



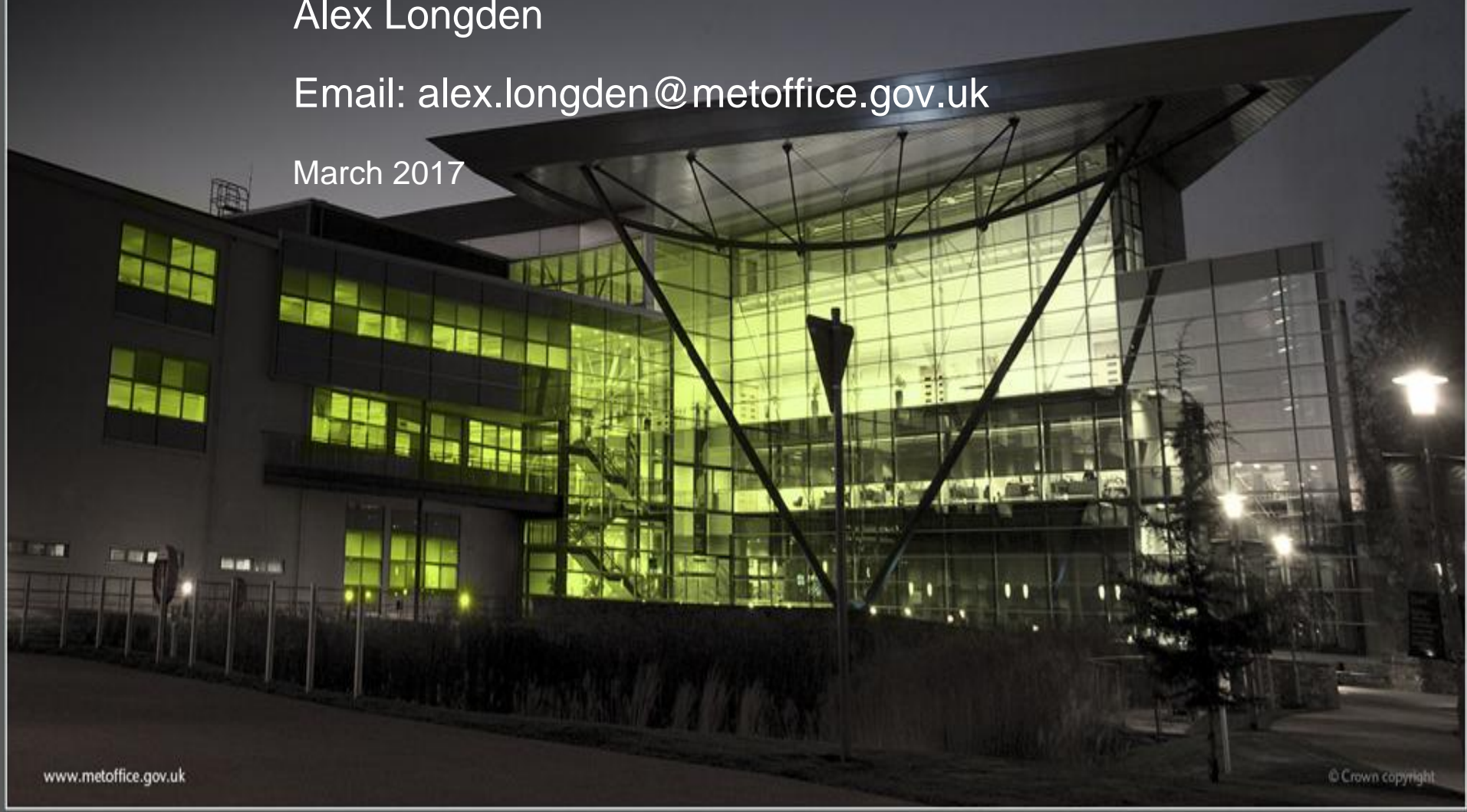
Met Office

Review of meteorological market and emergence of the information economy

Alex Longden

Email: alex.longden@metoffice.gov.uk

March 2017





Met Office

Table of contents

- Is there an agreed understanding of what open data means?
- Has open data policy (as currently implemented) led to market growth?
- Will the arrival of the information economy generate increased revenues within the private market?
- What will be the impact of global tech firms entering the meteorological value chain?

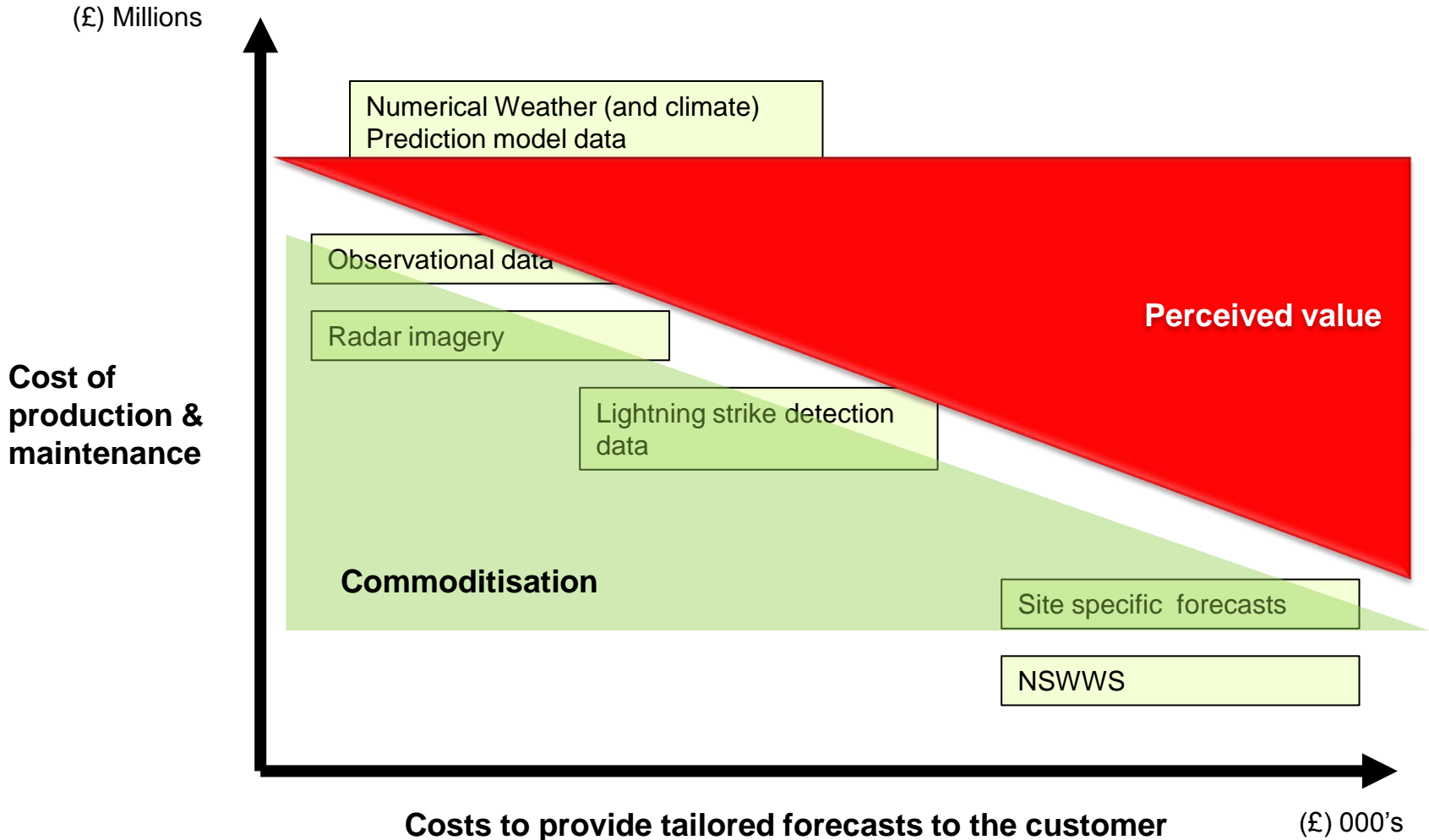


There is confusion on the definition of 'open data' and how it should be applied.





Its important to recognise that data covers a broad spectrum of output that can also be classified as raw output, content & imagery.



NB: Diagram is an illustration & not an accurate reflection of costs

Increasing data volumes will require new dissemination methods that require a greater level of interaction between data generators and customers.

Level of customer interaction



Invoke services



- On premise solution.
- Ask specific questions of the data and only ingest the information required.

API Pull



- Authenticate & Authorise.
- Greater selectability and granularity of most commonly requested data sets.

FTP Push



- No longer an appropriate method of delivering information on time & in full, considering exponential increase in data.
- Challenging to ensure improvements in meteorology are made available.



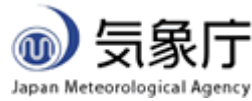
Met Office

Has open data policy as implemented led to market growth?



A number of NMS's have implemented an 'open and free' data policy, with the aim of generating economic growth.

Global modelling centres with open data policies



European modelling centres with open data policies



Innovation & growth





Met Office

There is evidence to suggest that the private European meteorological market is undergoing market consolidation.

StormGeo

Nena	August 16
Applied Weather Technology	Acquired 2014
ImpactWeather Inc	Acquired 2012
Met Consultancy FZ LLC	Acquired Dec 11

MeteoGroup



October 2015



Acquired Sept 2013



Acquired May 2011

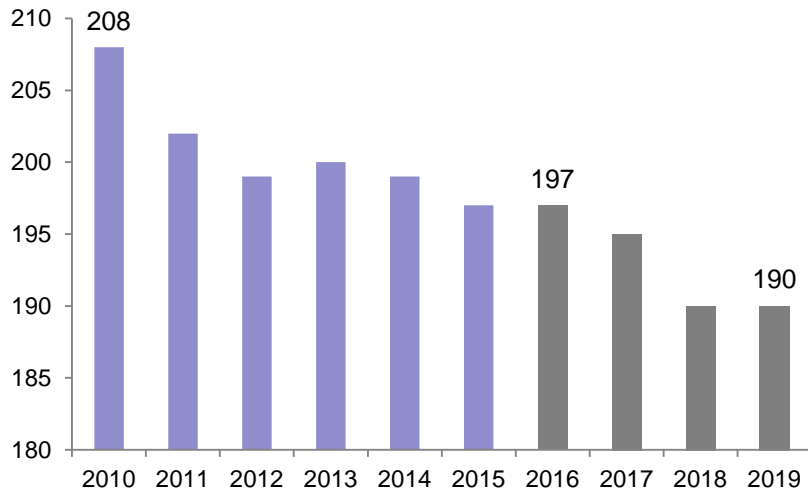


Estimate that the European market has been growing at closer to 1.2% per annum (2009-15)



Two companies dominate the US market and are consolidating their positions despite NOAA's open data policy

No of enterprises (US)



- Number of industry enterprises is expected to decrease at a rate of 1.1% until 2019.
- 197 companies estimated to be active in USA weather market in 2016

US market share (revenue)



The rest

33% None of the remaining 197 account for more than 5% of revenue

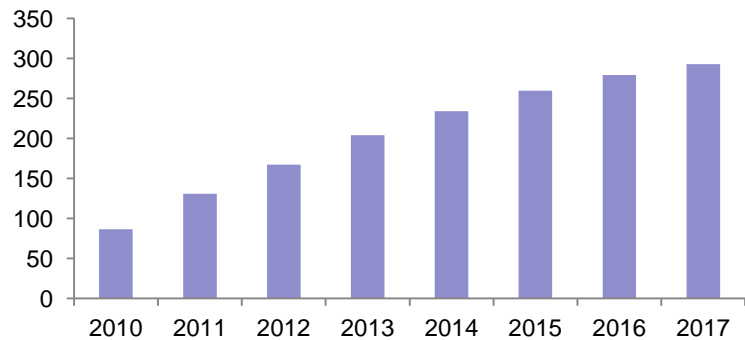
Accuweather & IBM have increased their collective dominance of USA market, despite open data policy in USA (grown market share from 58.6% in 2009 to 66.3% in 2014, IBIS World Industry Report 2014)



Consumers continued adoption of internet-capable phones, have created demand for more timely weather information and increased advertising revenue opportunities.

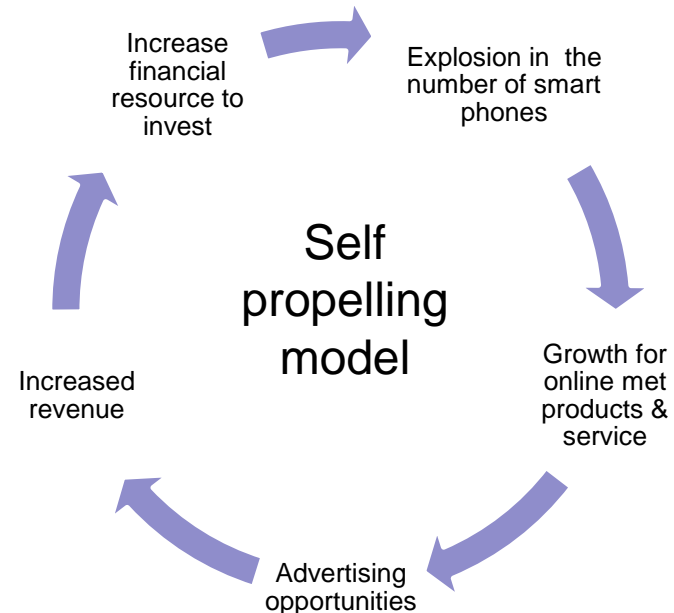
1. The number of mobile internet connections is expected to reach 292.9 million in US in 2017

Number of smartphones (US)



3. Greater demand for weather has led to more advertising revenue, which is reinvested to further improve their product propositions

2. Increasing demand for timely weather forecasts & warnings



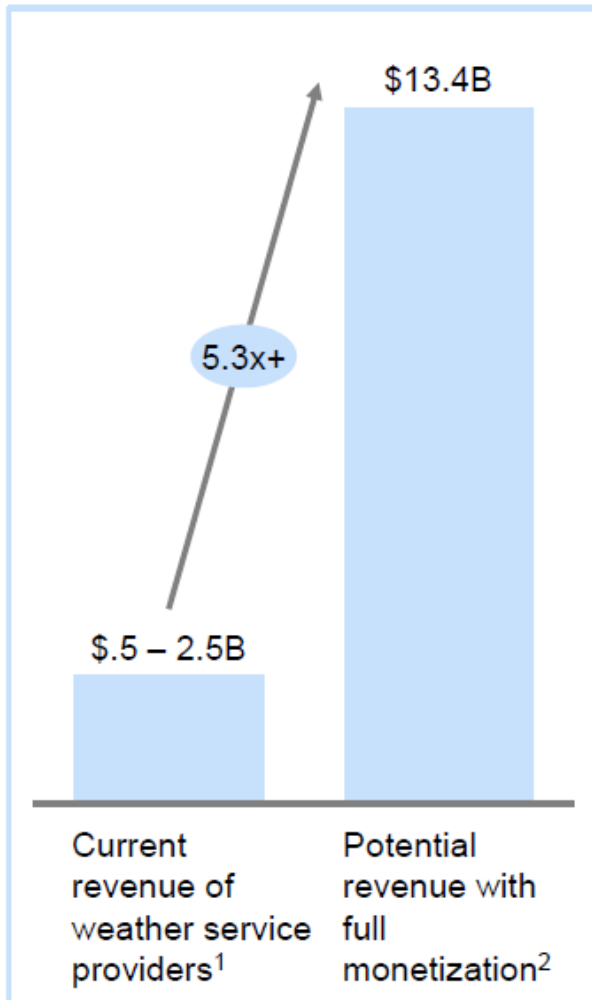


New paradigm ahead



The current value of weather data across industries a significant potential for growth in the demand for weather services

National Weather services current & future revenue projections in US



Key growth drivers

New industries are finding value in weather data for daily decision making

“There’s a huge opportunity to incorporate weather in manufacturing supply chain logistics... These companies have really never thought about weather before”

– Meteorologist at weather risk mgmt. co

Increased weather volatility is driving use of weather and climate data for long-term decisions

“Insurance companies have started realizing that you can’t set a premium based on past weather – it’s just not a good enough predictor now”

– Insurance industry adviser

Companies are making more use of data and analytics in all aspects of business

“We’re increasingly using all kinds of data to make decisions...weather will be another data source that helps us increase efficiency and safety”

– Former railroad co. GM



NOAA's Big Data Project Cloud has created an intermediary value chain and creation of a cloud black hole.

1. NMS's



Cloud Black Hole

2. Cloud intermediaries



3. Value added service providers



➤ How are customers using weather information?

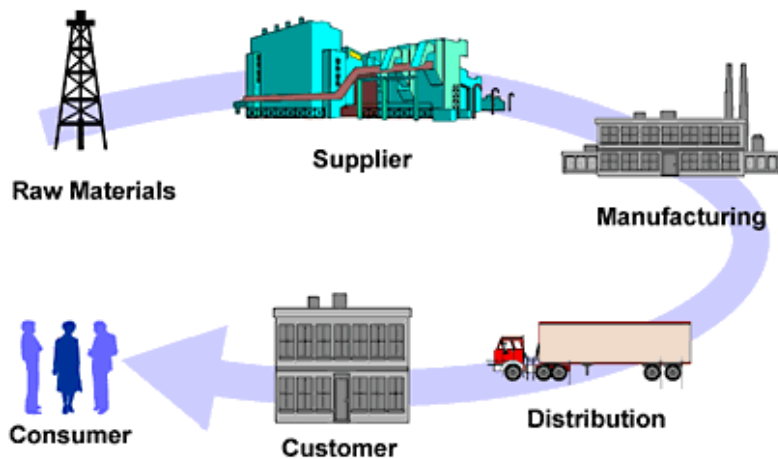
➤ How is science kept informed of customer needs?

➤ Risk of weather becoming commoditised?



The exponential increase in data volumes is revolutionising the meteorological value chain, with organisations competing for their positions within the industry value chain.

The physical supply chain



Making NWP available to the private sector



The information chain
The Weather Company





Global tech companies could transform the met value chain and threaten both the role of NMS and data intermediaries.

1. NMS's & ECMWF



Google Cloud Platform



Microsoft
ASK MORE OF THE CLOUD

IBM

Panasonic

2. Data aggregators / providers



Google Cloud Platform



Microsoft
ASK MORE OF THE CLOUD

IBM

Panasonic

3. End users





Met Office

Summary

1. Open and free data does not equate to growth in the private meteorological market.
2. The private market is becoming increasingly consolidated in Europe and US.
3. Cloud infrastructure offers the potential to erode market entry barriers and deliver greater speed to market .
4. Global tech firms are challenging the traditional roles within the meteorological value chain.



Questions?