

# China's Control Of The Heavens : An Overview Of The Rapidly Developing *Space Silk Road*

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May 2018

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*Whilst mainstream media attention has been directed to various large scale infrastructure projects and the stimulation of trade<sup>i</sup> from the terrestrial Belt & Road Initiative (be that via sea or land) a more all encompassing strategy is being swiftly rolled out high above us by China.*

*The Space Silk Road, underpinned by the BeiDou satellite constellation, has the potential of being the dominant space based communication system across much of Eurasia and the Middle East. If China is successful in this highly strategic endeavour, it will have access to billions of individuals in one of the most rapidly growing regions on Earth.*

## 1. INTRODUCTION

The land and sea components of China's ambitious Belt & Road Initiative are only one dimension in a highly orchestrated and comprehensive three dimensional strategy.

Another highly strategic and visionary dimension is to control the high ground of space from Asia to Europe via a satellite constellation configuration that will have wide ranging operational capabilities.

In contrast to the capital & resource hungry terrestrial infrastructure projects of the BRI, China's building blocks for

control of the heavens are already well and truly in place.

At the core of the Space Silk Road<sup>ii</sup> is the BeiDou satellite constellation<sup>iii</sup>, which, once fully deployed, will arguably achieve many strategic milestones, including materially reducing China's reliance on the other Global Navigation Satellite Systems<sup>iv</sup> and substantially increasing China's influence across the nations that are signing on for BeiDou. The media has highlighted the aspiration that BeiDou deliver "*millimetre level accuracy*".<sup>v</sup>

China is approaching the task of populating space in a systematic & comprehensive way, ensuring that not only will near term space infrastructure be deployed, but also the human

resources are being developed<sup>vi</sup>. China, as with many outbound initiatives, is playing a long strategic game, whilst ensuring the critical foundations for that strategy are in place near term.

The Wall Street Journal has described China's space initiative as the "digital glue" that will hold the BRI together<sup>vii</sup>, this writer believes it is much more than that.

Over a longer term the *Space Silk Road* has the real capability of being the equivalent of a human body's nervous system – impacting many of the most critical aspects of "communication" for modern life. Once it is fully operational it is difficult to see how it would ever be removed – it will soon become ingrained in the day to day lives of billions of citizens across Asia and the Middle East.

## 2. DEVELOPMENT OF THE SPACE SILK ROAD

The concept of a "Space Silk Road" was originally proposed by the Chinese based International Alliance of Satellite Application Services (ASAS) in 2014, and was quickly picked up as a new focal point in conferences<sup>viii</sup> and other discussions. ASAS is a Beijing<sup>ix</sup> based organisation which strategically strives to promote Chinese satellite services around the world.

The State Council Information Office<sup>x</sup> on December 27<sup>th</sup> 2016 published an insightful white paper on the ambition for China's space activities<sup>xi</sup>. This was a wide ranging document that covered numerous matters, including topics such as space debris, space launch sites and manned flight.

Within that paper there are also a number of references to the BRI, and 2 passages in particular are specifically worth noting:

- *"Satellite navigation system. China is to continuously enhance the service capabilities of the Beidou-2. With sustained efforts building the Beidou global system, we plan to start providing basic services to countries along the Silk Road Economic Belt and 21<sup>st</sup> Century Maritime Silk Road by 2018, form a network consisting of 35 satellites for global services by 2020, and provide all clients with more accurate and more reliable services through advancing ground-based and satellite based augmentation in an integrated way<sup>xii</sup>"*
- *"Construction of the Belt & Road Initiative Space Information Corridor, including earth observation, communications and broadcasting, navigation and positioning, and other types of satellite-related development, ground and application system construction; and application product development<sup>xiii</sup>"*

So not only will the Space Silk Road deliver significant commercial opportunities for China and Chinese companies, but it will also support the collaborative, expansionary foreign policy that President Xi Jinping is championing as a key benefit delivered by BRI. The writer believes this is a clear demonstration of China's vast resources which compliments its ambition of pro active leadership across Eurasia.

It is also another piece in the puzzle of a highly integrated and sophisticated

geopolitical and commercial strategy that has been years in the making – and is a direct response from the US ambitions in the Pacific that were ensconced within the TPP. Both Chinese military strategists<sup>xiv</sup> and Chinese scholars have vocalised the need for China to “March West”<sup>xv</sup> from well before the BRI took form<sup>xvi</sup>.

### 3. CHINA’S RECENT SATELLITE NETWORK AMBITIONS & ACTIVITIES

**China** is undertaking a continual programme of new launches both specific to BRI and covering other strategic initiatives<sup>xvii</sup>.

Already in 2018 it has conducted 13 orbital missions, with the 12<sup>th</sup> launch late on Wednesday April 25<sup>th</sup> sending five small Zhui-1 remote sensing satellites into orbit.

On Friday 4<sup>th</sup> May China sent a new APSTAR-6C communication satellite into orbit for Hong Kong based APT Satellite, who plan to have another 3 or 4 satellites launched and to then form a global broadband network.

There are also other systems already deployed, such as the Fengyun<sup>xviii</sup> weather satellites which are seen to be critical for the timely release of information for such functions as disaster relief<sup>xix</sup>. Currently there are 9 of these satellites operating.

The BeiDou constellation today has 31 satellites in orbit, with the deployment of the most recent 2 taking place in March<sup>xx</sup>

BeiDou is only one dimension of China’s vision. The 2016 white paper also makes reference to ancillary matters such as ground launch capabilities, space

infrastructure, space transport as areas that will require development to ensure a comprehensive initiative is delivered. Their vision also includes manned flight to the moon.

### 4. WHAT SERVICES WILL THE BEIDOU CONSTELLATION LIKELY DELIVER?

The BRI array is specifically aimed at accelerating the availability of a variety of technological advances and solutions to the countries along the Eurasian corridor, including :

- i. Precision position and navigation for both terrestrial and maritime transport
- i. Industrial applications including on remote mining operations
- ii. “Timing” which critical in areas such as financial markets
- iii. Weather monitoring, including live tracking of storm systems for preventative actions in at risk areas of developing countries
- iv. Earth observation, including such things as observation of changes in sea level changes, melting ice caps and other atmospheric changes
- v. Planning, including improving the quality of the functions around such areas as urban planning, forestry and agriculture
- vi. Commercial communication, be that for mobile phone, broadband or other forms
- vii. Emergency communication response which critical in times of natural disaster<sup>xxi</sup>

Certain commentators also note the relevance of such technology for weapons guidance and other not so

civilian functions, including issues around loss of privacy and surveillance<sup>xxii</sup> from this all seeing technology<sup>xxiii</sup>.

From one recent media report :

*“As well as civilian applications such as navigation for shipping and road traffic, and mapping and surveying, Beidou will provide the People's Liberation Army military assistance from space in targeting, positioning and locating, and synchronising operations”<sup>xxiv</sup>*

One would be therefore naïve to think that this is about commercial opportunity only.

## 5. WHO WILL GET ACCESS TO THESE SATELLITES ?

**China** has stated that the countries that have signed on to the BRI will have early access to the space corridor.

That access has commenced already in early 2018, and the full coverage is anticipated to be rolled out by 2020 once all BeiDou satellites are on station.

The writer's view is that China is if anything ahead of its planned rollout timetable.

## 6. CAN INNOVATIVE TECHNOLOGIES PROVIDE ALTERNATIVES ?

**Space** may be the *final frontier*<sup>xxv</sup>, but there is a rush of capital taking place to

see how it can be leveraged for commercial opportunity and profit.

Currently there are rapid development of satellite technologies, ranging from “internet of things” styled applications, through to CubeSat, nanosatellite technology, specialist componentry<sup>xxvi</sup> and next generation propulsion systems<sup>xxvii</sup>. These technologies are disrupting the historical space model, in particular in relation to cost accessibility<sup>xxviii</sup>, around launching missions and high commercial application areas such as space imagery<sup>xxix</sup>.

There is real potential for these technologies to compete with, or even overtake, older styled systems which include BeiDou. First mover advantages, however, can be difficult hurdles to traverse and there is little doubt that China's co-ordinated efforts, combined with an abundance of investment capital and “know how”, will amount to a formidable obstacle to overcome.

## 7. WHAT DOES THIS ALL MEAN ?

**There** is a strong and consistent “undercurrent” theme of self reliance for China in many of the aspects of the Belt & Road Initiative<sup>xxx</sup>, which is understandable for a large nation whose growth over the last decades has not been without its challenges.

Satellite launches are happening on schedule, and in a short time the services delivered by the BeiDou constellation will likely become both as invisible and essential to mobile phone users across the BRI economies as GPS is to those in the USA and other western countries. Ask yourself the question – *do you really think*

*about who provides the mapping technology in your mobile device as you are finding your way to that destination point ?* This writer expects not. Then appreciate just how pervasive BeiDou will quickly become, as the population of many countries along the BRI corridors cumulatively number billions.

The vision of China to combine the delivery of satellite services in parallel with funding for the development of terrestrial and marine infrastructure is powerful and should not be underestimated. It is a strategic master stroke.

## 8. WHERE THEN ARE THERE OPPORTUNITIES ?

**Merger & Acquisition** activity is already dramatically on the rise across the BRI corridors<sup>xxxi</sup> Be it as a result of the Space Silk Road or other BRI initiatives there is little doubt that there will be a continued flow of capital and skilled resources from China, stimulating trade and commerce across the Eurasian & Middle Eastern regions.

This development of infrastructure, industries and technologies (*including both in country as well as borderless*) will present numerous opportunities for investment, joint venture and potential M & A activity.

For western organisations, however, the time is now to ensure there is a place at the table to benefit from the countries that will quickly evolve – in particular where “economic lubricants” such as satellite driven communications will deliver both opportunity and progress in shortened time periods.

The reality is, however, that given Chinese investment dollars powering all this growth, non Chinese organisations and nations will need to be highly pro active to capture opportunities that may naturally fall initially to the Chinese.

Meticulous planning and execution will be required by Western organisations and governments to ensure they are not locked out of strategically important geographies and nations in Central Asia and Eurasia.

The commercial potency of China’s potential “Control of the Heavens” should not be underestimated.

About the author :

**Nicholas Assef** is the Founder & Principal of LCC Asia Pacific, a boutique investment banking firm and strategic advisory practice, based in Sydney Australia and working across the Australasian and EMEA regions. To learn more on LCC Asia Pacific visit : [www.lccasiapacific.com](http://www.lccasiapacific.com)

Nicholas provides strategic counsel in the areas of corporate growth, mergers & acquisitions and joint venture alliances, working with organisations to both design and implement cross border initiatives – including for those seeking to derive commercial benefit from the Belt & Road

Nicholas is a firm believer that the Belt & Road Initiative will not only be highly successful for China and participating countries, but has the potential to present tremendous commercial opportunities for other international organisations who can develop and implement complimentary strategies

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## ENDNOTES

<sup>i</sup> “China’s imports from Belt and Road countries grow faster than exports : [www.scio.gov.cn](http://www.scio.gov.cn) : 8 May 2018 :

[http://english.scio.gov.cn/beltandroad/2018-05/08/content\\_51175846.htm](http://english.scio.gov.cn/beltandroad/2018-05/08/content_51175846.htm)

<sup>ii</sup> This paper uses the term “Space Silk Road”, but there are other terms also used including “Belt & Road Space Information Corridor” and “Spatial Information Corridor”

<sup>iii</sup> To learn more : [www.beidou.gov.cn](http://www.beidou.gov.cn)

<sup>iv</sup> There are 3 other major GNSS : The USA GPS; EU’s GALILEO and Russia’s GLONASS

<sup>v</sup> See : <http://idstch.com/home5/international-defence-security-and-technology/space/china-s-beidou-navigation-satellite-system-bds-enters-global-phase-to-compete-with-us-s-gps-system/>

<sup>vi</sup> Shanghai Jiao Tong University is running a course : “*The Belt and Road*” Satellite Navigation and Remote Sensing Program

<sup>vii</sup>

<https://blogs.wsi.com/chinarealtime/2016/12/28/chinas-one-belt-one-road-takes-to-space/>

<sup>viii</sup> As reported :

<http://www.globaltimes.cn/content/924600.shtml>

<sup>ix</sup> Room 403, Aerospace Service and Technology Building, No 16 Fucheng Road, Beijing 100037 China

<sup>x</sup> [www.scio.gov.cn](http://www.scio.gov.cn)

<sup>xi</sup>

[http://english.gov.cn/archive/white\\_paper/2016/12/28/content\\_281475527159496.htm](http://english.gov.cn/archive/white_paper/2016/12/28/content_281475527159496.htm)

<sup>xii</sup> White Paper Section III(2)(3)

<sup>xiii</sup> White Paper Section V(3)(3)

<sup>xiv</sup> See General Liu Yazhou, whose comments include “Central Asia is the thickest piece of the cake given to the modern Chinese by the heavens” in 2011 ::

<https://www.nytimes.com/2011/01/03/world/asia/03china.html>

<sup>xv</sup> See coverage of Scholar Wang Jisi’s “March West” position :

<https://www.brookings.edu/blog/up-front/2013/01/31/march-west-chinas-response-to-the-u-s-rebalancing/>

<sup>xvi</sup> See the author’s paper on the *Polar Silk Road* for another example of this integrated & comprehensive strategy

<sup>xvii</sup> <https://gbtimes.com/xichang-space-centre-set-for-17-launches-in-2018-including-beidou-satellite-and-moon-missions>

<sup>xviii</sup> Chinese for “*wind cloud*”

<sup>xix</sup> <https://gbtimes.com/chinese-satellites-to-provide-emergency-response-for-belt-and-road-countries>

<sup>xx</sup> To learn more : <https://gbtimes.com/china-sends-latest-pair-of-beidou-satellites-into-medium-earth-orbit-with-ninth-launch-of-2018>

<sup>xxi</sup> <https://gbtimes.com/chinese-satellites-to-provide-emergency-response-for-belt-and-road-countries>

<sup>xxii</sup> For additional media on potential surveillance angles of the BRI see as an example :

<http://www.scmp.com/news/china/diplomacy-defence/article/2126296/chinas-underwater-surveillance-network-puts-enemies>

<sup>xxiii</sup> “They are watching you – and everything else on the Planet “ National Geographic :

<https://www.nationalgeographic.com/magazine/2018/02/surveillance-watching-you/>

<sup>xxiv</sup> Refer : <https://gbtimes.com/china-sends-latest-pair-of-beidou-satellites-into-medium-earth-orbit-with-ninth-launch-of-2018>

<sup>xxv</sup> Refer to Star Trek Monologue :

<https://www.youtube.com/watch?v=S6R3MiAv9ac>

<sup>xxvi</sup> As an example : <http://crystalspace.eu/>

<sup>xxvii</sup> As an example : [www.n-avionics.com](http://www.n-avionics.com)

<sup>xxviii</sup> As an example : <http://www.albaorbital.com/> which provides fixed price quotes on

<sup>xxix</sup> As an example : <http://www.herasys.com/>  
<sup>xxxxx</sup> Another is the rapid deployment of electric buses to assist alleviate the reliance on imported oil. See for example :

<http://techhq.com/2018/04/electric-buses-may-save-233000-barrels-of-diesel-a-day/>

<sup>xxxi</sup> M & A deals in Belt & Road economies increase by 81 percent : 12 April 2018 :

[http://english.scio.gov.cn/beltandroad/2018-04/12/content\\_50868038.htm](http://english.scio.gov.cn/beltandroad/2018-04/12/content_50868038.htm)