

Balanced Scorecards and Project Filters: Alignment for Success

(a case study)



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Professional Bio:

- Nokia Mobile Phones, Americas Sourcing – Six Sigma Manager
- Motorola: automotive, commercial, communications groups
- Experience: 30 years - electronics, supplier management, statistical thinking
- ASQ Certified: CQE, CQM, CQA, CRE, CSQE
- Instructor: CQM, CQIA Section Refreshers
- Certified Facilitator: Creative Problem Solving

“If you keep doing what you’ve always done,
you’ll keep getting what you’ve always got.” (unknown)

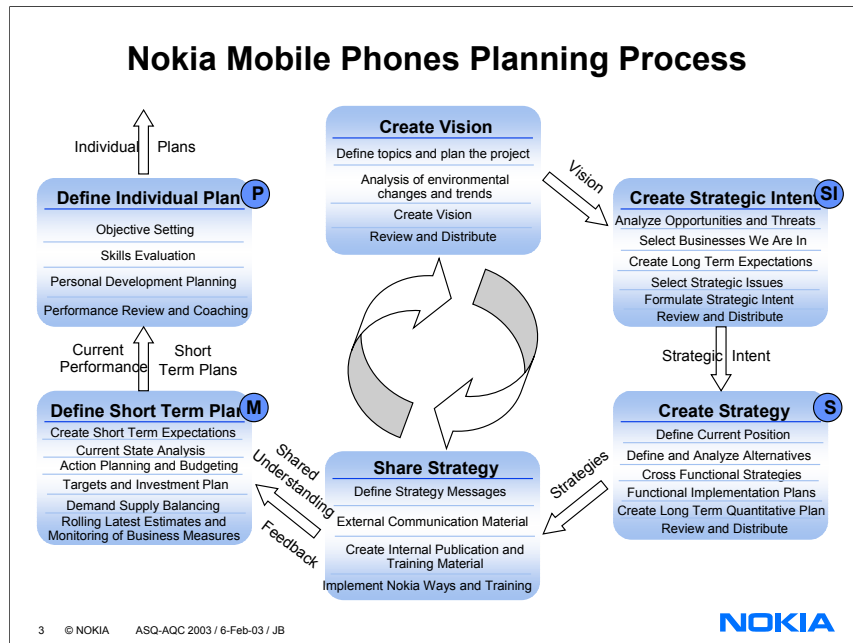
Topic Outline

- **Nokia Strategy Development Process**
- **Selection of Business Metrics**
- **Consolidation on Business Scorecard**
- **Integration into Project Filter**
- **Closed-loop System**

- **Not Covered:**
 - How to create a business strategy
 - How to make a traditional Balanced Scorecard
 - How to use various tools (Interrelationship Diagram)

Definitions:

- **Strategy** – thrust of business towards higher performance
- **Function** – large (multi-department) work group (Manufacturing, Distribution, Sourcing/Purchasing, Engineering, Support Services)
- **Metric** – tool / method to measure business performance over time
- **Scorecard** – tool used to monitor overall business performance of a Function
- **Filter** – tool used to segregate and/or stratify priorities of a business
- **Project** – focused activity to enact significant (breakthrough) improvement (like Six Sigma Project)
- **Project Leader** – individual who directly drives day-to-day activities of project team (BB/GB)
- **Sponsor** – business leader with authority and resources to give management support to a project (Champion)



Create Vision – not addressed in presentation

Create Strategic Intent – code SI

- activity at functional group level

Create Strategy – code S

- activity at functional group level

Share Strategy – not addressed in presentation

Define Short Term Plan - code M

- Metrics selected & Scorecard defined
- Align metrics to strategy

Define Individual Plan - code P

- Filter to align projects to Scorecard
- Projects initiated to meet Business Objectives
- Project managed to timeline & improvement goals

Codes used to track steps through process



SI

Nokia's Strategic Intent (2002)



Nokia, the trusted brand, creates personalized communication technology that enables people to shape their own mobile world.



America's Sourcing & Procurement Strategic Intent

Recognized internally and externally as the world Leader in Sourcing and Procurement (S&P) through excellence in:

- Cost Leadership
- Quality Leadership
- Flexible and Reliable Supply
- People Leadership and Value Based Partnership
- Six Sigma methodology part of S&P culture

SI



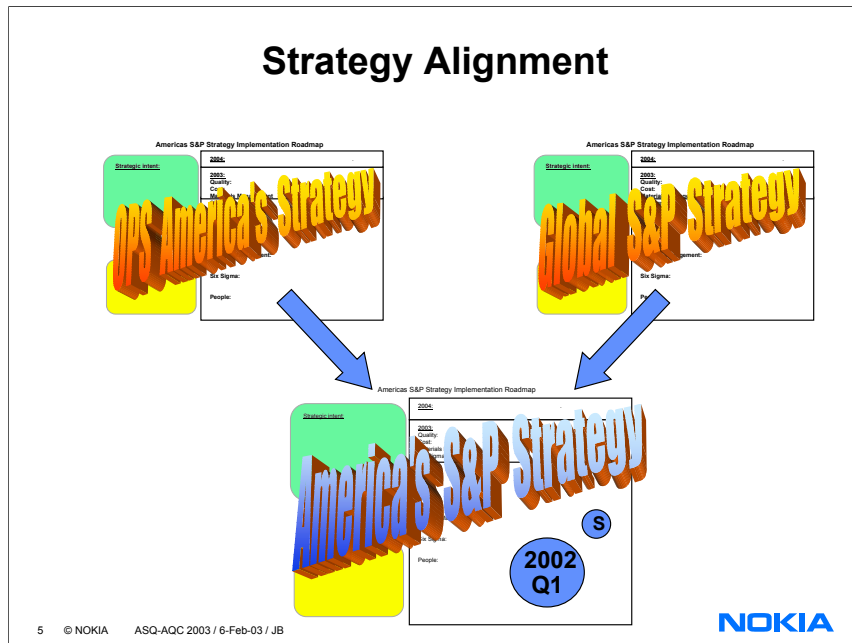
Corporate Strategy – code SI

- Flow down to Functions

Functions Strategic Intent

- Strategic Intent listed 5 key strategies
 - Cost
 - Quality
 - Materials
 - People
 - Six Sigma

Strategy Alignment



Parallel and Independent Top-Down Strategies

- From Americas Operations
- From Global Sourcing & Procurement

Integrated into Single S&P Strategy

- Completed early Q1 2002

Americas S&P Strategy Roadmap

Strategic intent:

Recognized internally and externally as the world Leader in Sourcing and Procurement through excellence in:

- Cost Leadership
- Quality Leadership
- Flexible and Reliable Supply
- People Leadership and Value Based Partnership
- Six Sigma methodology part of S&P culture

SI

Current state:

- Globally aligned Organization structure
- Supply strategies initiated
- Aligning Supplier Integration
- Six Sigma foundation being established
- Cost development process in place

2005:

S&P is a core competitive advantage for Nokia. In all areas, we are the trusted organization to systematically deliver the best. Supply network orchestration with fully web enabled tools.

2004:

omitted for simplicity

2003:

2002:

Quality:

S

Standardized measurement systems throughout region
Implement CQP v5.0 across all programs
Effective Quality Improvement Actions in each commodity
Successful attainment of ISO9000:2000

Cost:

S

Active Cost Benchmarking
Focus on product cost development
Active participation in Vendor Consortium>Tooling Costs

Material Mgt:

S

Develop warehouse deployment strategy plan
Alliance warehouse to support business needs
CoPla 90%

People:

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EOS improvement – higher than the average
Understand resource needs and skill sets

Six Sigma:

S

Fully operational Six Sigma within the Region

General:

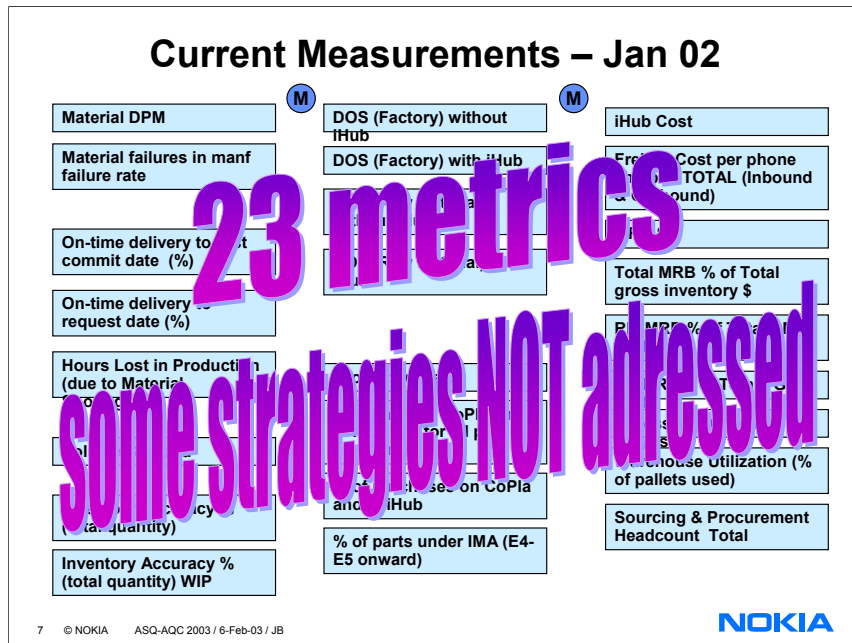
Implement Sourcing Scorecard
Ensure focus on product/program transition planning

Determine Current State

How to obtain Strategic Intent (future state)

Multi-year Strategies

- To move towards future state
- For each strategic group
 - Multiple actionable strategies
 - Maintained 5 key strategies throughout



Current Metrics – starting point

- Had 23 active measurements within S&P departments
- Many were ‘steering by the wake’
- Some strategies had no measurements
- Too many measurements caused too little focus
- Some measurements could be lower level (departmental) metrics
- Needed to gain focus on strategic movement metrics

Determine Metrics by Strategy

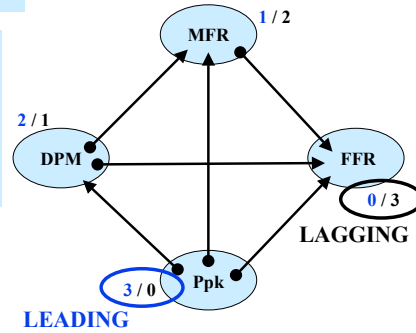
For each strategy, identified ^(M) significant metrics potentially used.

Utilized Interrelationship Diagram to determine which were “Driver” (leading indicators)

and which were “Outcomes” (lagging indicators)

Quality Strategy Example

Driver / Outcome
Leading / Lagging



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By strategy: (Quality Strategy sample)

- Listed current and potential metrics
- Utilized Interrelationship Diagram to compare each metric to others
 - For each paired comparison: which were “Drivers” – which were “Outcomes”
 - Continued paired comparisons until all relationships determined
- Counted number of outbound arrows (Drivers) / inbound arrows (Outcomes)
- Determined primary Driver – Leading Indicator of Strategy
- Determined primary Outcome – Lagging Indicator of Strategy

In Quality example:

- Supplier Performance (Ppk) was driver
 - all other performance flowed from it – most significant “upstream”
- Field Failures (FFR) was ultimate outcome
 - all other performance fed it – most significant “downstream”
- Avoid selecting lesser metrics
 - assure they are a significant indicator of strategic movement

Leading Indicators – tend to be action oriented with high influence / control

Lagging Indicators – tend to be influenced by multiple factors, but monitor end results from business perspective

Continued process for all Strategies

Balanced Scorecard Metrics

For each strategy, identified major leading and lagging indicator metrics. (M)

Identified each to Kaplan & Norton Balanced Scorecard groups:
 leading = Process & Development
 lagging = Cost & Customer

For each metric, weighted it relative to others on business & strategic impact

FACTOR		MEASURE	Weight	BSC group
QUALITY	lead	Supplier Performance	0.15	process
	lag	Material Field Fail	0.05	customer
COST	lead	Days of Supply	0.15	process
	lag	Cost Reduction	0.20	cost
MATERIALS	lead	Parts on EDI-Planning	0.15	process
	lag	On Time to Commit	0.05	customer
PEOPLE	lead	Training to Plan	0.05	develop
	lag	Employee Sat Survey	0.10	develop
SIX SIGMA	lead	Projects to Time Plan	0.05	process
	lag	Savings	0.05	cost
			1.00	

NOTE: due to confidentiality, weights are for example only

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Continue Process

- Select significant Leading and Lagging metrics for each Strategy

Leading Indicators – tend to be action oriented and high influence / control

Lagging Indicators – tend to be influenced by multiple factors, but monitor end results from business perspective

Each Metric is weighted to the strategic focus of the business for the following year

- For reference, each metric has been mapped to the four Balanced Scorecard groups as defined by Kaplan & Norton

Overall metrics are balanced by:

- Five Strategies (2 each)
- Leading & Lagging (1 each Strategy)
- Kaplan & Norton Scorecard groups (each has at least 2)

S&P Scorecard – Ready for Use

For each metric, define max (10), target (7), min (3) values.

Scorecard is ready for monthly use.

2002 S&P AMERICAS PERFORMANCE MEASURES

Score	Quality Leadership		Cost Leadership		Material Management		People Leadership		Six Sigma	
	Supplier Perform. (locations reporting)	Material Related FFR	Days of Supply	Cost Reduction	Suppliers in EDI Planning	On Time to Commit	Training to Plan	Employee Opinion	Projects on Time (late)	MUSD Savings
10	84.0%	1.2	10	24.8%	32	83.7%	114	59.8	30	2.20
9	78.0%	1.6	12	24.2%	29	83.1%	108	57.2	40	2.01
8	75.0%	2.0	14	23.7%	27	82.5%	102	54.6	50	1.84
7	72.0%	2.4	16	23.1%	24	81.9%	96	52.0	60	1.65
6	67.0%	2.6	21	20.8%	21	76.5%	84	49.4	68	1.38
5	54.0%	2.9	25	18.4%	17	71.1%	72	46.8	75	1.10
4	45.0%	3.1	30	16.1%	14	65.7%	60	44.2	83	0.83
3	36.0%	3.4	34	13.8%	11	60.3%	48	41.6	90	0.55
2	27.0%	3.6	39	11.4%	7	54.9%	36	39.0	105	0.28
1	18.0%	4.2	44	9.1%	4	49.5%	24	36.4	120	0.00
0	9.0%	4.8	48	6.7%	0	44.1%	12	33.8	150	0.00
Performance										
Score										
Weight	0.15	0.05	0.15	0.20	0.15	0.05	0.05	0.10	0.05	0.05

NOTE: due to confidentiality of real values, example metric / goals have been adjusted up to +/- 20%

Each metrics is transferred to the Function's Scorecard

Levels are set as anchor points (10, 7, 3)

Balance of scaling is distributed between the anchors

- typically linearly, but may have a knee effect of the 10-7-3 are not linear

Scorecard is ready for monthly use

- enter performance values at the bottom (displayed later in presentation)

Project Filter – Added Non-Operational

(1) Created Six Sigma Project Filters around the 5 Basic Strategies as **P**
“Operational” categories

ADDED

(2) 4 “Strategic” evaluation categories

		Business Impact							
		Operations					Strategic		
Quality Leadership									
Cost Leadership									
Material Management									
People Leadership									
Six Sigma Value									
						Information Accuracy	Strategic Initiative	Function Integration	Results Transferable
		0.20	0.20	0.15	0.15	0.10	0.05	0.05	0.05

Business Impact Filters

Operations Filters are placed in the Filter

- Key Strategies put on filter as Operations Filters
- Operations Filters - impact can be ‘measured’ using business metrics
 - Established that these would be 80% of Business Impact – weights rescaled

Strategic Filters are added to the Filter

- Strategic filters – impact of project NOT measurable in standard business metrics
 - Wanted ‘other’ category of filters, ‘softer’ value not well defined as Operations
 - Established that these would be 20% of Business Impact (distributed evenly)
- Strategic Filters for:
 - Information Accuracy – for better decisions
 - Strategic Initiative – fits the big, long term direction
 - Function Integration – improved alignment and working relationships in all directions
 - Results Transferable – can additional benefit be derived from initial effort

Project Filter – Business Value

(1) Created Six Sigma Project Filters around the 5 Basic Strategies “Operational” categories **P**

(4) Projects ranked by Business Impact

and added
 (2) 4 “Strategic” evaluation categories
 (3) Projects rated to each criteria

		Business Impact										
		Operations					Strategic					
Owner	relative value	Quality Leadership	Cost Leadership	Material Management	People Leadership	Six Sigma Value	Information Accuracy	Strategic Initiative	Function Integration	Results Transferable	Business Total	
Source Mgr	Reduce tool lead time	3	9	9	1	9	6	9	9	9	6.5	
PA-Supplier	Supplier - Cover Yield	9	9	6	3	9	1	6	6	6	6.7	
Matt Mgr	Reduce cost for traffic Routing	1	9	6	6	6	1	6	6	6	5.4	
PA	Reduce Cycle Time - Packaging	1	9	6	6	9	1	9	9	9	6.1	
Pur Mgr	Cost Reduction - Metals	3	9	3	1	9	1	9	6	6	5.0	
SQ Mgr	FFR Accuracy & Usability	9	3	1	6	1	9	9	6	6	5.1	
SQ Mgr	RMA Proces for Accessories	6	6	3	3	3	6	1	6	3	4.4	
Matt Mgr	Exel Inventory Accuracy	1	3	9	6	1	9	3	6	6	4.4	
Pur Mgr	Delinquent Accounts Payable	1	3	3	9	3	9	6	6	1	4.0	
Prod Mgr	Factory to Whse Return Accuracy	3	3	6	3	3	9	1	6	9	4.1	

NOTE: due to confidentiality, scoring is for example only



Projects added to Filter and rated

- Add all potential projects
- Rated 1-3-9 as Low-Medium-High impact on each Business Filter
- Do comparative values between projects to assure relative distribution of scoring

Business Impact Summary Ranking

- Mathematical product using rating value and weight b7y filter
- Rank order – highest sum has largest business impact, weighted heavily towards operational value

Project Description Worksheets

For each 'opportunity', define the opportunity using a "Project Description" worksheet, with **detail justifications** and **preliminary ratings** for criteria. P

Project Title: RMA Process for Accessories

Business Impact		
6	Quality Leadership	CPM, MFR, FR, CA, COP have shipped RMA materials back to customer / distributor - cosmetic defects due to additional handling
6	Material Management	CPM, MFR, FR, CA, COP replacement of RMA goods could be improved - inventory
3	Cost Leadership	CPM, MFR, FR, CA, COP carry cost in MRB of RMA goods, ad-hoc scrap
3	People Leadership	CPM, MFR, FR, CA, COP Ad-Hoc / inconsistent system - less Ownership
3	Six Sigma Value	CPM, MFR, FR, CA, COP carry cost of inventory, additional damage from
6	Inventory Accuracy	CPM, MFR, FR, CA, COP inaccurate inventories / misrepresented inven
1	Strategic Initiative	CPM, MFR, FR, CA, COP ability operations issue
6	Function Integration	CPM, MFR, FR, CA, COP improve relations with customers, distributor
3	Results Transferable	CPM, MFR, FR, CA, COP to other factories
Project Success Factors		
6	Ownership	who shared shared ownership with factory
3	Existence of Process	established -> none Ad-Hoc at best
3	Existence of Data	stable -> none none readily available
9	Urgency	process stability unknown stability - no data to verify
6	Stakeholder Coop	no-trainer -> no-trainer expect high cooperation
1	Cross-functionality	multiple involved factory, distributor, perhaps customer
6	Team Requirements	SB -> team -> consultant small team of SME's
6	Project Duration	month to 6 months 2-5 months possible
Submitted by: Debbie Doesalot		Notes:
Process Owners:		Date Submitted: 08/12/2002
		Filter Review:
		Charter Initiated:
		Champion:
Assigned as: Six Sigma CPI-7 Nokia 7 NCLoP Just DO IT Cancel		

Submitted by anyone in organization

Provides for and/or consolidates information about opportunity

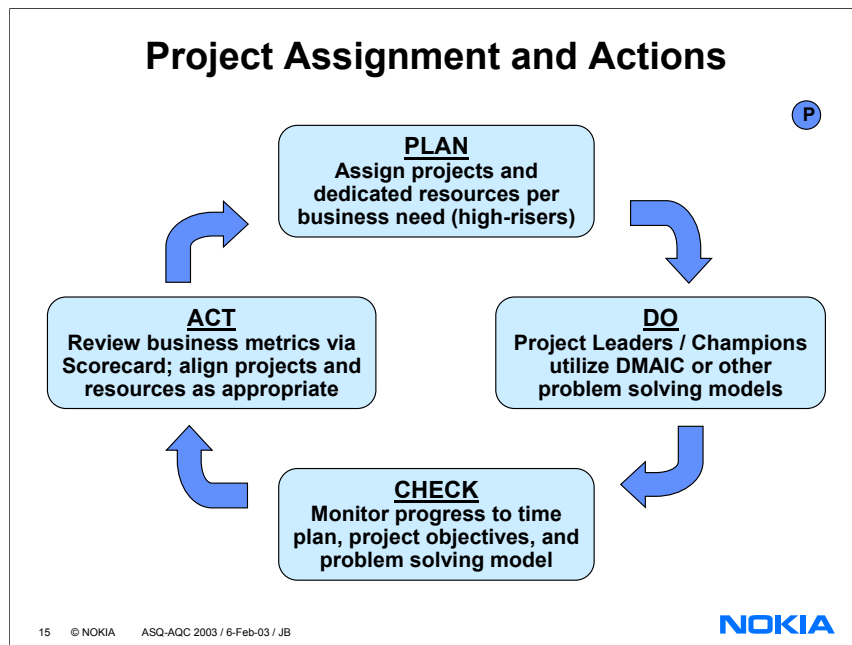
Provides for off-line rating

Tracks project assignment or disposition.

J:\Brockton 25-Jan-02 rev 0

Format for collecting potential project information

- Aligned with the Business and Success Filters
- Permits 'thinking' from all perspectives
- Permits pre-scoring by submitter / process owner / sponsor
- Maintains record of value of project (not just in submitters mind)
- Provides for assignment / disposition of project



PDCA – Plan

- Flow from business need
- Assignment of leadership & resources
- Established project goals (time/performance) as a Charter

PDCA – Do

- Project Leader (BB/GB) works the project
- Champion/Sponsor manage the project
- Follow DMAIC or other model

PDCA – Check

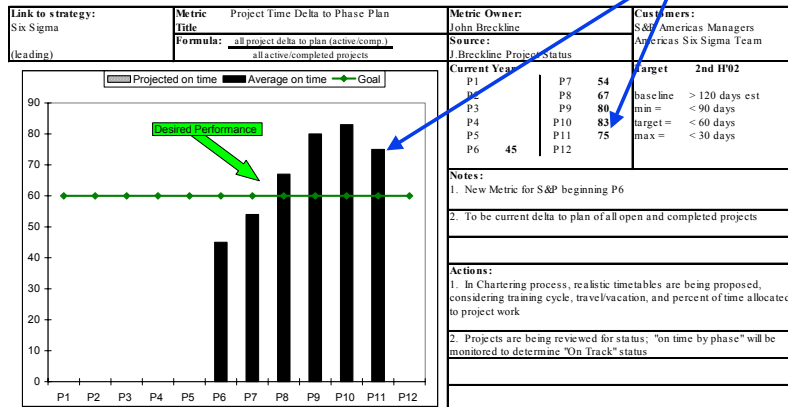
- Monitor progress to timeline / milestones (Phase Reviews)
- Monitor project to performance goals (improvement rates)
- Monitor project to defined problem solving model

PDCA – Act

- Understand impact to business metrics / Scorecard
- Reassignment of collective function and organization resources
- Are more projects needed to meet business / Scorecard performance goals

S&P Scorecard – Metric Detail

For each metric, performance is monitored monthly, with only summary value transferred to Scorecard M



NOTE: due to confidentiality of real values, example metric / goals have been adjusted up to +/- 20%

For each Scorecard metric

- Detailed worksheet
- Define metric – source data, formula, owner, etc.
- Define performance targets (baseline – min – target – max)
- Track performance over time – chart to goal
- Note actions being taken to meet goal – setbacks, etc.
- Defines need for additional projects to close performance gaps

S&P Scorecard – Monthly Performance

Monthly, each metric summary values are consolidated onto single Scorecard, and color-coded to general performance to target, with Management Review



2002 S&P AMERICAS PERFORMANCE MEASURES

Score	Quality Leadership		Cost Leadership		Material Management		People Leadership		Six Sigma	
	Supplier Pct. (0-100%)	Material	Cost	Suppliers in	OTD to Commit	Training to Plan	Employee Opinion	Projects to Plan (days late)	MUSD Savings	
10	78.0%	1.8	12	24.2%	29	83.7%	114	59.8	30	2.20
9	75.0%	2.0	14			83.1%	108	57.2	40	2.01
8	72.0%	2.4	16				54.6	50	50	1.84
7	63.0%	2.6	21				52.0	60	60	1.65
6	64.0%	2.9	25				49.4	68	75	1.38
5	45.0%	3.1	30				46.8	75	83	1.10
4	36.0%	3.4	34	13.8%	10	60.3%	44.2	80	80	0.83
3	27.0%	3.6	39	11.4%	7	54.9				
2	18.0%	4.2	44	9.1%	4	49.5				
1	9.0%	4.8	48	6.7%	0	44.1				
0	76.5%	1.0	28	20.1%	16	83.7				
Performance	8	10	4	5	4	10				
Score	8	10	4	5	4	10				
Weight	0.15	0.05	0.15	0.20	0.15	0.05				

Determine effectiveness of projects to business metrics

Identifies potential opportunities for projects

Maintains integration of projects, filtering and performance monitoring

NOTE: due to confidentiality of real values, example metric / goals have been adjusted up to +/- 20%



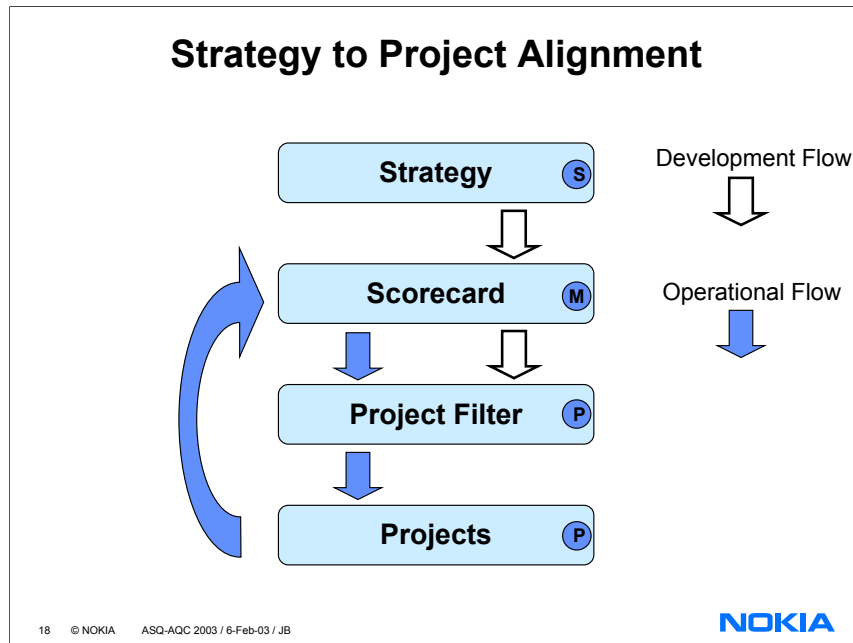
Summary Performance logged to Scorecard

Visual display

- Color graphics – Red-Yellow-Green to goals

Closed Loop

- Identifies effectiveness of projects
- Identifies potential needs for new projects
- Assures complete linkage of projects, filter, and performance



Development Alignment

- Strategy drives Scorecard Metrics
- Scorecard drives Filter criteria / weighting

Operational Alignment

- Scorecard maintains alignment to Filter
- Filter drives selection of Projects
- Project impact Scorecard performance
- Cycle continues

Scorecard remains in-tact unless Strategy drives change

- Minor shift of specific metrics based on effective strategy deployment
- Scorecard metrics provide stable basis to run business
- Department Scorecards rolled down from Function Scorecard