

# Nautical Chart Production

## Meeting Quality Expectations



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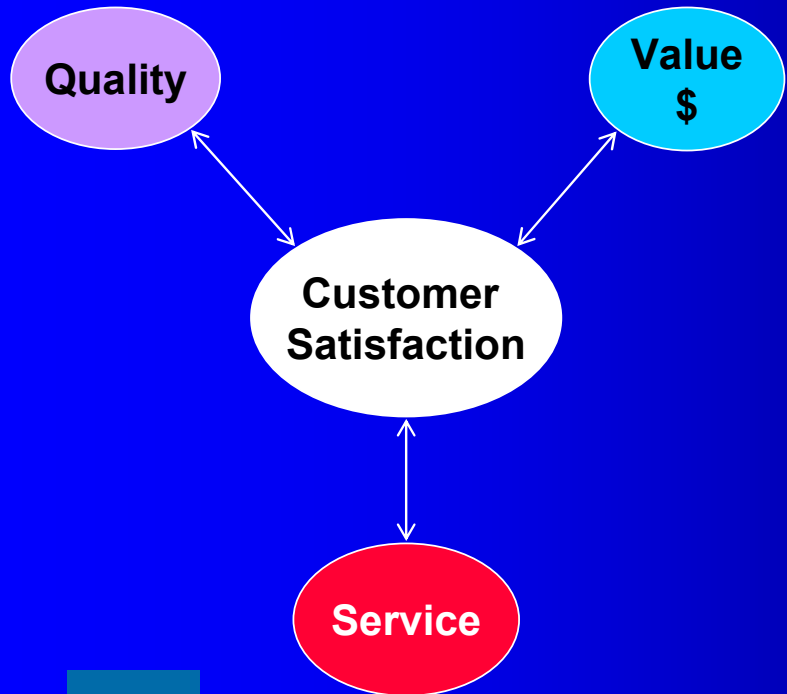
*Standardization through Quality*

# Objectives

- Outline HSA's Quality Philosophy for producing traditional paper charts and derivative digital products
- HSA's production philosophy is driven by Quality



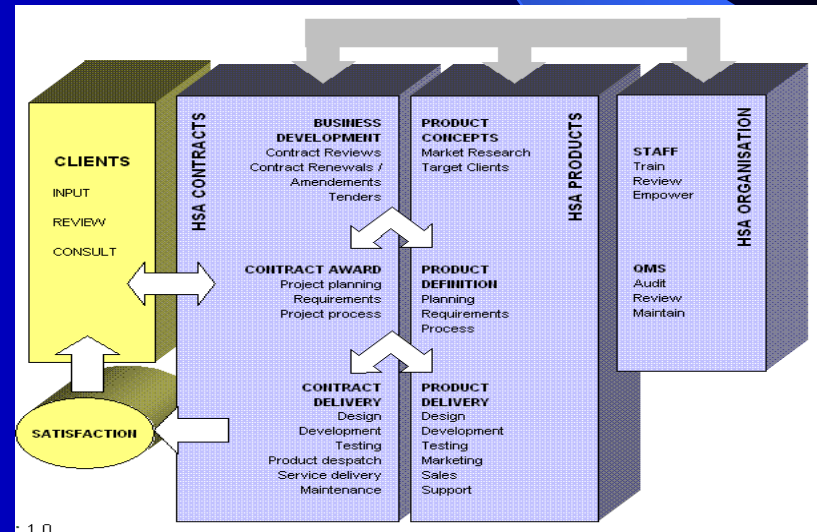
# Client Requirements



- The client requires HSA to produce charting products conforming to national and international specifications
  - Service provision must be timely
  - Quality of the product is paramount and must not to be compromised
  - The client expects value for money
- National HO should be proud to publish its charting products to the world

# HSA's Quality through Production Philosophy

- Conformance to Corporate Policy
- Quality Processes throughout Production
- Investment in Training



# Conformance to Corporate Quality Policy

- HSA certified to ISO9001:2000
- Production operations guided by:
  - Quality Manual
  - Operational Procedures
  - Project Specifications, Quality Plans
  - International and National Standards



# Quality Objectives

- Compliance to client requirements and product specifications and standards
- Cooperative attitude towards changing client requirements
- Quality starts at the Source
- Commitment towards Continuous Improvement



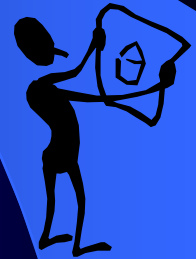
# Production Overview

- Project Evaluation and Planning
- Chart Compilation
- Chart Composition
- Product Generation



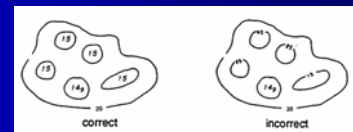
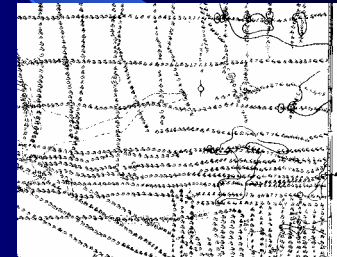
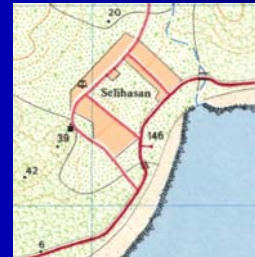
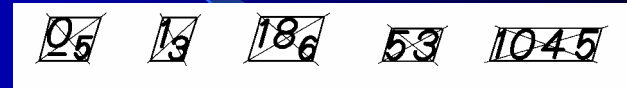
# Project Evaluation and Planning

- The charting project is evaluated from the start to the finish
  - Production Plan is compiled by evaluating all of the available data
  - Source data identification and registration
  - Production Methodology
  - Production Technology
  - Data Dependencies
  - Identifying production issues early
  - Production Estimates
- Independent review of the Production Plan



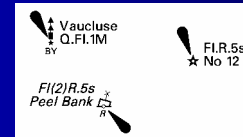
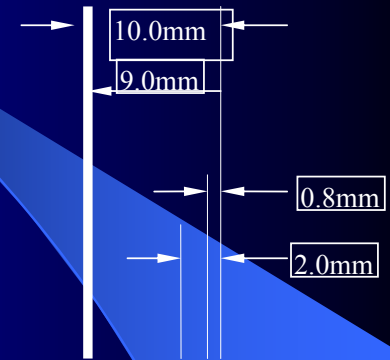
# Chart Compilation

- Spatial layout of data
- Geodetic control
- Data Selection, Capture, QC
  - Topographic detail
  - Hydrographic detail
- Quality Control milestones
- Process review
  - Continuous improvement of technical documents and production specifications



# Chart Composition

- Spatial layout – conformance to IHO INT 2
- Symbology and colour – conformance to IHO INT 1 and national specifications
- Nomenclature and Data Presentation – conformance to IHO and national specifications
- Production checklists
- Quality Control milestones
- Process review
  - Continuous improvement of technical documents and production specifications



# Product Generation

- **Traditional Paper Chart** – conformance to IHO and national specifications for presentation, structure and printing formats
- **Digital Paper Charts** – conformance to output production specifications for Print-on-Demand (POD) and digital repro mat provision
- **Raster Navigational Charts** – conformance to product specifications for RNC's (UKHO NP760 HCRF)
- **Ad-hoc products** – conformance to national HO product requirements (GeoTIFF, HSA RNC, etc)



# Investment in Training

- Hydrographic Knowledge
- Technology
- Corporate Quality Processes



# Training – Hydrographic Knowledge

- Hydrographic charting requires specialized training not usually obtained through normal academic institutes
- Cartographers receive in-house training in areas of:
  - Production methodology – project management, compilation, product composition
  - Conformance to specifications – paper charts, S-57 ENC, Raster Navigation Charts (RNC)
  - Geodesy and projections relevant to hydrographic charting
  - Cartographic presentation of navigational charts
  - HSA has developed comprehensive set of training materials



# Training – Technology Skills

- Production software is specific to hydrography
- HSA cartographers are skilled in:
  - Data selection – manual and automated data analysis depending upon source data
  - Compilation and maintenance – raster and vector compilation, encoding and edit tools (e.g. HSA's RDC, HSA/7C's ENC Designer)
  - Product preparation and validation (RNC and ENC QC tools – e.g. HSA's Seafarer Viewer, HSA/7C's Analyzer, Hydroservice Inspector)
  - HSA-developed charting specifications are web-enabled for intranet access



# Training – Corporate Quality Process

- Senior cartographers are trained to perform Internal Audits of production projects
- All cartographic staff are trained in:
  - HSA's Quality Management System (QMS)
  - Online and manuscript procedures, specifications, etc
- Chart production tasks are completed with close-out meetings to review production methodology, technology, issues, actual versus estimated timings, etc.
- Entire production process has been flowcharted and is reviewed based on client requirements and revised processes



# Conclusion

- HSA provides a proven and reliable chart production service driven by quality initiatives
- Production methodology has been in place since 1997
- Produced over 60 new charts and new editions for the Australian Hydrographic Service and 36 new charts and new editions for Land Information New Zealand
- Maintains the Australian Chart Series of 400+ charts and the AHS Seafarer RNC product suite (since 1997)
- Seeks to continuously improve service delivery through innovation and improvements to specifications, documentation and technology

