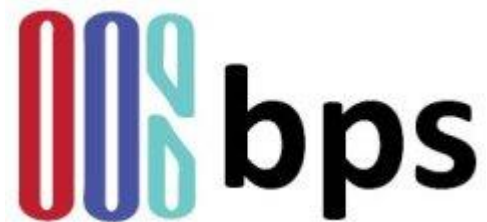


UNDP CIRDA Workshop



Nick Grenfell
March 2015

Agenda

- BPS Background
- Overview of SA Weather Service Support
- Building Cost & Profitability Models
- Regulatory Environment
- Commercial Environment
- Conclusions

BPS Background

- Founded in South Africa 1995
- Cost & Profitability modeling and analysis
 - Software
 - Consulting
 - Training
 - Technical Support
- Software
 - Value Added Reseller for SAS Institute
 - Development of proprietary software tools
- SA Institute of Chartered Accountants
 - Strategic Management Accounting Forum
 - Cost & Profitability
 - Carbon Accounting
- Society of Cost Management
 - Executive Committee



BPS customers include



JOHANNESBURG STOCK EXCHANGE



a world class African city

Relationship with SAWS

- 2002-3
 - Construction of original cost model
- 2003-9
 - Update of cost model
- 2009-15
 - Cost & Profitability Modelling
 - Tariff Modelling
 - Regulatory submissions for Aviation sector

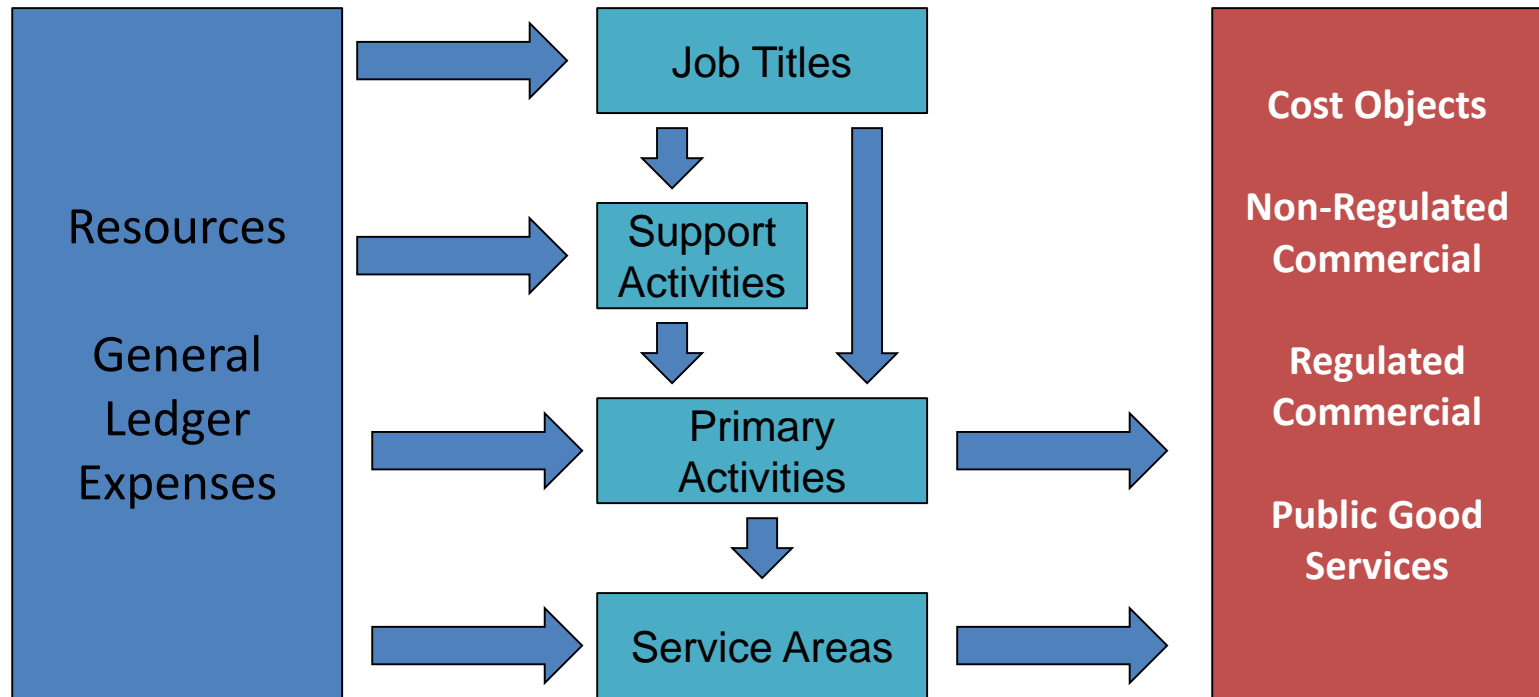
Building a Cost & Profitability Model

- Activity-Based Principles
- Allocation of operating expenses (Resources) to business processes or work areas (Activities)
- Allocation of Activities to Customers and Products or Services
- Cost Drivers determine the flow of cost in the model
- Identifying & separating out Revenue streams

Nature of Costs

- Service industries
 - 65% or more of costs are People-related
 - 90% or more of costs are People, IT and Accommodation
 - Product/Service complexity increases proportion of shared costs
- Weather Services cost drivers
 - Public Good Mandates & Legislative Requirements
 - ICAO requirements
 - WMO requirements

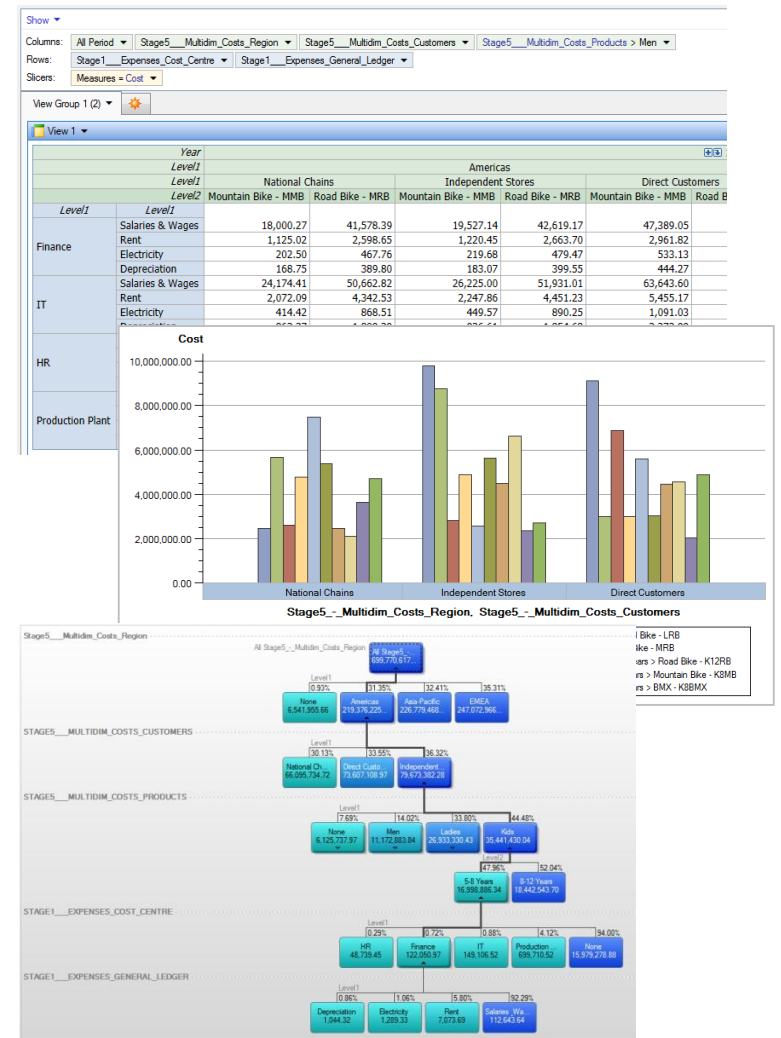
SAWS ABC Cost Flow Schema



Data loaded for Actual Financial Year and Budget for 3 Year Permissions Period

Model Analysis

- Cost & Profitability by Customer & Product/Service
 - Regulated Commercial
 - Non-Regulated Commercial
 - Public Good
 - Projects
- Contribution Reporting
 - Activity Contribution
 - Resource Contribution



Visibility of Costs

- Principles of costing in a regulatory environment
 - Transparency
 - The results of any cost allocations can be traced throughout every step to the origin of the expense
 - Fairness
 - The cost drivers selected must reflect the consumption of the resource or activity being allocated

Regulation of Weather Services

- South African Weather Services Act 2001 (Amended 2013)
 - Defines the objectives & functions of the organisation
 - Define international obligations under WMO & ICAO
 - Establishes the Regulating Committee of Meteorological Services (RCMS) to regulate its commercial activities



Regulating Committee for Meteorological Services

- The Committee must –
 - set broad limits on prices of services and products of the Weather Service;
 - determine the level of user charges to be applied to the aviation and maritime industries by the Weather Service and advise the Minister on the making of regulations in this regard;
 - ensure that the Weather Service does not abuse its position, but in such a manner as not to place undue restrictions on the Weather Service's commercial activities and guard the Weather Service against unfair competition from national and international private weather services;
 - promote the safe, efficient, economical and profitable operation of the Weather Service;
 - promote the reasonable interest and needs of clients and customers of the Weather Service;
 - monitor service standards and, where necessary, issue instructions to the Weather Service for improvement; and
 - perform any other function assigned to it by the Minister.

Regulatory Framework

- Framework developed for determination of Aviation user charges
- Enables SAWS to recover:
 - Operating expenses
 - Return on Capital Employed
- Correction factor enable over/under recoveries to be incorporated into tariffs in future periods



Operating Expenses

- Cost model determines costs associated with the provision of Aviation Met services
 - Dedicated costs – e.g. Radars situated at airports
 - Shared Costs – e.g. High Performance Computing forecasting
 - Overhead costs – e.g. finance billing & collection costs

Return on Capital Employed

- Based on the Capital Asset Pricing Model
- Asset Register analysed to determine the Net Book Value of dedicated and shared assets associated with the provision of Aviation Met Services - Regulated Asset Base (RAB)
- Weighted Average Cost of Capital calculated
- Capital Allowance
 - $WACC \times RAB$

Revenue Model

- Eurocontrol Formula used as a mechanism for route charging by Air Traffic Management providers :
 - No of Flights
 - Flight Distance
 - Maximum Take-Off Weight (MTOW) in metric tons

$$\text{No of Flights} \times (\text{Flight Distance} / 100) \times \sqrt{(\text{MTOW}/50)}$$

- Calculation results in a number of *Service Units*
- Rates are determined per Service Unit based on:

$$(\text{Operating Expenses} + \text{Capital Allowance}) / \text{Forecast Service Units}$$

Example

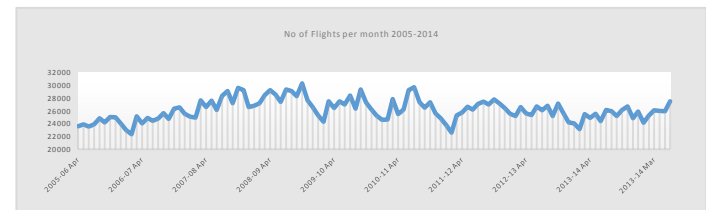
- Boeing 787-800
- Johannesburg – Cape Town
- No of Flights = 1
- Distance = 1,270 km
- MTOW = 79,015 Kg
- Service Units = $1 \times (1,270/100) \times \sqrt{(79.015/50)} = 16$
- 2014 Approved Rate = 45.66 ZAR = 4.00 USD
- Charge for flight = $16 \times 4 = 64.00$ USD
- ATNS web calculator with other TMA charges

The screenshot shows a web calculator interface for flight charges. The top section contains input fields for Movement Date (28/Feb/2015), Departure (FAJS - OR Tambo Internati), Arrival (FACT - Cape Town Internal), Flight Rule (IFR), Aircraft Type (B737), and MTOW (79015). A 'Calculate Charges' button is located below these fields. Below the button is a 'Tariffs' table with the following data:

Tariffs			
Distance:	616.00		
Aerodrome (Departure):	829.13	Aerodrome (Arrival):	829.13
TMAAccess (Departure):	1177.69	TMA Access (Arrival):	1177.69
Area:	3778.43	Total:	7792.07
		SAWS:	729.24
		VSAT:	.00
		NAFISAT:	.00

Forecasting Aviation Volumes

- Correlations between revenue equation's variables and leading indicators are difficult to establish
- Experience indicates:
 - Individual airline strategies for largest domestic airline(s)
 - International trends
 - Economic indicators
 - Aviation Regulation



Over/Under Recoveries

- Regulatory Framework determines the cost to be recovered during the period
 - Cost variances
 - Volume variances
- Correction factor protects both SAWS and the Aviation industry
- Applied based on audited financial results

Exemptions

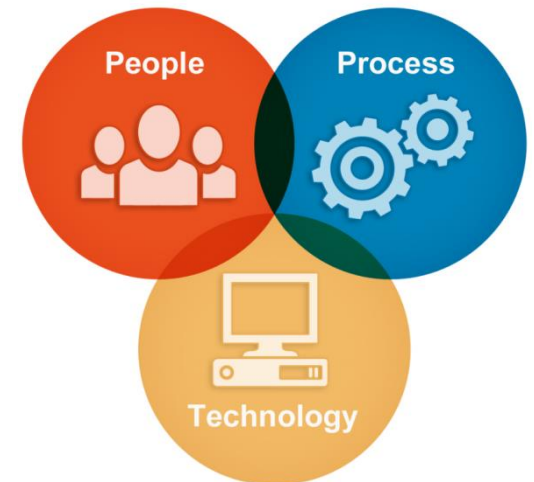
- Eurocontrol formula exempts “General Aviation”:
 - Aircraft < MTOW 2,000 Kg
 - Aircraft < MTOW 5000 Kg using Visual Flight Rules
 - SAWS experience:
 - Pilots of small aircraft less able to interpret weather data
 - More likely to contact forecasters directly
 - Pay-for-Use as opposed to subscription-based billing
 - Establish that regulated aviation sector is not cross-subsidising General Aviation
 - Challenge: to develop a commercial model for billing & collection of low value invoices
 - Overriding concern for public safety

Billing & Collection

- Air Traffic Navigation Services
 - Collects data on all flight movements
 - Calculates invoice value
 - Prints & sends invoice on behalf of SAWS
- SAWS
 - Prints statements
 - Manages debtors

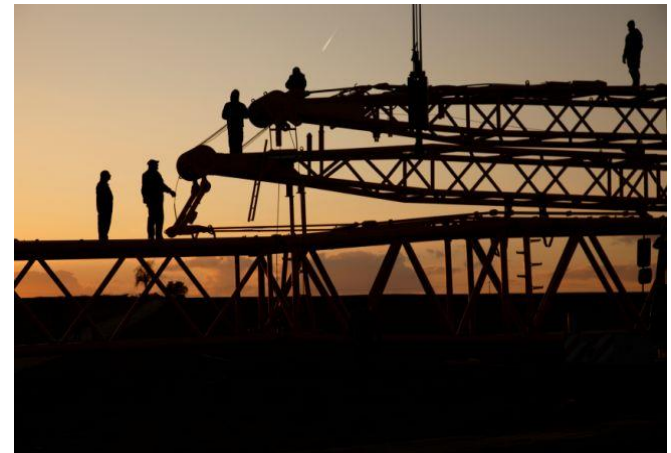
Non-Regulated Services

- Public Sector challenges
 - Defining a service catalogue
 - Public Good Services
 - Commercial Products & Services
 - Ring-Fenced Projects
 - Defining a tariff methodology
 - Aligning People, Processes & Technology



Service Catalogue

- Discrete products or services
- “Components” which may be bundled into products and services
 - Menu Options
 - Service Levels
 - Service Contracts



Tariff Methodology

- Regulated tariffs define cost recovery and reasonable returns
- Non-regulated service tariffs can consider a number of approaches including:
 - Market-related price based on competitive offerings
 - Margin Contribution
 - Value of Product or Service
 - Customer relationship
 - Met Service Strategic Objectives



People, Process & Technology

- People
 - Common understanding of service definitions
 - “Commercial mindset” for commercial products & services
- Process
 - Complete & accurate sales recording
- Financial Systems
 - Product & Service catalogue loaded
 - Sales Quantities & Revenues captured
 - Customer detail captured
 - Bill of Materials loaded
 - Sales reporting

Public Good Services

- Greater understanding of costs and cost behaviour
 - Demonstrate costs of ring-fenced projects
 - Enhance quality of funding applications
 - Support budgeting processes
 - Reporting results
- Example
 - Funding for specific projects must include an appropriate allocation for administrative costs

Conclusions

- Cost & Profitability models using Activity-Based principles provide organisations with greater financial insight
- Model can be used to support tariff decisions in both Regulated and Non-regulated Commercial services
- Model can be used to support funding requests for Public Good services or discreet projects