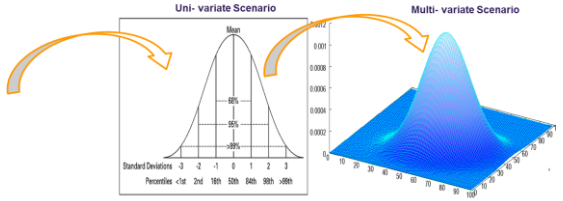
The Next Chapter…

From Idea to BIDS to Digital Transformation Data Science Service

July 2018

Service – Value- Methodology illustration

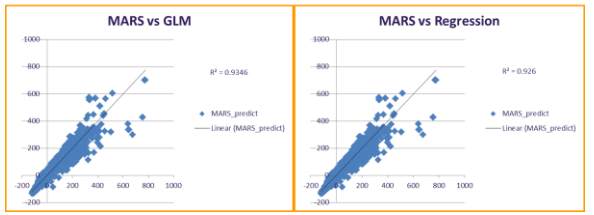


Call Volume is the most significant factor to derive a service value and hence used this as the bases for the Metrics

$$\text{Service Value} = \frac{\text{Cell call volume } X_i - \bar{x}}{\sigma}$$

Sherlock – Machine Learning

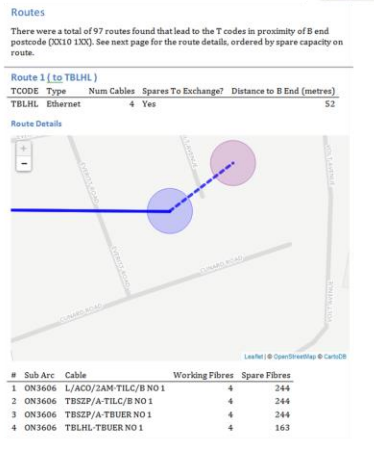
Model Comparison- Correlation between output



What is MattPack?

MattPack uses the B-End location to show *best routes* to reach *nearby equipment*

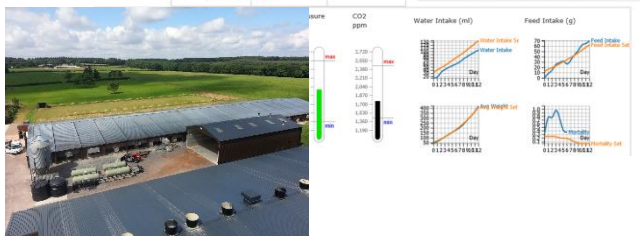
Nearby Equipment



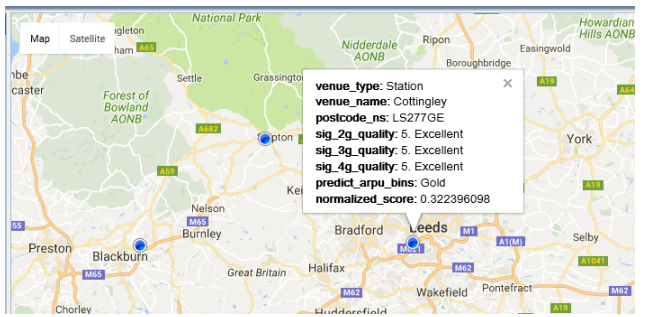
Remember these:

BT Connected Farm – PoC final report

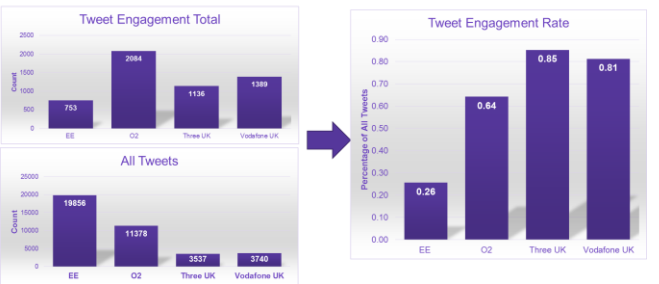
Dashboard view



#BIDS
A Mobility and Analytics Team
Better Together



Tweet Engagement with Customer



Before

Exec Summary

Problem Statement:

Understand how customer behaviour, product, service use impacts the network through data consumption and how that may impact customer experience of other users.
Predict traffic peaks, based on customer movements and to assist in better informed decisions on network capacity planning to ensure consistently good customer experience.

Benefits:

By analysing the experience and impact, to both the end customer and the EE brand when cell sites become congested, the aim will be to predict locations, time and scenarios when negative experiences may happen. This can then enable us to deploy preventative measures leading to the following benefits:

- Better experience to end users -e.g. zero buffering when streaming video, zero dropped calls
- Increase revenues - e.g. users not hanging up when videos buffer and web pages fail to load
- Cost avoidance - e.g. deploying permanent solutions, such as capacity upgrades, when a predictive temporary fix will suffice. Such as lowering the bit rate on video, re-prioritising certain traffic types, or when NFV gets deployed, by moving appropriate licencing around the network.

Proof Of Value (PoV):

Run a PoV on the data collected as part of the ongoing PoC to prove that having the data stored and made available could drive new actionable business insights. Focus around identification of stress cells based on usage patterns from CDR's, Web Logs & Geo Location.

BT

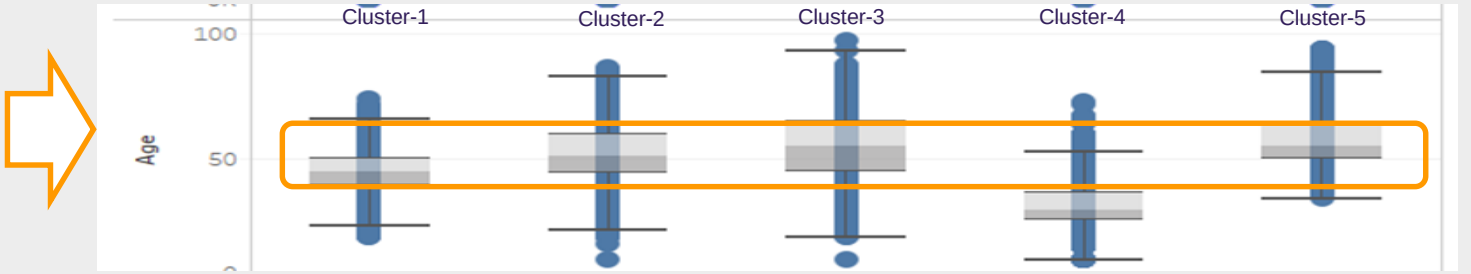
Exec Summary

Findings from Cluster Analysis on Converged BT & EE

- There are 5 prominent clusters:

Cluster	arpu	Contract_durEE	Contrac_durBT	age	Avgtotmin	av_month_bb_gb	%Cluster
Cluster1	34.35	676	594	29	180.58	90.43	12.05%
Cluster2	27.86	690	612	55	266.69	84.31	16.59%
Cluster3	45.19	699	417	40	272.35	93.82	0.30%
Cluster4	12.77	306	413	51	261.7	62.45	25.41%
Cluster5	33.72	729	363	44	199.15	74.41	45.66%

- The converged Age range is centered around 40 -55 age:



- Re-clustered with an age range below 45 which show two clusters of interest:

Cluster	Membership %	Contract Days BT	Age	ARPU	Avg Total Minutes	AVG Data Transfer (GB)
Cluster1	25.08%	573	36	40.02	298	87.46
Cluster4	17.63%	400	25	32.2	231	83.36

- The young aged customers are churning roughly at the same rate as acquisition:
  - BBSLT_UPTO_55M_10M_FTTCWBC + Voice_PAYM
  - BBSLT_UPTO_80M_20M_FTTCWBC + Voice_PAYM

* Reference from Slide 15.

Present

Key Findings…

- **46%** increase in data consumption of **converged** households in comparison to non-converged households.
  - Drilling down it is observed that converged customers with an average usage of **1-5GB** have a **significantly higher** data usage of **170% more,** when compared to non-converged customers.

- During **holiday season** starting from 2nd week of December, **BT broadband** data consumption **increased** by **17%** whereas **BT mobile** consumption **decreased** by **6%**.

- **Professional & Senior Management cohort** monthly **BT mobile** data usage is exceeding their data allowance of **0.5 GB** by **6%.**

Before

Segment wise analysis For Converged Customers (Reference Time Frame 19/05/2017)

Date	Young Age Cluster1		Mid Age Cluster2		Sr. High Usage Cluster3		Sr. Low usage Cluster4		Sr Quick Churner Cluster5	
	%Churn	%Addition	%Churn	%Addition	%Churn	%Addition	%Churn	%Addition	%Churn	%Addition
19/05/2017	Representative Time Frame									
06/02/2017	32%	39%	14%	14%	7%	0%	24%	46%	23%	0%
14/06/2017	33%	69%	0%	10%	20%	22%	23%	0%	23%	0%
23/06/2017	32%	38%	0%	17%	21%	0%	24%	19%	23%	26%
30/06/2017	39.40%	39.67%	7.20%	13.31	0%	0.47%	22.90%	20.56%	30.50%	26%

Cluster	arpu	Contract_durEE	Contract_durBT	age	Avgtotmin	av_month_bb_gb	%Cluster
Cluster1	44.86	719	395	29	140.29	108.68	24%
Cluster2	26.82	637	729	46	233.02	122.47	9%
Cluster3	29.41	729	546	52	209.36	114.61	14%
Cluster4	11.85	306	425	52	223.77	87.52	25%
Cluster5	27.89	729	361	54	197.68	98.8	28%

19/05/2017

Cluster	arpu	Contract_durEE	Contrac_durBT	age	Avgtotmin	av_month_bb_gb	%Cluster
Cluster1	34.35	676	594	29	180.58	90.43	12.05%
Cluster2	27.86	690	612	55	266.69	84.31	16.59%
Cluster3	45.19	699	417	40	272.35	93.82	0.30%
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Cluster5	33.72	729	363	44	199.15	74.41	45.66%

07/07/2017

Top Three Brands Customer Addition by Cluster

Product	Cluster1 Value	Cluster1 %	Cluster2 Value	Cluster2 %	Cluster3 Value	Cluster3 %	Cluster4 Value	Cluster4 %	Cluster5 Value	Cluster5 %	Total
infinity1	18	0.30%	2548	42%	578	10%	1528	25%	1395	23%	6067
24M_MAX	4	0.21%	747	40%	102	5%	624	33%	402	21%	1879
infinity2	6	0.43%	419	30%	353	25%	331	24%	294	21%	1403

07/07/2017

Customers :10565

BBSLT_UPTO_55M_10M_FTTCWBC + Voice_PAYM

BBSLT_UPTO_24M_WBC + Voice_PAYM

BBSLT_UPTO_80M_20M_FTTCWBC + Voice_PAYM

Major products Mixes driving Additions

Top Three Brands Customer Churn by Cluster

Product	Cluster1 Value	Cluster1 %	Cluster2 Value	Cluster2 %	Cluster3 Value	Cluster3 %	Cluster4 Value	Cluster4 %	Cluster5 Value	Cluster5 %	Total
infinity1	2439	22%	2537	22%	2424	21%	3854	0.34	43	0.4%	11297
infinity2	2083	33%	1316	21%	1193	19%	1724	0.27	43	0.7%	6359
24M_MAX	704	12%	1717	29%	1398	24%	2066	0.35	26	0.4%	5911

07/07/2017

Key Drivers of Churn

Customers :26614

BBSLT_UPTO_55M_10M_FTTCWBC + Voice_PAYM

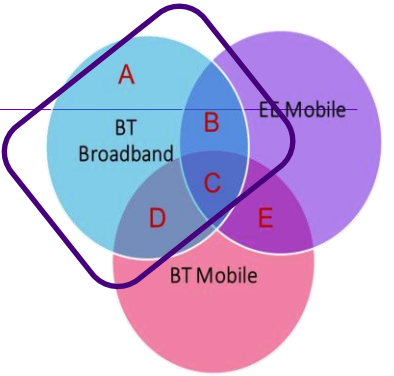
BBSLT_UPTO_80M_20M_FTTCWBC + Voice_PAYM

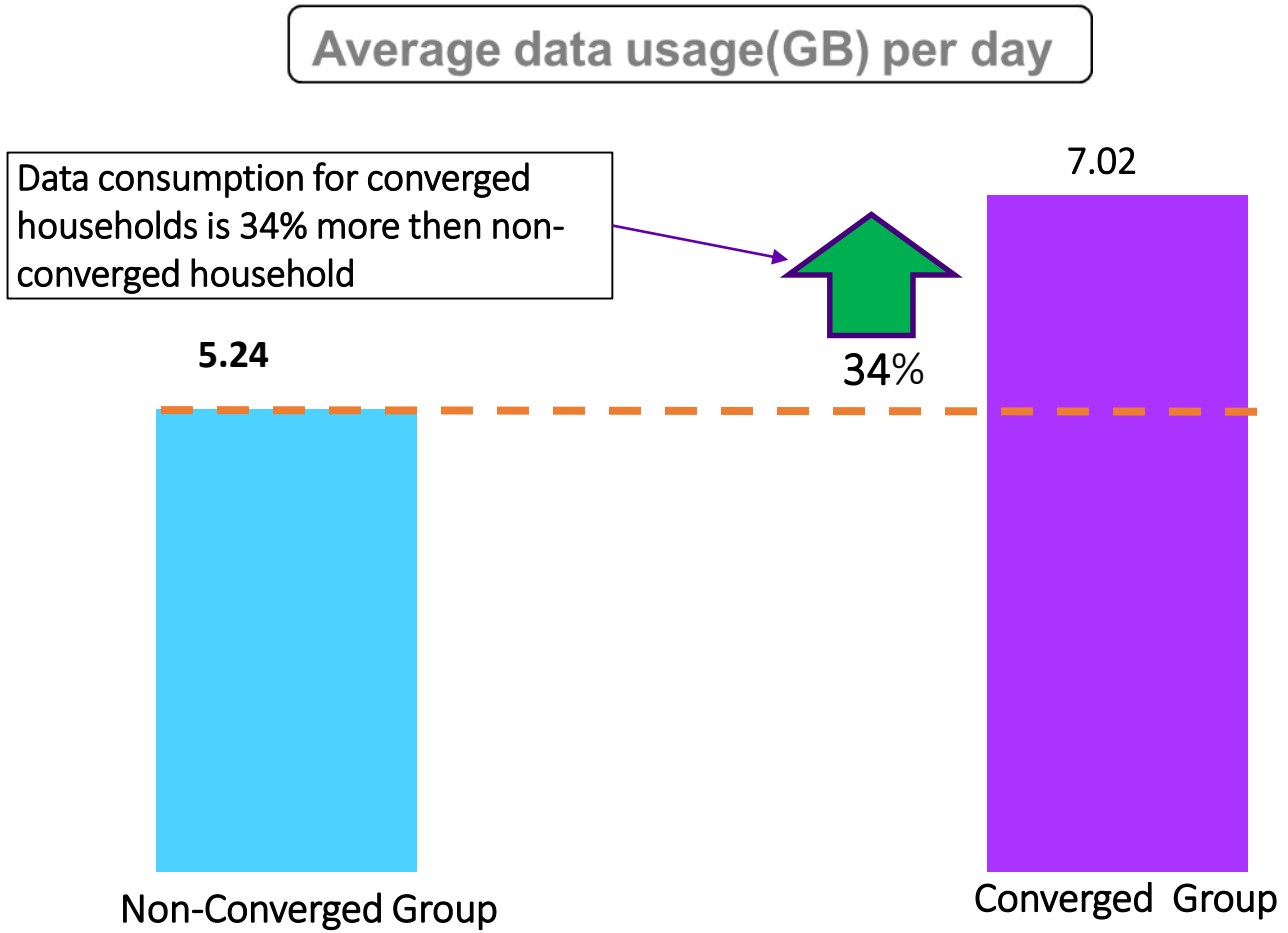
BBSLT_UPTO_24M_WBC + Voice_PAYM

Major products Mixes driving Churns

Present

BT Broadband Data Usage For Converged And Non-Converged Households



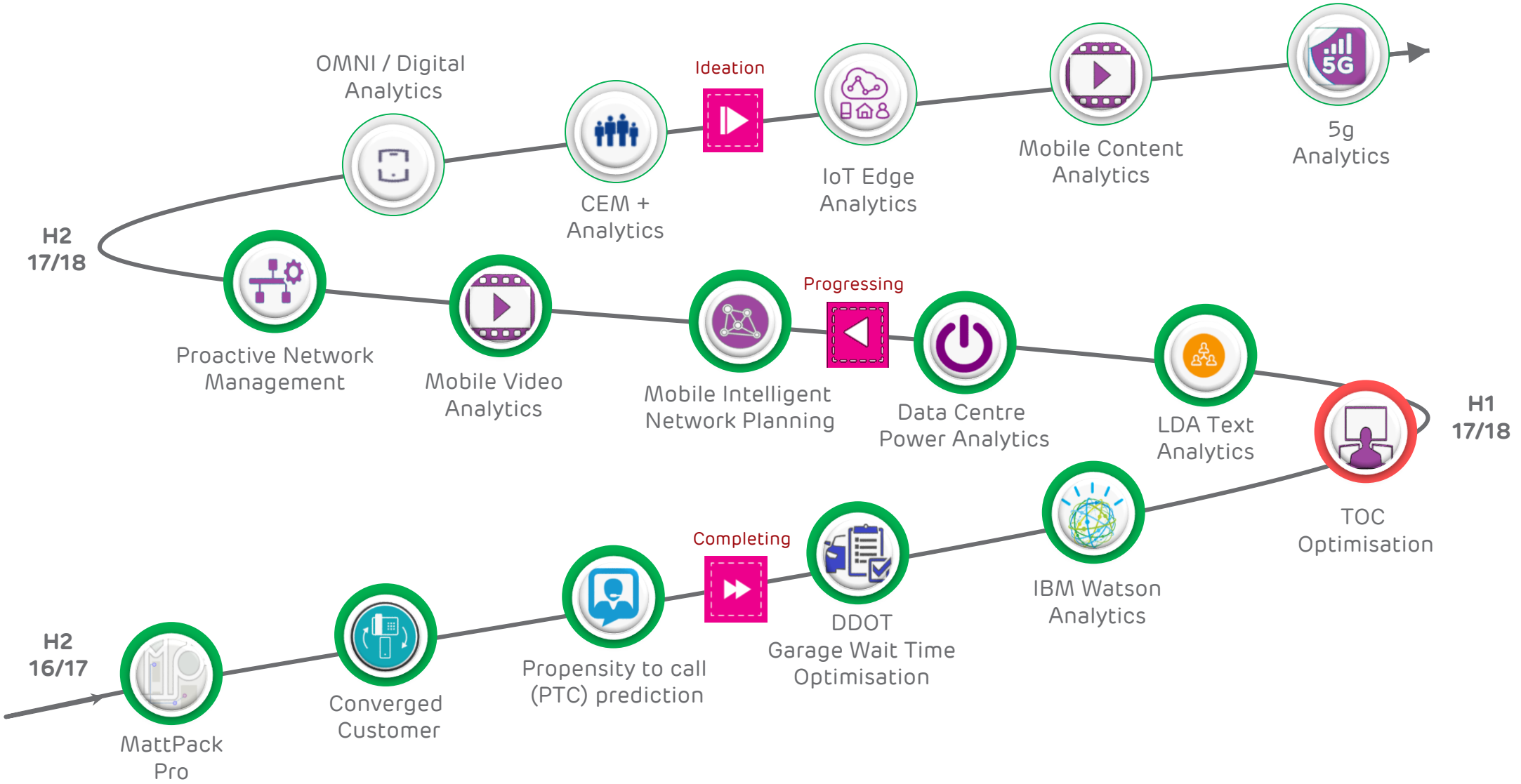


Non-Converged Group

Converged Group

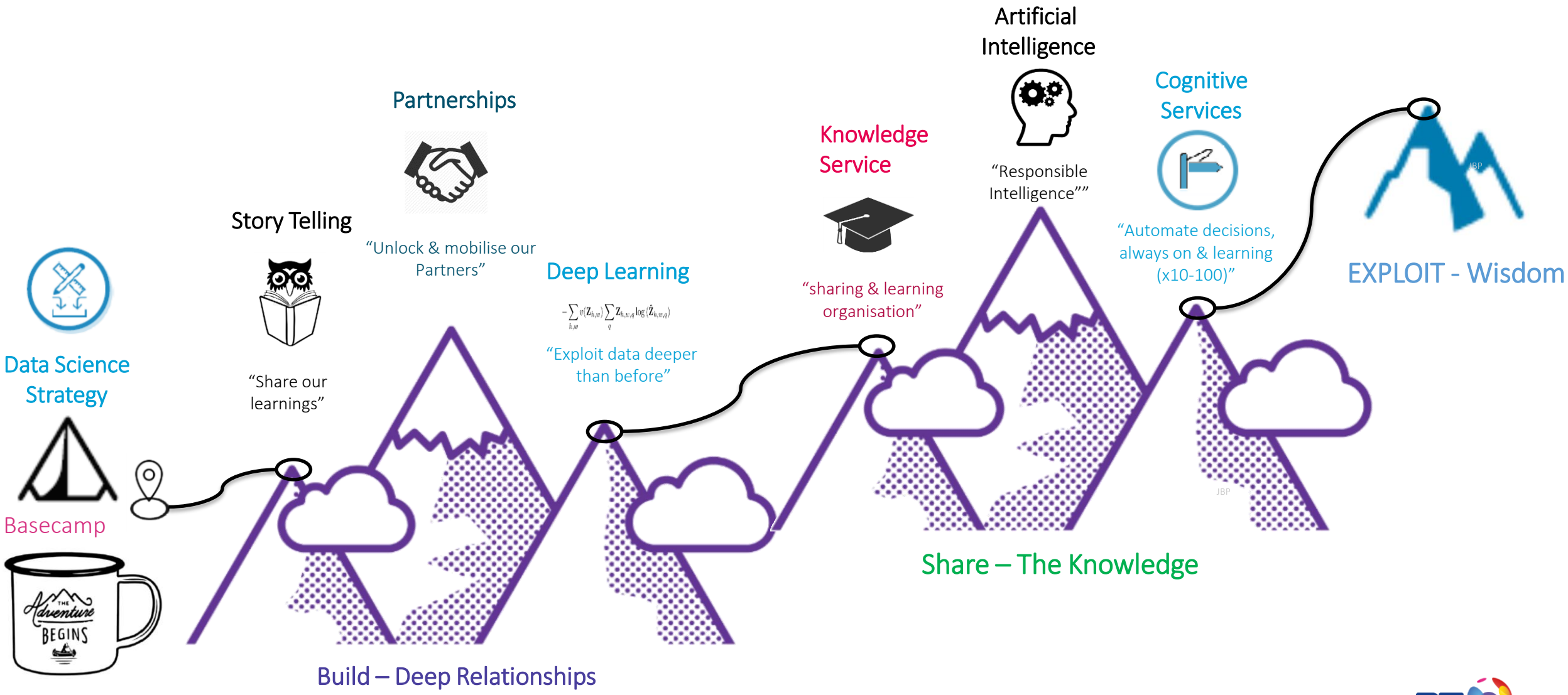
Before

BIDS Business Roadmap



Present

Data Science Service Strategy Summary



Our Journeys

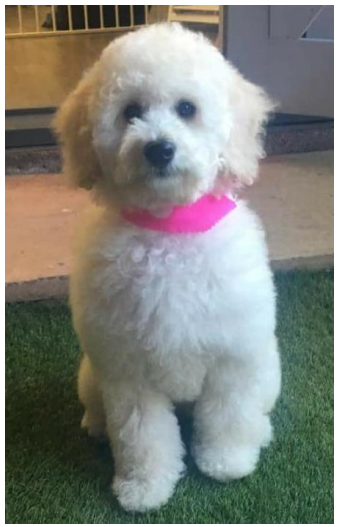
BT Team's Personal Achievements

Achieved ½ Ironman –
1.2 Mile Swim, 56 Mile Ride, 13.1 Mile Run –
70.3 Mile Club
PB 7hr 23 mins

Pen y Fan

Engaged

First Puppy
Quinn



Upgraded Car & Caravan!!

Harman Team’s Personal Achievements

Shiva & Somyadeep

Started a publication in Medium on "Business process analysis"

Puneeth

Contributed a blog on "Genetic Algorithm (GA) with R Package Rgenoud"

Manjunath

Lost 27 kg in 3 months’ time.

Kumarjit

Published Four research papers in Cornell University
Started publication "Data Science - With Live Case Studies" to help budding scientists

TCS Team's Personal Achievements

Subho has become father for the first time in Nov'17 and it is awesome experience.
Time and spirit running high since then for him.

Sayantan: Had inspiration to work in a foreign country and now working in Thailand.

Rachita: She with her school friends run a NGO to help under privileged children.
She works in the weekends to help the society..

Debojyoti: Learning Indian classical music (singing) and also performing in different parts of the country.

Journey Continues…

My Journey for the past 2 years has finished.

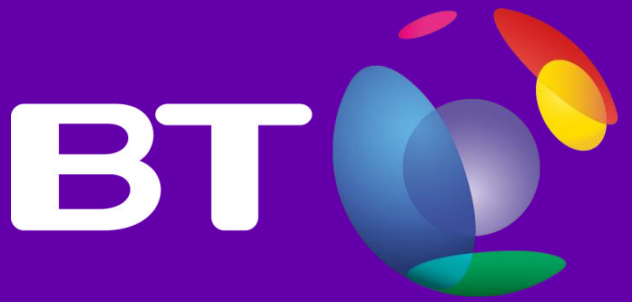
----- End of Chapter -----

----- New Chapter -----

Alarm goes off at usual time.....

To get through the hardest journey we need take only one step at a time, but we must keep on stepping

HUGE THANK YOU !!!!


BT