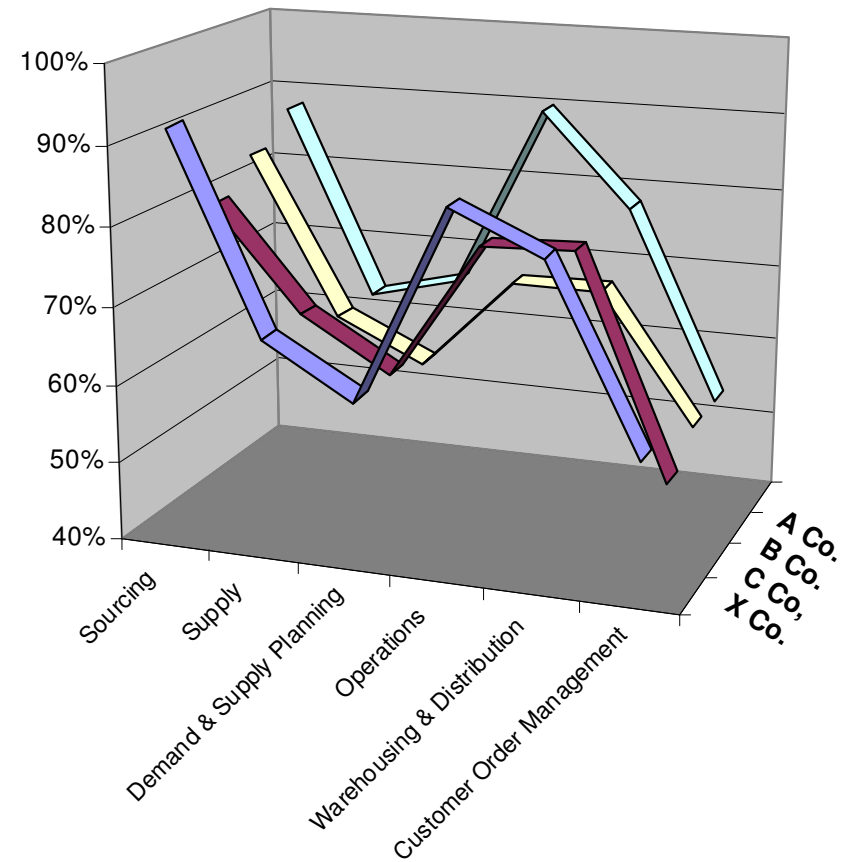
SCAN provides a detailed '360 degree' SCM view from the company, key suppliers and customers



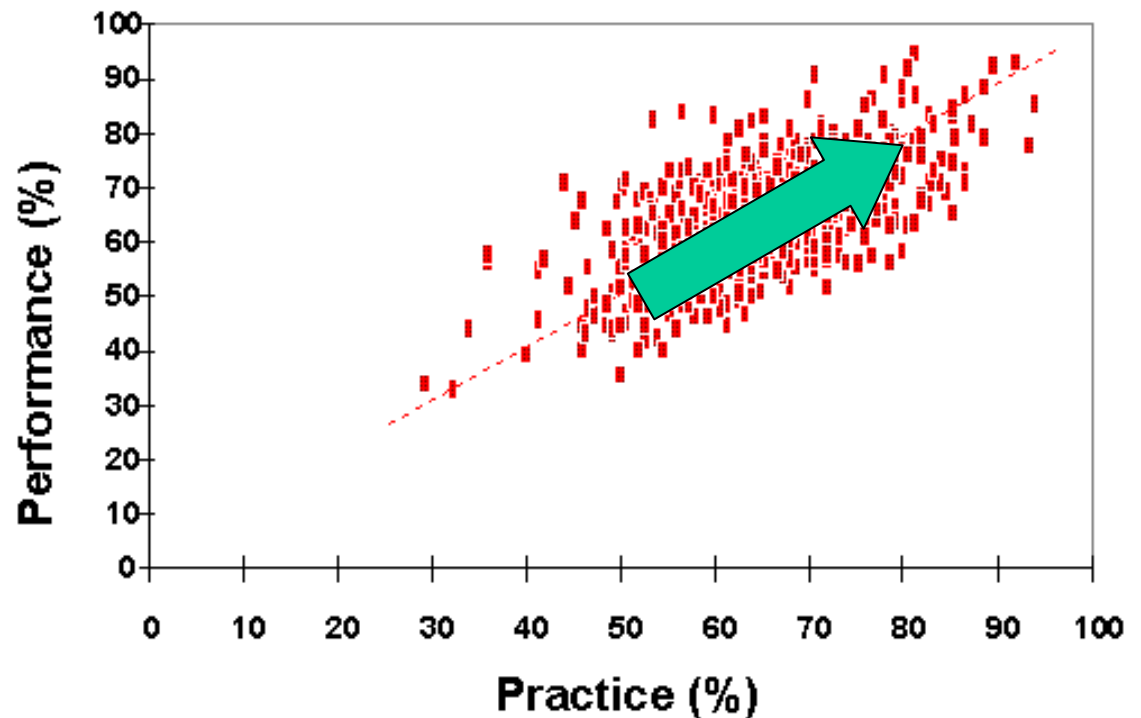
Examples of SCAN feedback



Supply Chain Processes



Codexx consultants have used benchmarking with Grundfos, a leading global pump manufacturer, to help them move to world class standards



- Codexx consultants performed PROBE assessments of Grundfos factories from 1996
- We helped Grundfos develop Lean practices and deploy them across their factories
- We also provided assessments on SCM using SCAN and Continuous Improvement with F4i
- PROBE was identified by Grundfos as a tool in their winning the EFQM award in 2006

"Codexx, has over a period from 1997 made three valuable assessments according to the Probe model. This has helped us a lot when introducing the changes needed in our efforts to become a world class manufacturer. Our practice has improved dramatically from a middle level, now close to a world class level."

Mogens Henriksen,
Director of Supply & Manufacturing Processes,
Grundfos A/S

Introducing Codexx

Our mission

Codexx helps companies assess and then transform themselves to best practice operations. We work with industrial and professional services companies world-wide. Our close links with academics from major universities and business schools ensure that we bring leading thinking and methods.

Our people

We staff our projects from our consulting and academic associates who are proven experts in their field. Our consultants are typically older than in many of our rivals, as we seek to bring years of experience to our project teams.

Codexx Director



Alastair Ross

Alastair Ross is the Director of Codexx and has worked and consulted with industrial and service companies world-wide in business and manufacturing improvement for over 20 years. He works effectively with both executive-level management and operational personnel. He was previously a Principal in IBM Global Services and Managing Director of Supply Chain Analytics. Alastair has a BSc (Hons) in Mechanical Engineering from Southampton University and an MSc in Manufacturing Automation from Imperial College, London and is a Chartered Engineer. He has written and spoken widely on business improvement and his book *'Dynamic Factory Automation'* was published by McGraw-Hill. He has consulted on business innovation, best practices, benchmarking, lean manufacturing, supply chain management, continuous improvement and strategy for a number of major industrial companies including British Airways, Danfoss, DuPont, GKN, Grundfos, ICI, Lego, QinetiQ, Siemens, Stannah, Volkswagen.

Introducing some of our associates:

Manufacturing & Lean

Martyn Luscombe

Martyn has over 30 years manufacturing experience. Between 1996 and 2005 Martyn was Operations Director of Manufacturing Consultancy at Cranfield University, responsible for many lean assignments. His book 'MRPII - Integrating the Business' was published by Butterworth-Heinemann. He is a Chartered Engineer, has a BSc from Imperial College, London, and an MSc in Engineering Production and Management from Birmingham University.

Innovation & CI

John Bessant

John Bessant is Professor of Innovation Management at Imperial College, London. His areas of research includes the management of discontinuous innovation and continuous improvement. He is the author of 20 books and has consulted widely to companies and organisations world-wide. He has worked with Codexx on a number of projects covering business improvement and innovation.

Supply Chain Management

Philip Taylor

Philip has been a Supply Chain consultant for over twenty years including time as a consulting partner in PWC. He has consulted across multiple sectors world-wide covering key supply chain issues such as process improvement, organisational and skills development and ERP selection and optimisation. Philip has a BSc from Cambridge University.

What our clients say

"Alastair has shown excellent leadership and motivational skills with his team and our own GKN project team to keep morale high and taking the project forward despite setbacks. He has also shown lateral thinking abilities to explore alternate solutions when the direct route ahead has become blocked. Alastair has been a pleasure to work with."

Michael Stokes, Director Business Excellence, GKN

"Codexx helped us review the potential for applying Lean manufacturing techniques in an innovative new project area. This provided a high value input in a very effective format."

Antony Bridges, Principal Consultant, Security and Surveillance, QinetiQ

"Innovation is key for us. As a manufacturer in the West, you have to innovate or you'll be dead in 30 years. The Codexx 'Foundations for Innovation' assessment is a very good methodology for pulling out the key issues on innovation. It makes a lot of sense."

David Walton, Managing Director, Stannah Stairlifts

"Alastair Ross of Codexx provided Innovation Leadership training as part of our executive education summer school programmes in the Netherlands and Belgium. This was very well received by our business attendees."

Bie De Graeve, General Manager, Utrecht Campus, TiasNimbas Business School

"Your ideas on the activities of a World Class Manufacturing organisation initiated healthy discussion."

Herb McGrew, Manufacturing Director, 3M UK

"Alastair goes beyond the contract as would be expected in true partnership mode."

Anthony Wells – Operations Director, Caradon Trend

"Codexx, has over a period from 1997 made three valuable assessments according to the Probe model. This has helped us a lot when introducing the changes needed in our efforts to become a world class manufacturer. Our practice has improved dramatically from a middle level, now close to a world class level."

Mogens Henriksen,
Director of Supply & Manufacturing Processes,
Grundfos A/S

"Codexx worked closely with us to help us develop our firm-wide innovation process, management system and scorecard. This has given us a very effective process for developing innovative ideas into new services or ways of working."

Alison McClure, Business Transformation Partner,
Blake Laphorn Tarlo Lyons