The value of data-driven innovation in the Singapore economy

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'Data' seems to be the new gold: it is 'mined' or 'found' by fearless explorers or innovators in their quest for better insight into all sorts of aspects of our increasingly integrated and connected economies. The types, sources and volumes of data being generated are growing at a remarkable rate. Wireless data traffic worldwide is expected to increase at a CAGR of 44% during the next 5 years, from 13EB in 2013 to 80EB by 2018.[1] We have called the process of developing services from this raw material in order to deliver value to consumers and businesses, 'data-driven innovation' (DDI).[2]

DDI covers an ever-widening set of services, which we have classified into five broad categories relating to which data they use and how (see Figure 1). All these types of data-driven innovative service create value by allowing businesses to operate more efficiently, improve their offerings and/or to offer products and services that might not be possible without data. This generates improvements that benefit consumers and businesses throughout the economy.

Figure 1: The five types of DDI service [Source: Analysys Mason, 2014]

Service type	Examples
The new bazaar: Services that enable businesses to offer one-off products at one-off, personalised prices	• Personalised insurance pricing • Price-naming websites
Services for here and now: Services that help users with 'real-world' tasks in real time	• Smart routeing • Enhanced reality
Attentive services: Services that adapt in anticipation of users' evolving needs	• Medical tele-monitoring • Customer retention systems
Services for people like me: Services that target groups of consumers who share key characteristics	• Recommendation engines • Differentiated newspaper paywalls
Intelligent planning: Enables businesses to adapt operations to changing market conditions	• Supply-chain management • Public-health planning

As part of a recent study, we quantified the impact of DDI on a specific country – Singapore – and analysed the challenges that policy makers need to address as they seek to harness this opportunity. Singapore offers a fascinating case study of how a highly connected nation and 'global city' has managed to harness data to drive economic growth.

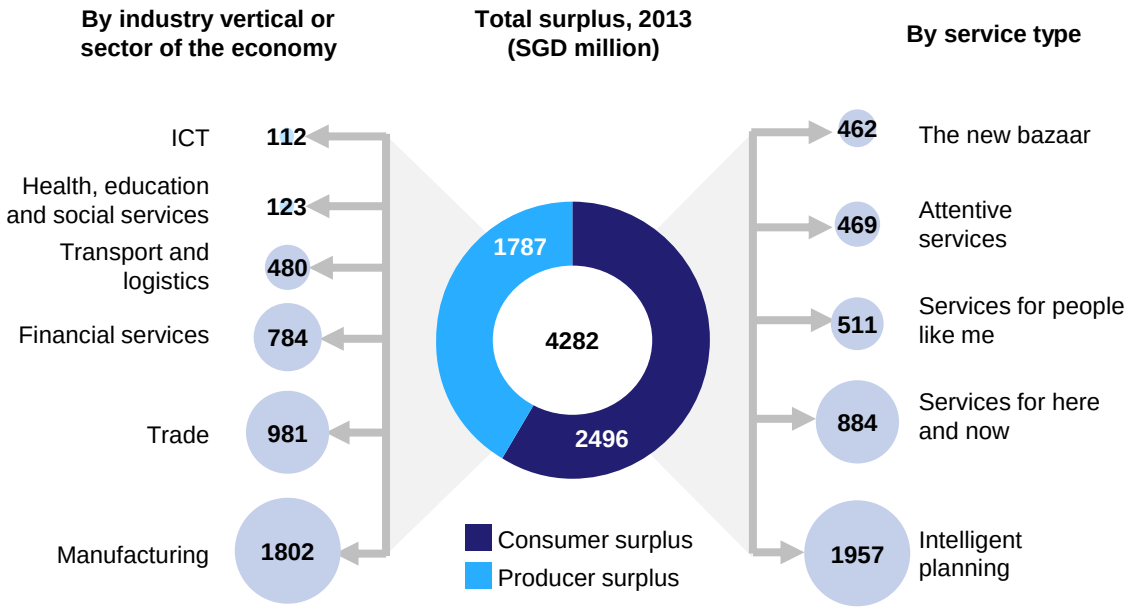
Drawing on extensive research into international trends, coupled with primary research conducted in Singapore, we have estimated the impact of data-driven innovation on the Singaporean economy as a whole, looking at six major sectors. Our research shows that DDI underpinned more than SGD4.2 billion (USD3.4 billion) in

1 For more information, see Analysys Mason's *Wireless network traffic worldwide: forecasts and analysis 2013–2018*.

2 For more information, see Analysys Mason's *Data-driven innovation in Singapore*.

economic value in Singapore in 2013 (see Figure 2), which is roughly equivalent to the total expenditure of Singaporean households on utilities or health in the same year.

Figure 2: Contribution of DDI to economic value in Singapore in 2013, by sector and type of service [Source: Analysys Mason estimates, 2014]



Our research shows that the Singapore economy stands to benefit even more from DDI in the future – its impact is set to more than double during the next 5 years, to SGD11.6 billion (USD9.3 billion) in 2018 (roughly equivalent to the total expenditure of Singaporean households on transport).

Policy makers have an important role to play in facilitating the development of DDI. On one hand, they can deploy a range of positive policies such as open data initiatives, standards development, innovation grants and skills development programmes, all of which can play important roles in facilitating DDI development. On the other hand, policies and regulations on data processing and the free flow of data are important in protecting consumers' privacy, but can also hinder the development of DDI – the need to manage this tension is likely to come increasingly into focus as the impact of data-driven innovation grows.

In quantifying the impact of DDI services in the Singapore economy, we developed a comprehensive approach that is applicable to other highly developed markets. Our broad review of policy challenges focuses on issues that are central to ongoing policy debates around the world, and as such will be of relevance to policy makers in a wide variety of countries.

Please download our report *Data-driven innovation in Singapore* and if you have any questions contact: David Abecassis, Principal (david.abecassis@analysysmason.com) or Nico Flores, Manager (nico.flores@analysysmason.com).