

# How WPS Analytics can monetise your telco data.

This paper focuses on common barriers preventing organisations from optimising their data assets and how WPS Analytics solves these issues.

## Specific relevance to telco

- ⌚ Sector plagued by churn issues due to saturation
- ⌚ Big data profit gain promises not being delivered

## Common challenges that can be answered with WPS Analytics

Key considerations	Target benefits
<ol style="list-style-type: none"> <li>1. Customer journey</li> <li>2. Legacy programs</li> <li>3. Open source integration</li> <li>4. Cloud deployment</li> </ol>	<ol style="list-style-type: none"> <li>1. Productivity</li> <li>2. Software savings</li> <li>3. Simplification</li> </ol>

## Optimising customer journey profit

- ⌚ Inform marketing with associated risk costs
- ⌚ Reduce exposure by making credit and NBA decisions in real-time throughout the customer journey

Acquisition	Identify prospects with lowest credit risk/highest potential
	Reduce acquisition of prospects likely to default or switch
Servicing	Timely up-switch across products/services
	Identify those with financial capacity to up-switch
Retention	Customers least likely to default or switch
	Customers most likely to deliver financial value

Robust data scoring identifies high value prospects/customers to allocate appropriate resource

Real-time analytics

Micro-segmentation & optimised messaging

Leveraged across multiple data sources

**WPS Analytics**

Flexible delivery

Software & training

Software & knowledge transfer

Models as a service

Flexible platform

Private cloud

Managed service cloud

On premise

**Development**

Coding and Workflow

Git integration

All data access engines

R/Python interoperability

SAS language  
(without the need to install any third-party products)

**Governance**

User management

Data access governance

Dataset library publishing

**Deployment**

Git integration

Run-time management

API connectivity

Scheduling

## Not all analytics software delivers the same value. Advanced analytics delivers high value outputs.



But must deliver financial return

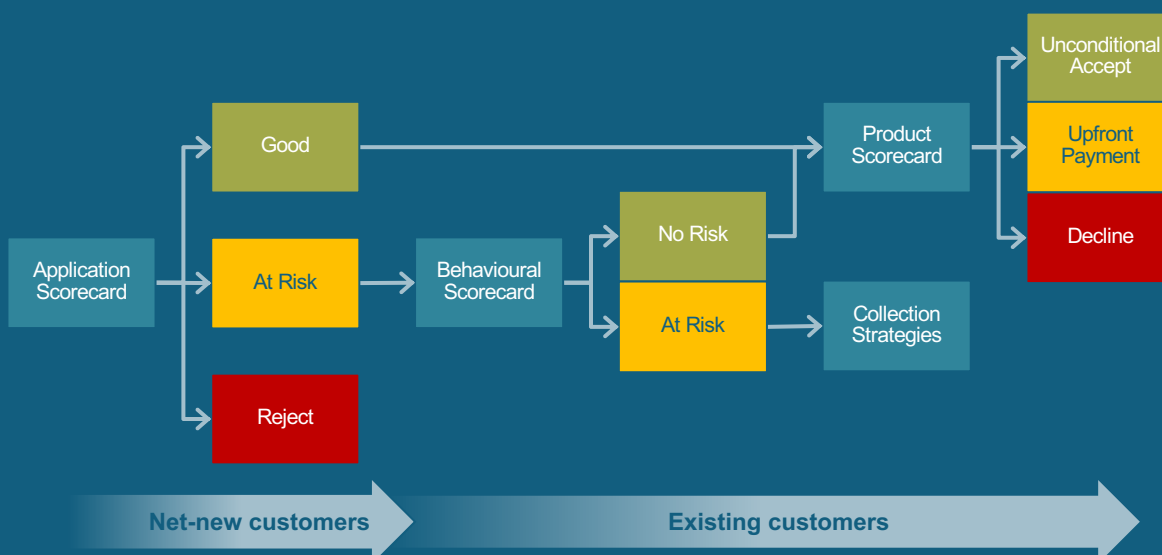
### Beware the Netflix scenario!

Netflix's \$1M prize awarded for the algorithm that increased the accuracy of their recommendation engine by 10% was never implemented due to engineering costs (to read more, google "Netflix unused million \$ algorithm").

## Risk Management

Reduce credit risk conflict with Sales and Marketing by profiling risk at an earlier point in customer acquisition.

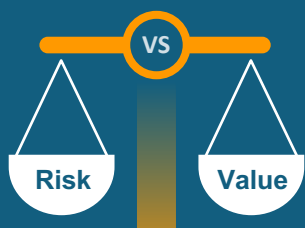
- Profiling customer risk to collaborate with marketing enables a higher acceptance rate as the right customers are targeted.
- Investing in API deployment allows an organisation to update the customer profile in time, which is key for sales resourcing.



## Case Studies

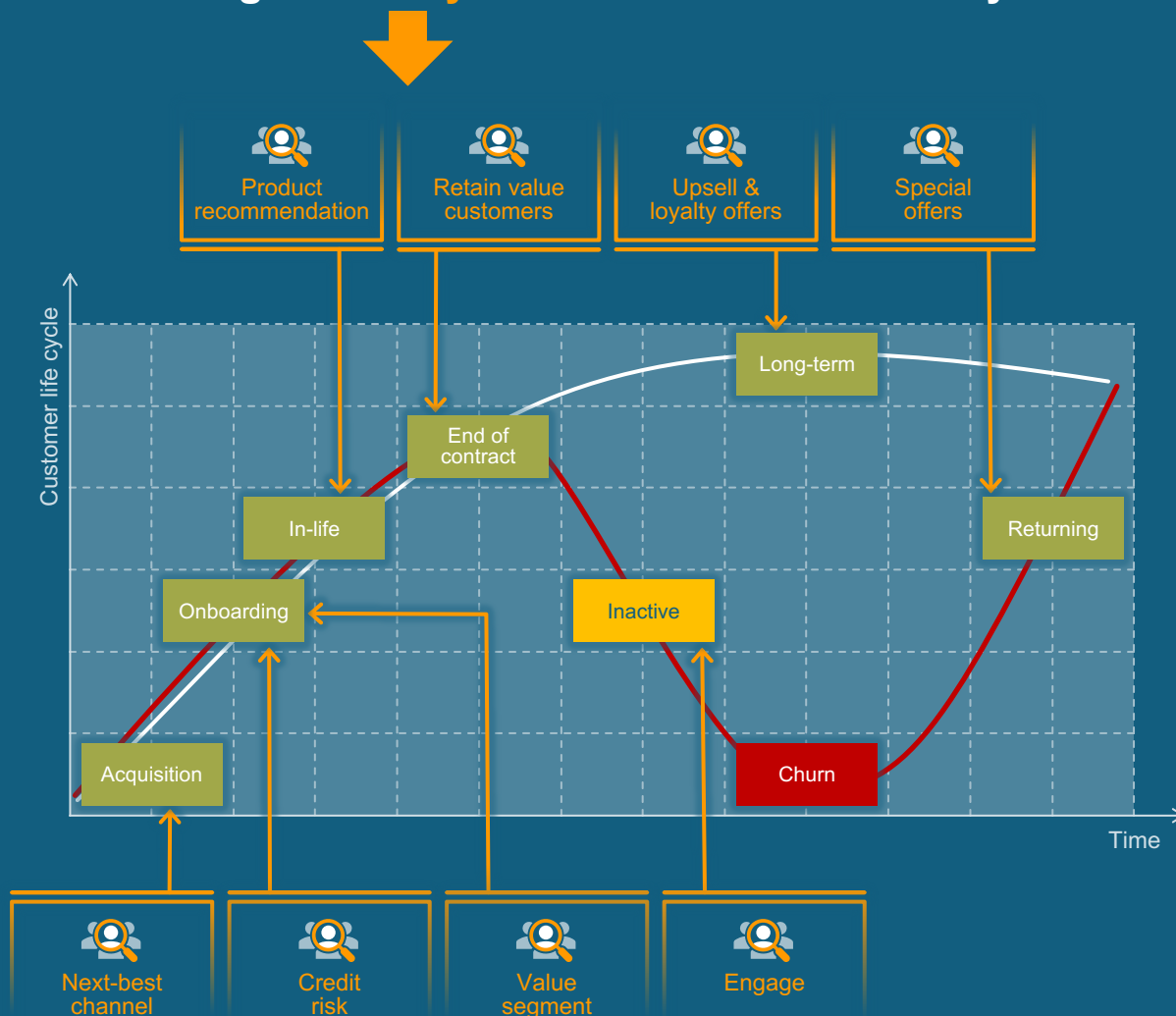
The next pages provide WPS Analytics success stories in four case studies covering the most important aspects of the entire customer journey, including:

- Risk management
- Next-best-action marketing
- Micro-segmentation
- Optimisation



- Revenue assurance
- Churn
- Cost reduction
- Profit
- Risk mitigation

### Using **risk analytics** on the customer life cycle



## Credit risk use case - £3m annual debt reduction

### Challenge and data requirements

#### Business

Bad debt of net new customers typically ranges between 5% and 15%. For a company with 6m customers, an average exposure of £100 and 5% default rate that equates to £30M of bad debt. Adoption of credit risk analytical models significantly reduces bad debt.

#### Data

The predictive model learns by utilising a customer's historical data alongside bureau data, demographics, CRM, product data, age debt, cost and so on. to predict the probability of that customer displaying a defined behaviour in future.

### Solution and approach

#### Analytical approach

- Predictive models: Credit Risk Application, Behavioural and Product Scorecard
- Dependent variable: probability of default

#### Strategy example

- Unconditional accept for low risk customers or lower exposure amount
- Conditional accept with provisional offers to customers with high probability of default or high exposure amount

### Benefits and delivery options

**Maxim:** *"Achieving more with less"*

#### Corporate KPIs

- Profit, Cost reduction
- 100% acceptance rate, we guarantee bad debt reduction by minimum of 10%

#### Drivers for success

- Standardising customer credit scores by score bands
- Reducing expected default rate
- Increasing auto approve rates for lowest risk customers
- On-premise deployment
- Model deployment code
- Knowledge transfer

## Next-best-action marketing

Next-best-action (NBA) is a highly tailored customer-centric marketing offering only products of special interest to customers or contacting customers via the most effective communication channels. It relies on discovering “what”, “where” and “when” customer engagement happens. Product and/or channel propensity scores are generated and added to the customer profile to shape marketing campaigns. Analytical models drive this decision process; specifically, next-best-product and next-best-communication channel, where the former is focused to “what” and “where” engagements and the latter helps answering the “where” engagements.

### Next-best-action use case

#### Challenge and data requirements

##### **Business**

Too many campaigns, huge cost, lots of effort but little engagement – promotional emails tagged as spam, 1% response rate and marginal benefits.

##### **Data**

Harnessing historical campaigns and behavioral data helps WPS Analytics to identify the relevant campaigns and likely outcome of the customer at that specific point in their journey - Demographics, CRM, product data, cost

#### Solution and approach

World Programming solutions focus on providing ROI within a 12-week pilot.

##### **Analytical approach**

- Predictive models: Next-best-product, next-best-channel, recommender system (content-based, collaborative filtering models)
- Dependent variable: probability of response to a campaign

##### **Strategy example**

- Targeting high net-worth customers with high propensity to respond if contacted by their preferred communication channel

#### Benefits and delivery options

**Maxim:** “Achieving more with less”

##### **Corporate KPIs**

- Cost reduction

##### **Drivers for success**

- Increased response rate
- Lower operational cost
- Customer centric approach

##### **On-premise deployment**

- Model deployment code
- Knowledge transfer

## Segmentation

As one of the central concepts in marketing, segmentation helps telecom companies to group their customers into subsets based on demographics, personal traits, behavioural activities, attitudes and loyalty variables. Key to segmentation is the identification of measurable and actionable segments so the marketers can manage segments in different ways to maximise the business benefits.

Behavioural Activities	Attitudes	Loyalty Variables
<ul style="list-style-type: none"> <li>Recency</li> <li>Frequency</li> <li>Product usage</li> <li>Payments</li> </ul>	<ul style="list-style-type: none"> <li>Product type</li> <li>No. of products</li> <li>Promotional response</li> <li>Life-style</li> <li>Complaints</li> </ul>	<ul style="list-style-type: none"> <li>Tenure</li> <li>Churn propensity</li> </ul>

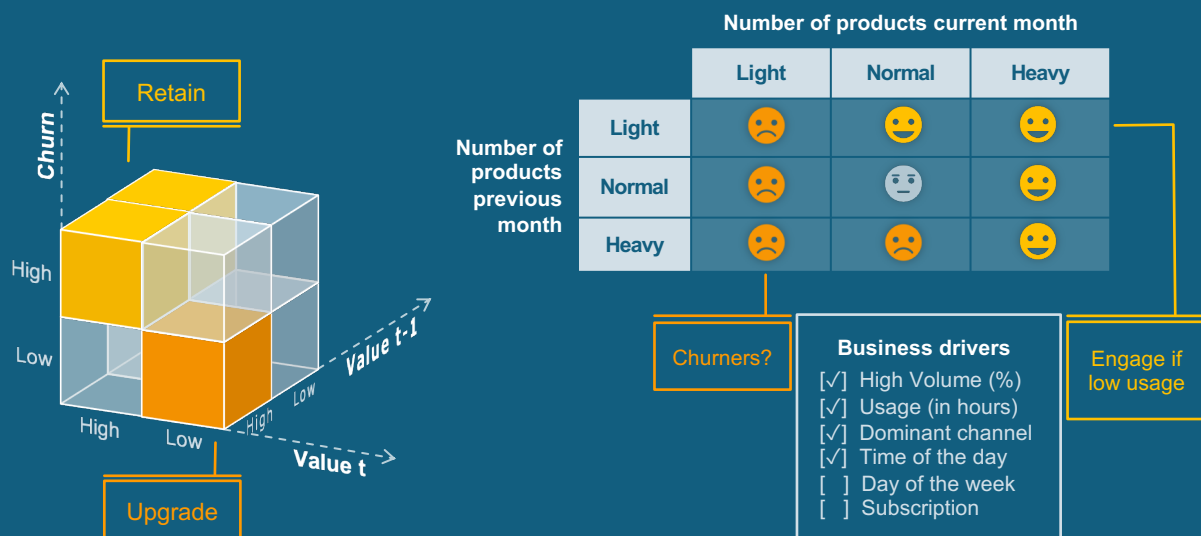
Typical segment performance indicators are segment size, average profitability, propensity to churn, net promoter score (NPS) and average tenure.

Often, further micro-segmentation into smaller and homogenous sub-segments is required. Such fine-tuning is typically based on various factors, including customer engagement, purpose (e.g. TV, VoD, recording), day of the week, time of the day, channel (e.g. movies, sports, kids, news), and number of products.

Segment	Campaign	Contact Frequency
Net-new	Acquisition	Regular
Engaged	Upsell, maintain	
Inactive	Active, cross-sell, upsell	
Typical	cross-sell, upsell	
Churners	Retention	Trigger
Collections	Payback strategies	
Service issues	Customer care	

Micro-segmentation and segment movements are crucial for identifying actionable treatments.

Treatments can be regular campaigns such as customer acquisition, upsell, cross-sell or they can be triggered as a result of high churn probability.



## Micro-segmentation use case: £300k monthly saving

This showcases significant revenue benefit from micro-segmentation for a dominant TV and internet European service provider. Paid TV content represents the company's major revenue stream, but £2M monthly exposure and persistent monthly churn was causing substantial loss. Analytical consultants from WPS helped them reduce exposure and churn rate.

Utilising hundreds of gigabytes of data generated in the TV boxes, that track what the user is viewing and any related incidences, WPS leveraged TV consumption data to create relevant predictive models and segmentation strategies. The analytical solution increased content retention by 15%, and the newly developed strategies that focused on the most profitable micro segments contributed to 30% higher recovered amount.

“In-life” segment use case	
Challenge and data requirements	<p><b>Segment: In-life</b></p> <p><b>Business</b> Making timely decisions by predicting the trend of customers that are increasing or decreasing value based on product engagement and spend.</p> <p><b>Data</b> Demographics, product data, tenure, usage, payment and billing data, network data, customer interactions, viewership data, operational cost.</p>
Solution and approach	<p>World Programming solutions focus on providing ROI within a 12-week pilot</p> <p><b>Analytical approach</b></p> <ul style="list-style-type: none"> <li>➤ Predictive models: probability to churn at the end of contract</li> <li>➤ Micro-segments: churn probability (high/low) and customer value (high/low)</li> <li>➤ Dependent variable: churn status</li> </ul> <p><b>Strategy example</b></p> <ul style="list-style-type: none"> <li>➤ Retain: high churn / high value</li> <li>➤ Upsell: low churn / high-to-low value movement (see figure)</li> </ul>
Benefits and delivery options	<p><b>Maxim:</b> “Strive for your valuable and loyal customers”</p> <p><b>Corporate KPI's</b></p> <ul style="list-style-type: none"> <li>➤ Profit</li> </ul> <p><b>Drivers for success</b></p> <ul style="list-style-type: none"> <li>➤ Analytical solution increased customer retention by 15%</li> <li>➤ 30% higher recovered amount</li> </ul> <p><b>On-premise deployment</b></p> <ul style="list-style-type: none"> <li>➤ Model deployment code</li> <li>➤ Knowledge transfer</li> </ul>



## Optimisation case study: Fibre-Optic upsell 'sweet spot'

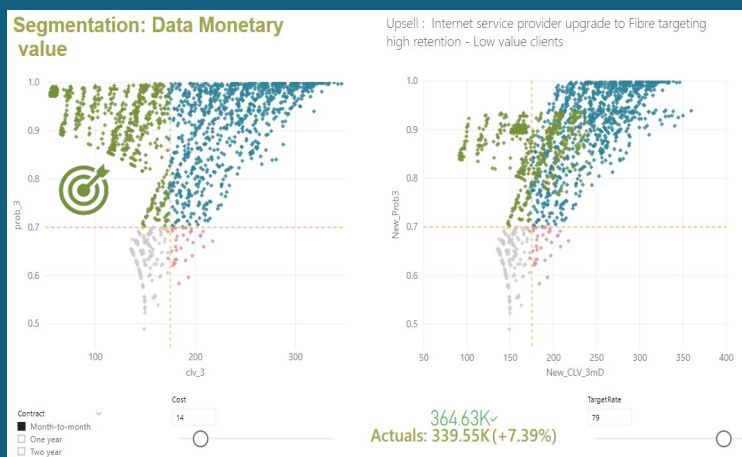
Analytic outputs from models that predict risk, loyalty and customer value are used as inputs into optimisation. Much more than just 'make the right offer at the right time', optimisation achieves the stated objective by balancing multiple variables within limits established by set constraints. Before developing relevant customer strategies, it is vital to understand the parameters for calculating customer value. We have developed an interactive dashboard with 'what-if?' parameters to test ROI on strategies before we apply them. This identifies the "sweet spot" to ensure the benefits of a strategy outweigh the cost.



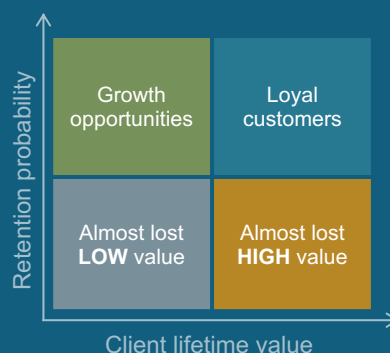
Analysis revealed that upgrading/upselling a customer to a better product (in this example to fibre-optic internet service) increases revenue but increases churn for some clients.

We then must segment our clients to decide who we should target with this campaign.

Clients with a high retention rate but currently of low value are ideal candidates for upsell campaigns. Below we use our scenario testing dashboard to evaluate campaign effectiveness on the survival rate of customers.



Segment before campaign



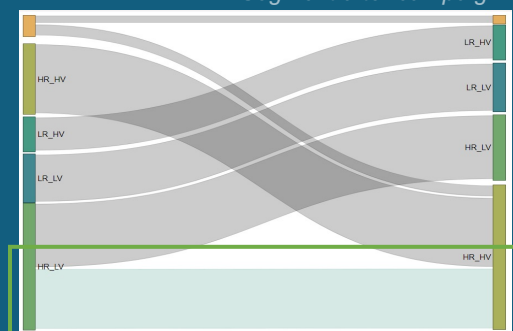
### Upselling Strategy example

Targeting 79% of customers with a high propensity to stay but a low current value, we can do "what-if?" scenarios to see the crossover point where the cost of the campaign outweighs the benefit (83%) and evolve our strategy from there.

### Evaluate campaign effectiveness

The Sankey diagram (right) confirms that with a 100% uptake of our target customers, we can move 39% of clients in our "growth opportunity" segment into the coveted "loyal customer" segment. We can use our interactive dashboard to adjust take-up rates and test multiple scenarios.

Segment after campaign



Legend for above:

Loyal customers = HR\_HV  
Growth opportunities = LR\_LV  
Almost Lost HIGH value = LR\_HV  
Almost lost LOW value = LR\_LV

## Scalable resource

WPS is an end-to-end analytical platform for delivering business strategies. Our WPS solutions team can offer analytical resources as an interim term solution to fulfilling your headcount. Available on-premise or as a cloud hosted service.

## Open source

Open source technologies are sometimes considered as being able to provide low cost access to new data analytical technologies for driving competitive advantage. However, many organisations struggle to formulate strategies that harness the power of disparate technologies and programming languages so that they can be integrated with existing business critical applications written in the SAS language.

## Our solution

With the ability to combine the languages of SAS, Python, R and SQL and with access to the latest machine and deep learning capabilities, WPS Analytics delivers the optimal analytical solution. The WPS Analytics platform has a modern GUI/IDE (the Workbench) providing both workflow and coding capabilities. The platform enables collaboration between data engineers, statisticians and data scientists, backed up with integration with Git to provide code management and version control. WPS Analytics also has deployment services which allow developed programs to be deployed as APIs for shared, on-demand use.



## Connectivity for major data sources

- Handle expanding data volumes
- Connectivity for big data, cloud and traditional data sources

## An end-to-end platform

- Data engineering
- Data science
- Predictive modelling
- Deployment capabilities
- Governance for development and deployment
- Pre-canned models, tuned against customer's data

## SAS language applications

Many organisations have a substantial investment in existing business-critical applications written in the language of SAS. The cost of running SAS language programs is typically something that organisations are interested in reducing, with a view to investing in other technologies. Recoding many man-years of IP into another language is technically very difficult and sometimes just not practical or even possible.

### WPS Analytics can help...

- It has its own fully-integrated SAS language compiler.
- Existing and new SAS language programs can be run without the need to install other third-party SAS language products.
- ROI is often less than 12 months with typical annual cost savings of between 50% to 70%.\*

\*Approximations based on customer feedback



## Deployment capabilities

Modernisation strategies should incorporate plans that accommodate an increasing demand for deployment capabilities. Organisations traditionally push development code to DevOps or assigned analysts to re-write the code for production use. The former requires significant hiring of resources and the latter is a highly inefficient use of skill and time.

WPS Analytics makes deployment quick and simple.

### Multiple options to access deployed analytics



- MS Excel
- Web browser (PC, tablet, mobile)
- Bespoke reporting portals and dashboards
- Programmable calls (C++, C#, .Net, Java, JavaScript)



### Schedule execution of deployed analytics

Use scheduling capabilities to run deployed analytics at a specified time and day.



### Deploy analytics for shared, on-demand use

Use quick and simple facilities to deploy analytical programs to appropriate internal business users or external customers. Deployment services include Git integration, user management, data access governance and dataset library publishing.



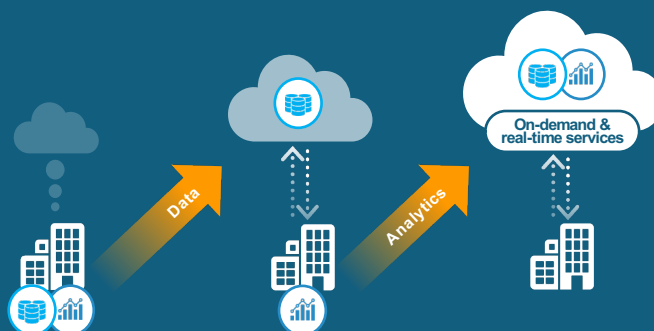
### Simple, point-and-click RESTful API creation

Create RESTful APIs to prompt users for inputs such as dates, numeric values, string values and so on, to use when executing the deployed analytics.

## Cloud

Moving to the cloud is one of the major priorities for CXOs, and from an analytics perspective, the cloud needs to facilitate:

- Scalable data access and processing
- More data products serving front office
- Access to the latest technologies



There are a few common obstacles in fully benefiting from a scalable infrastructure...

- Replicating complex ETL in the cloud
- Risk of business-critical applications failing to run or produce the same outcome
- Change management for analytics in production
- Integrating on-premise analytics with cloud analytics

WPS Analytics addresses these obstacles by providing a hybrid platform which enables organisations to migrate to the cloud in distinct phases - data, analytics, people. The ability to maintain business-critical applications on-premise while testing cloud execution is a key driver for fast adoption of a cloud infrastructure.

## WPS Analytics – summary of benefits



### Collaborative platform

- Development + deployment + governance
- One platform for developers and business users of data analytics



### Governing your analytics

- Central management of developers and business users
- Data access credentials management
- Git integration with development and deployment



### Perfect blend of SAS language and open source

- Maintain the use of business critical applications whilst modernising your infrastructure
- Protect your investment in existing SAS language programs
- Reduce the cost of running SAS language programs
- Mix the languages of SAS, Python, R and SQL in a single program or workflow



### Off the shelf and flexible, tailored solutions

- Enable analytics on-demand via APIs
- Approach – Impact assessment with code analysis tool, PoC, pilot, scale
- Proven deployment track record



### Analytics anywhere

- Mainframe
- In-cloud
- On-premise
- Mobile / tablet (via WPS Hub)

