



TESAT

COTS IN SPACE: MARKET ANALYSIS

What is COTS?

Non Classic Hi-Rel



COTS = Automotive?





“The GoPro is used because it is a very cheap camera & it does its job very well, just not good enough for space, hence it’s hardening by SpaceX.”



Source:
<https://www.quora.com>
Paris Koulandris

Source: SpaceX

Hirel Parts

Well defined req. (ESA, NASA, JAXA...)

Full parts traceability

Long parts life cycles

Manufacturers support

Long delivery times

High unit prices

COTS

Requirements not established

Reduced or no traceability

Short Life Cycles

Less support from manufacturers

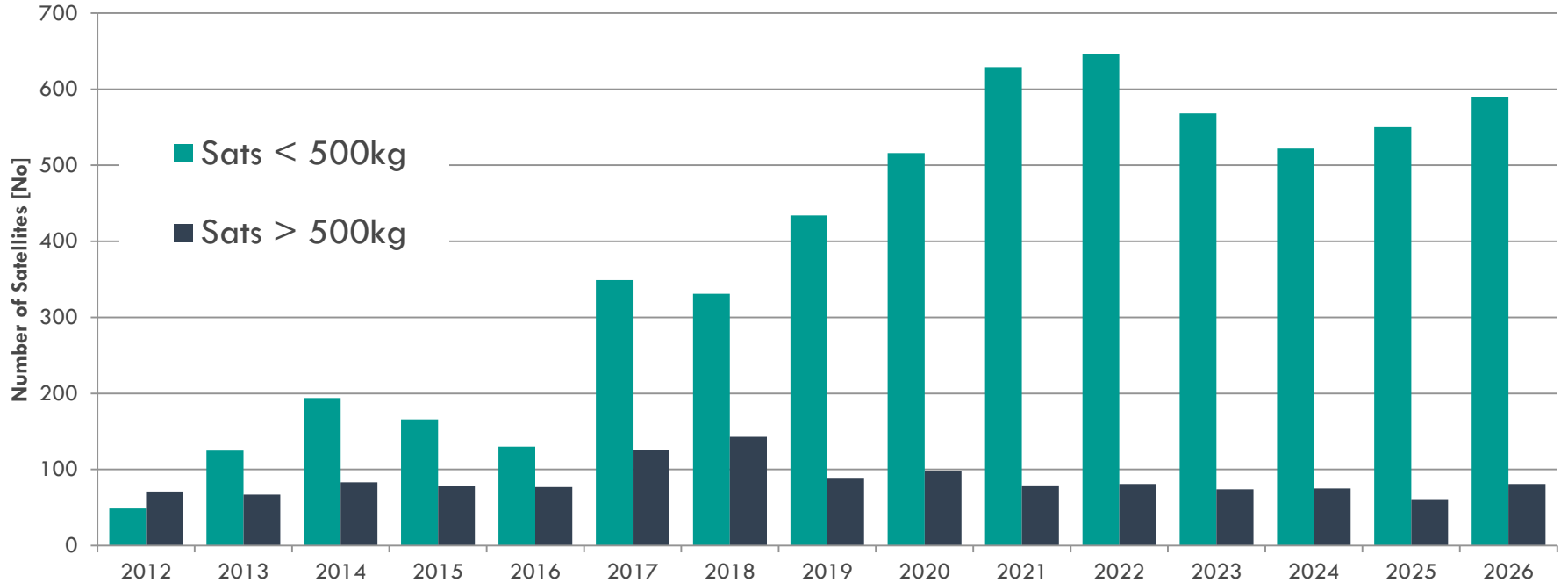
Short delivery times

Lower prices but higher MOQs

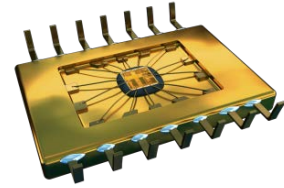
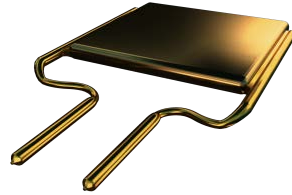
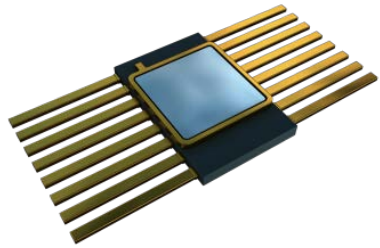
- » Constellations
- » SmallSats
- » Micro Launch Vehicle
- » Internet



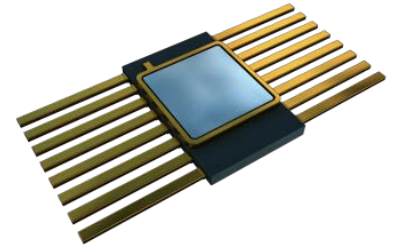
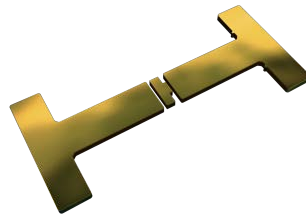
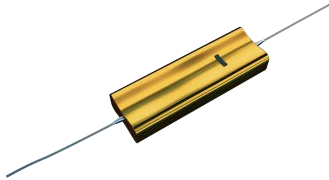
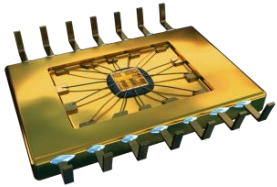
Prediction: Launched Satellites

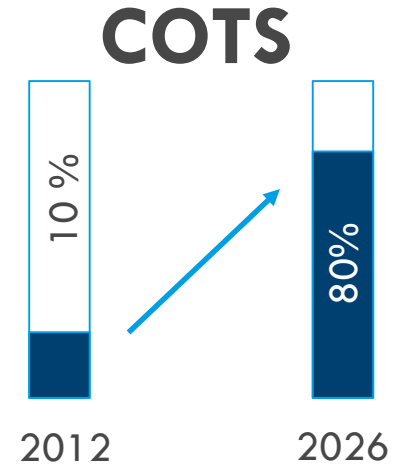
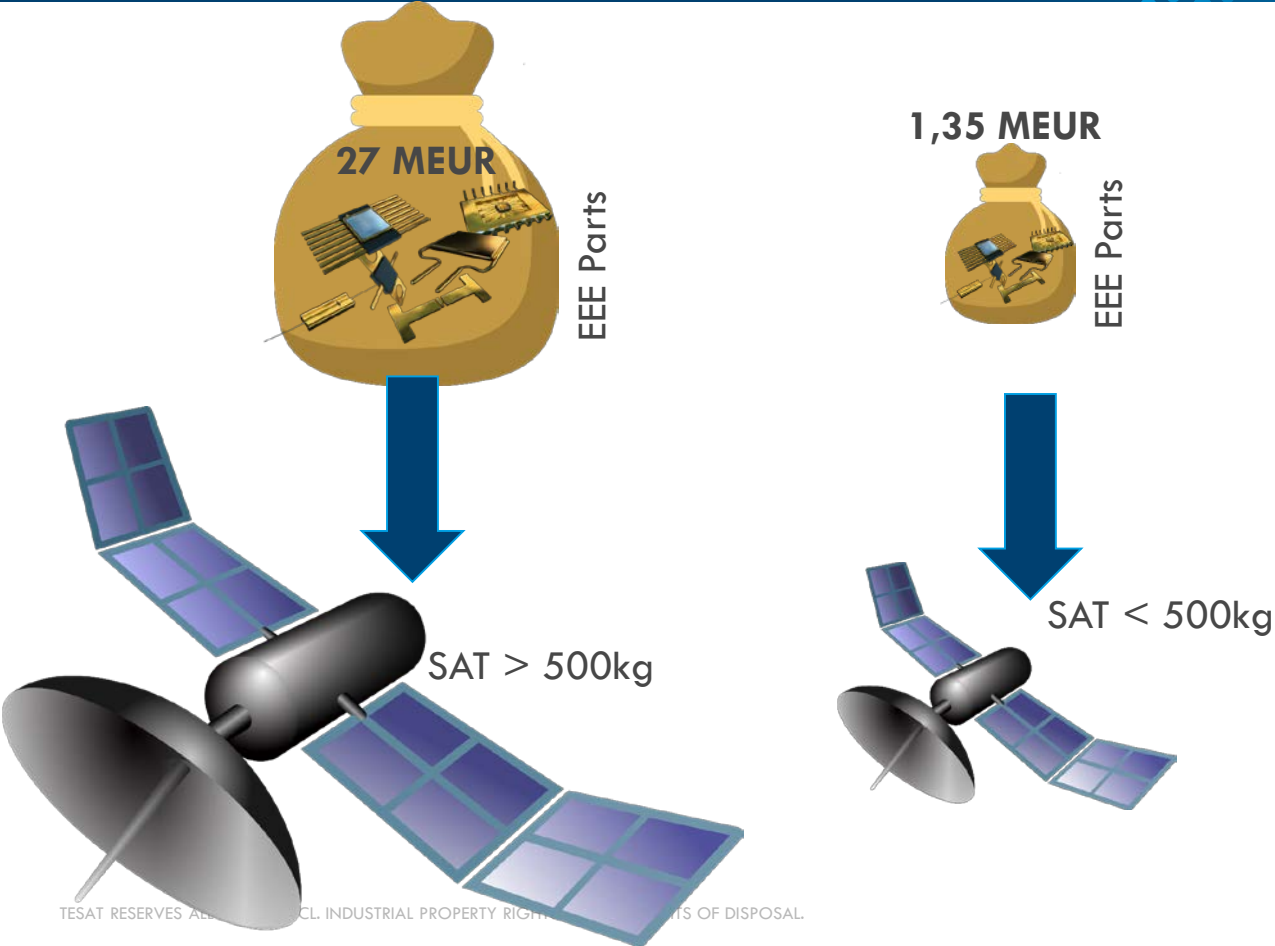


Based on NSR Studies

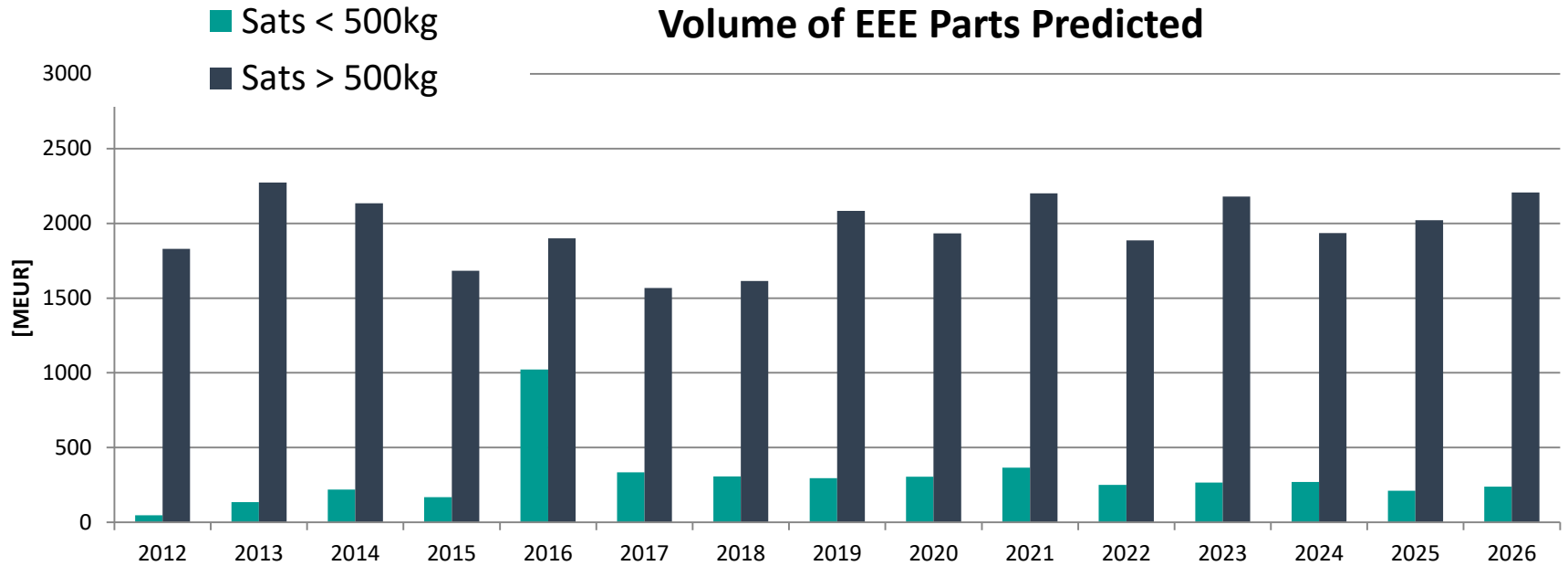


What does this mean for EEE Parts Market?





Volume of EEE Parts Predicted

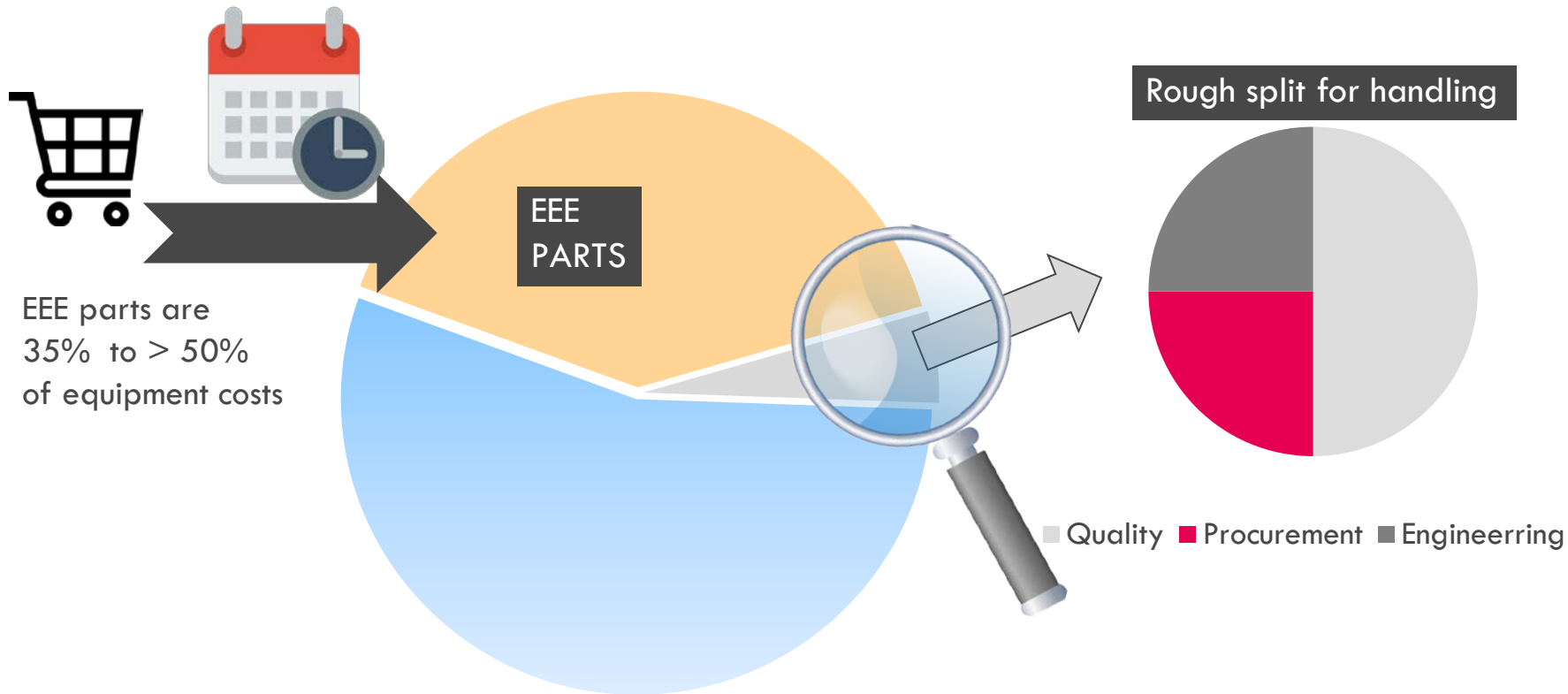


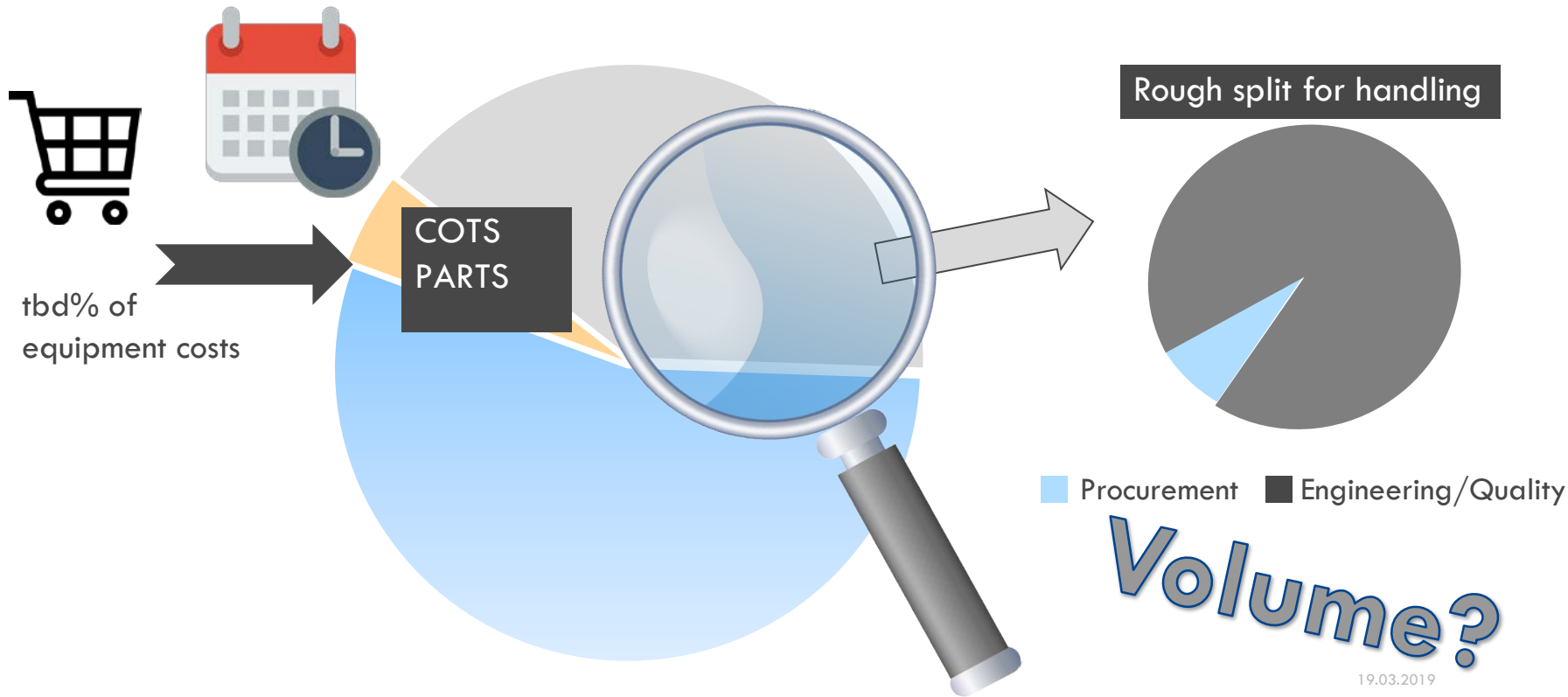
No significant growth



Will everything stay the same?

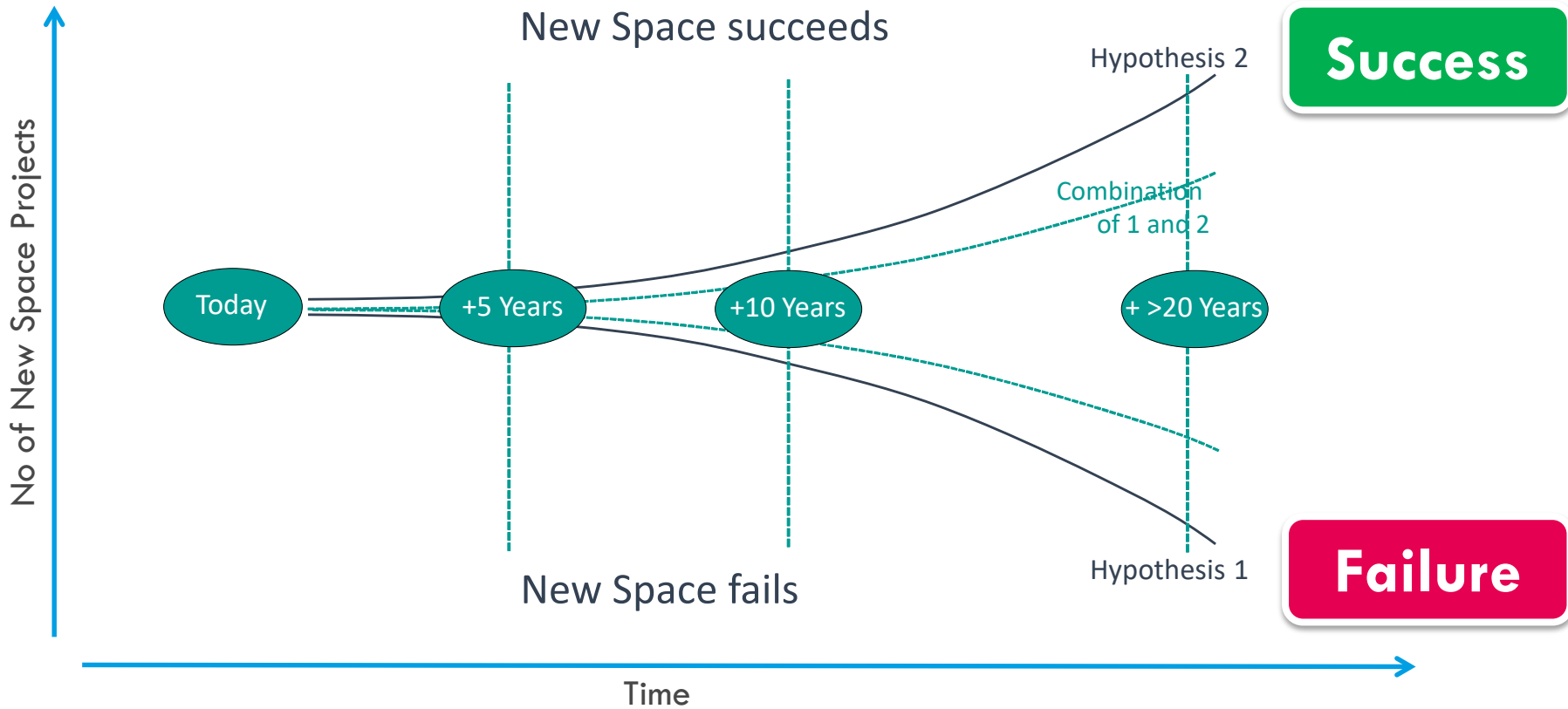






19.03.2019

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+ 5 Years

- » NewSpace not settled
- » Cost for constellation not low enough
- » Missing Investments in space flight
- » Few Customers in Parts Business

+ 10 Years

- » Resignment from Constellations, too expensive (build and launch)
- » Existing constellations are not renewed
- » Aggregation of Parts companies, price war

+ 20 Years

- » GEO Sats Standard
- » On-Orbit Servicing possible
- » Less companies in space biz
- » Parts market volume remains on low level
- » Approaches for constellations?

Failure

» Consequences if Hypothesis 1 realizes

- » Quality will be key
- » Price and Innovation Pressure still exists
- » Growth by Mergers
- » Pressure on classic Hi-Rel Parts continues



+ 5 Years

- » First Constellation start operation
- » Mass Production
- » Micro-Launch-Vehicle
- » CubeSats for everyone
- » Suborbitale Space Flights
- » High Percentage of COTS
- » New Customers on parts market

+ 10 Years

- » Worldwide Internet
- » Regular exchange of SmallSats
- » Repair using Robots or AI
- » COTS-Parts or individual production using 3D Print
- » Higher volume of parts, lower turnover

+ 20 Years

- » Space open for everyone
- » Satellites do influence IoT and Smart Factories
- » Settlement on Mars in preparation
- » daily Launches possible
- » Variety of Parts customers, rare supply Bottleneck for COTS

Success

» Consequences if Hypothesis 2 realizes

- » Cost will be main criteria for success on Part Market
- » Strong Request on Services around COTS Parts
- » High Automation in Procurement Process & Manufacturing



Taken from: NY Times



Taken from: Humanmars.net



Taken from: Spacenews



THANK YOU FOR YOUR ATTENTION

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19.03.2019