

*In the race for quality,
there is no finish line.*



The Top-down Quality Management Approach at TCMS, PPC, Bombardier

Röntgenveckan 2013
Akademiska Sjukhuset, Uppsala

Wolfgang Nester /Process Assurance
2013-09-03, TCMS, PPC/TTGP

*In the race for quality,
there is no finish line.*



Bombardier

Bombardier Transportation Svenska AB

- Del av ABB from till 2003
- WW ca: 33 000 anställda
- Varav ca: 1700 i Sverige
- Verksamheten omfattar; kompletta tåg, drivlinor, styrsystem och signalsystem
- TCMS – Train Control Management Systems
 - 65% interna kunder
 - 35% externa kunder
- SIL2/Safety – focus för TCMS

1 DEFINITION OF QUALITY - RELATED TO THE TRAIN INDUSTRY

2 WHAT IS QUALITY

3 QUALITY PRINCIPLES

4 QUALITY MANAGERS ROLE

5 SUMMARY

Agenda

*Even if you are on the right track,
you'll get run over if you just sit there*

2

DEFINITION

3

WHAT IS QUALITY

4

QUALITY PRINCIPLES

5

QUALITY MANAGERS ROLE

6

SUMMARY

7

REFERENCES



- **ISO 9000** - Implementing often gives the following advantages:
 - creates a more efficient, effective operation
 - increases customer satisfaction and retention
 - reduces audits
 - improves employee motivation, awareness, and morale
 - increases profit
 - reduces waste and increases productivity
 - common tool for standardization
- **EN50128** - defines SW for railway control and protection systems
- **EN50129** - defines safety related electronic systems and signaling
- **IRIS** - International Railway Industry Standard
- **CMMI** - Improving process for developing better products and services



- **Quality Definitions**

- Customer-based definitions
- Manufacturing & Service-based definitions
- Value-based definitions



- **Quality**
 - a question of degree
 - a question of the point of view
 - is always relative to a set of requirements
- **Quality Management**
 - Includes all the activities that organizations use to direct, control, and coordinate quality
 - formulating a quality policy and setting quality objectives
 - quality assurance, quality control, quality planning and quality improvement
 - Quality management is focused not only on product, but also the means to achieve it

Agenda

Don't ask others to do what you are not willing to do yourself

1 PURPOSE

2 DEFINITION

3 WHAT IS QUALITY

4 QUALITY PRINCIPLES

5 QUALITY MANAGERS ROLE

6 SUMMARY



- **Quality expectations and areas for improvement**

- Project related
 - Follow processes
 - Review setup & conduction
- Platform related
 - Handle staff changes in projects
 - Doc review/participate
 - Bad (and re-use of non-valid) templates (from anywhere)
 - Eliminate interruptions
- Product related
 - Create all the necessary conditions/qualities to success
 - Support Gates handling
 - Documentation setup to face the gates
 - EPP-structure setup
- Mgmt related
 - Document plan
 - Provide correct elements in doc's
 - Educate in review of doc's
 - Unified obsolescence setup for all products

Agenda

The purpose of an organisation is to enable ordinary people to do extraordinary things

1 PURPOSE

2 DEFINITION

3 WHAT IS QUALITY

4 QUALITY PRINCIPLES

5 QUALITY MANAGERS ROLE

6 SUMMARY

Quality Management

Self Assessment



Quality Level	Global Process Approach	Global Process Approach to Management	Continuous Improvement	Use of KPIs	Supplier Relationship
5	All process documented and in place, process owner, metrics	Management metric visible, living global approach	Process improvement is routine for all processes	Statistic is a common language among all employees	Supply Chain Management in place
4	Metrics to core processes defined	Overall metrics defined	Routinely used for manufacturing	All Departments use KPI techniques	Partnerships established and documented
3	All core processes documented	Core processes defined, global approach accepted	Only used for selected processes	KPIs planned in other departments	Supplier / QM Teams. Purchase orders planned
2	Core process charts have been started but not completed	Management involvement planned Metrics planned	Process improvement accepted, some lessons learned performed	KPI used in manufacturing (Product oriented)	Planning for supplier partnership
1	No/few processes documented, no metrics (defects in manufacturing)	No evidence of management visions or acceptance	No process improvement defined	No data collection	Traditional supplier management

Quality Management

Self Assessment



Quality Level	Organisation is customer driven	Customer Satisfaction	Leader Ship	Invovement of People
5	Customer Satisaction is the primary goal	More customer state intention to maintain longterm business relesionship	Leadership and vision is known to all employees communication culture established	Self directed work groups
4	Customer Feedback used in decision making	Striving to improve value to customer is a routine behaviour	Focus is on improving the system, communication system implemented	Manager defines limits, asks group to make decisions
3	Tools used to include wants and needs of customer in design	Positive customer feedback/complaints used to improve	Overall vision of company and plan in work, two-way communication	Manager presents problem, gets suggestions, makes decision
2	Customer needs are known	Customer rating of company is known	No overall vision and plan in place	Manager presents ideas and invites questions, makes decision
1	Employees do not know customers or needs /wants/thoughts	Customer concerns/ needs not thought of	Employees do not know CEO or his vision, no contact	Manager tells Employees what do do Hierarchal

Agenda

*Speaking with data is a prerequisite
in successful process management*

1 PURPOSE

2 DEFINITION

3 WHAT IS QUALITY

4 QUALITY PRINCIPLE

5 QUALITY MANAGERS ROLE

6 SUMMARY

Quality Managers Role

→ today / tomorrow



- Author (and Maintainer) of the Quality Assurance Plan
- Consultant in defining of the Quality Requirements for Products and Projects
- Support of the Lead (Product, Project)
- Checks if the project follows the defined processes and is performing the defined activities
- Analysis of systematic errors in the Project
- Initiate Follow-ups and continuous improvements
- Author of Quality Reports
- Contact to project external Quality Manager
- Performs “Lesson Learned” Sessions
- Actively involved in Process design

Quality Managers Role

→ today / tomorrow



- A real responsibility to protect both the supplier and the client from the consequences of poor quality
- Chair causal analysis meetings and ensure the team take action to eliminate error causes
- Consultants specialise and help their clients in many areas, including:
- Strategic planning - defining vision and direction
- Training and people development
- Quality-related disciplines, e.g. process reengineering, management systems, etc.
- Areas of the quality infrastructure, e.g. standardization, certification, regulatory and voluntary compliance

Quality Managers Role

→ today / tomorrow



- Must be a member of the project team, not an outsider
- May be a part time role perhaps for one of the team leaders, but will be a full time role on a large software project
- Build the quality plan: who will inspect which bits of others' work and when
- Ensure the team perform the planned quality tasks properly
- Organise inspections, acts as moderator for some inspections (though any team member can moderate inspections)
- Organise and drive simulations
- Compile and analyse quality measurements and ensure the team address quality problems revealed by the measurements
- Report on quality matters to the project manager

Process Portal Starting Point

BOMBARDIER

This Site: Processes

- Management
- Public
- Processes
- P-Projects
- O-Projects
- Safety project
- PATH
- TT
- TTR
- TTG
- TTO
- TTA
- TTP
- TTX
- TT1
- TT2
- TT3
- TT4

- Documents
 - Frozen Documents
- Lists
 - All Guidelines
 - All Links to PPCQA
 - All Checklists
 - All Templates
 - All Tool Links
 - All Good Examples
 - All Quality Gates and Milestones
 - Standard Documentation
 - List Highlights
 - Detailed Process
 - Descriptions
 - Process Portal Feedback
- People and Groups

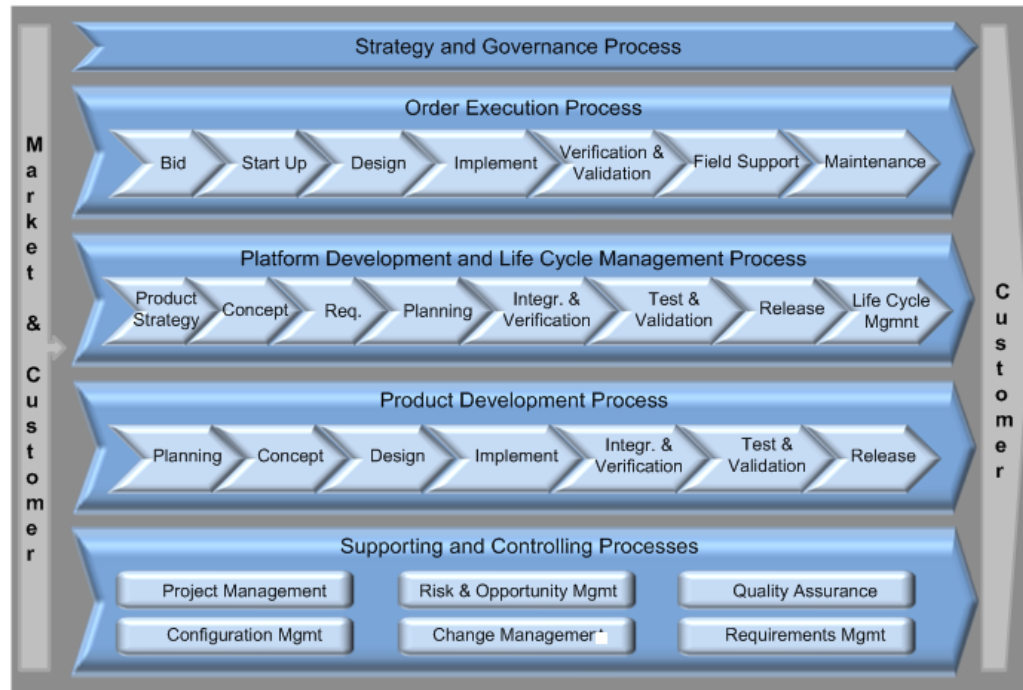
PPC TCMS SHAREPOINT > **Processes**

Welcome to the **TCMS Process Portal**.

Announcements

New Actions Settings		
Title	Body	Created
Links to existing TCMS assets in PPCQA	All today existing PPCQA documents for TCMS are linked to the appropriate list in the left Navigation Bar in the Process Portal.	2011-12-01 14:48
Implemented links in Navigation Picture	Button for Change Management, Header for Platform Development Process, Product Development Process and button for Planning in Product Development Process are implemented. The data isn't complete, but only valid data is used.	2011-11-25 13:29

Navigate by clicking on buttons in Process Overview



Contact

Mari Madesater-Sellin +46 10 852 7657
 Nina Haggblad +46 10 852 8575



General TCMS Process Links

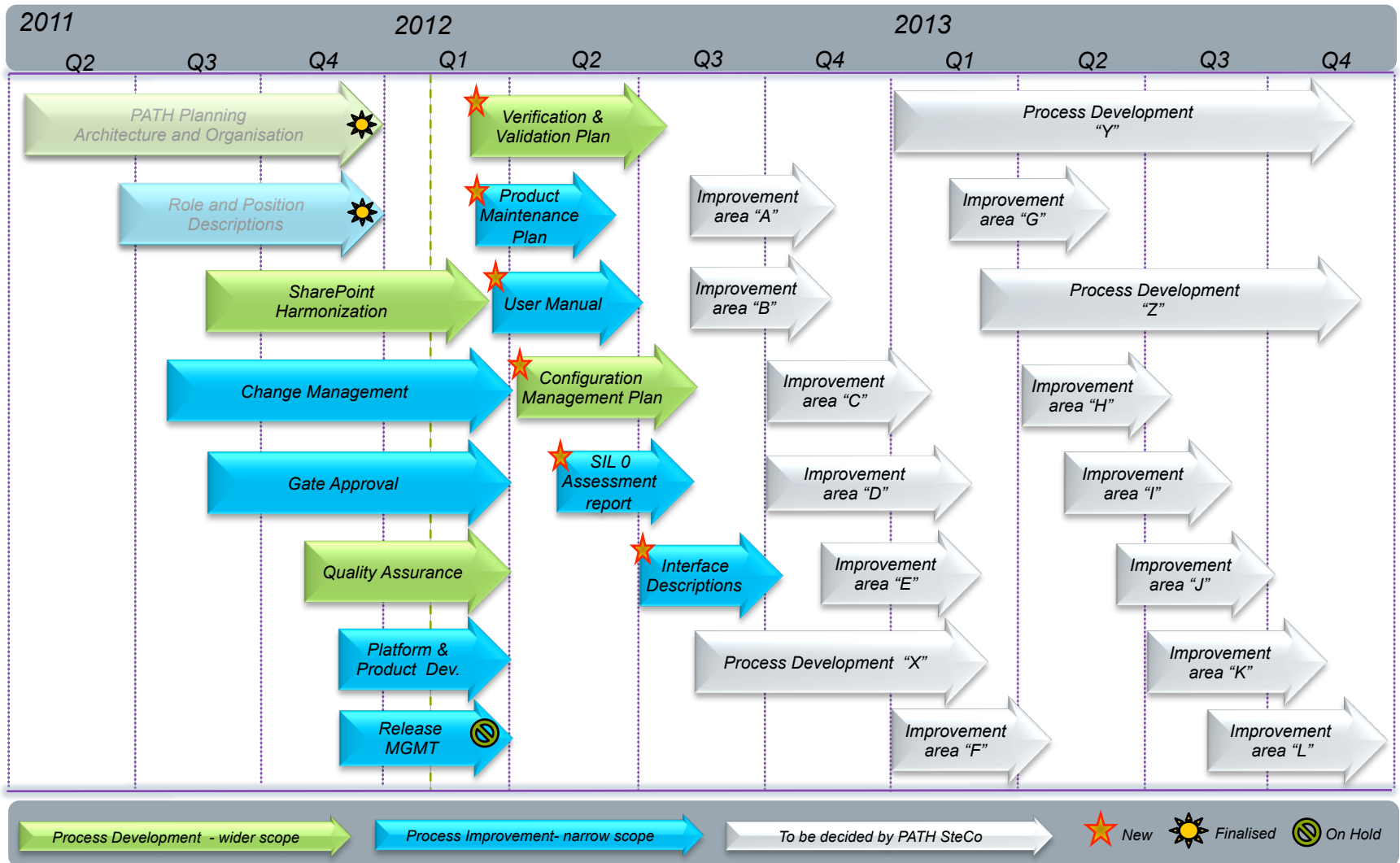
- [PPCQA database](#)
- [PPC Products & Engineering Handbook](#)
- [Policy for Handling SIL 0](#)
- [Guideline for Handling SIL 0](#)
- [Process Support Tools Wiki](#)

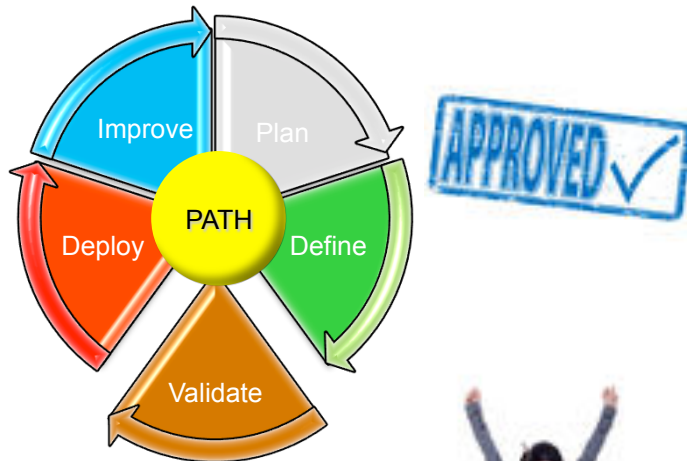
External Process Links

- [IRIS Rail standards](#)
- [CMMI](#)

PATH Program Road Map 2011 - 2013

February 22 2012





Major Tasks :

- G1: Perform formal reviews - Consultative team
- G2: Confirm process and process documentation with Program Steering Committee and with TCMS Steering committee, if required
- G3: Identification of pilot application, if required
- G4: Preparation and execution of Awareness Training for pilot teams
- G5: Execute pilot, if required
- G6: Perform a lessons learn session to identify process improvements
- G7: Process documentation updated

Agenda

Most of us like to discover our own areas for improvement

1

PURPOSE

2

DEFINITION

3

WHAT IS QUALITY

4

QUALITY PRINCIPLES

5

QUALITY MANAGERS ROLE

6

SUMMARY



- **Svårigheter i Processarbetet för TCMS**
 - Linjens ägarskap av processer
 - Prioritering av “Lessons Learned” i projektens slutfas
 - Globalisering av Processer
 - Harmonisering av Processer och Verktyg
 - Följa Processerna
 - Hantera förändringar (Change Management)
 - Kvalité ännu inte “Normalläget”
- **Quality Improvement begins with awareness**
 - Develop a positive mindset
 - Train the relevant people
 - Share the learning across the organisation



- **Framgångar i Processarbetet för TCMS**
 - Kvalitets rollen ingår i projekten - fler aktiva i “förbättringsarbete”
 - VU-arbete sker i varje team – drivs av resp linje chef/VU-coach
 - Process Portalen – tillgänglig för alla
 - Etablerat sätt att fånga in förbättringar (Process Change Request)
 - Förslag adresseras med aktiv uppföljning - dvs infrastruktur (CCB) som coachar/underlättar
 - Kundkrav i fokus (med möjlighet till Benchmarking)
 - Aktiv intro till nyanställda
 - Regelbunden process utbildning - Gratis

Thank you very much for
your attention



Questions?

BOMBARDIER

the evolution of mobility