

TV WHITE SPACES: MORE QUESTIONS THAN ANSWERS

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ABOUT ERICSSON



#1

MOBILE INFRASTRUCTURE
OPERATIONS & BUSINESS SUPPORT
SOLUTIONS
SERVICES
TV & MEDIA DELIVERY

35,000

Patents

25,000

R&D Employees

32B SEK

In R&D

1 BILLION

Subscribers
managed by us

2.5 BILLION

Subscribers
supported by us

64,000

Services
professionals

227B SEK

Net Sales 2013

50%

LTE smartphone traffic
handled by our networks

180

Countries with
customers

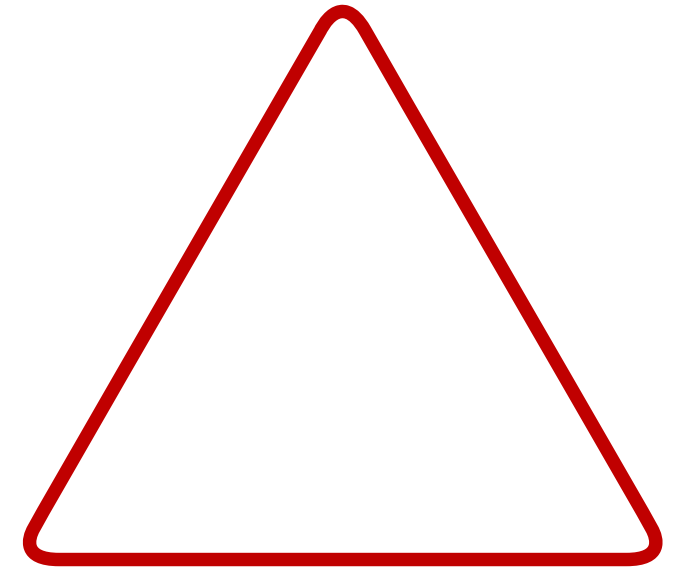
114,000

Employees

POINT OF DEPARTURE



Technology



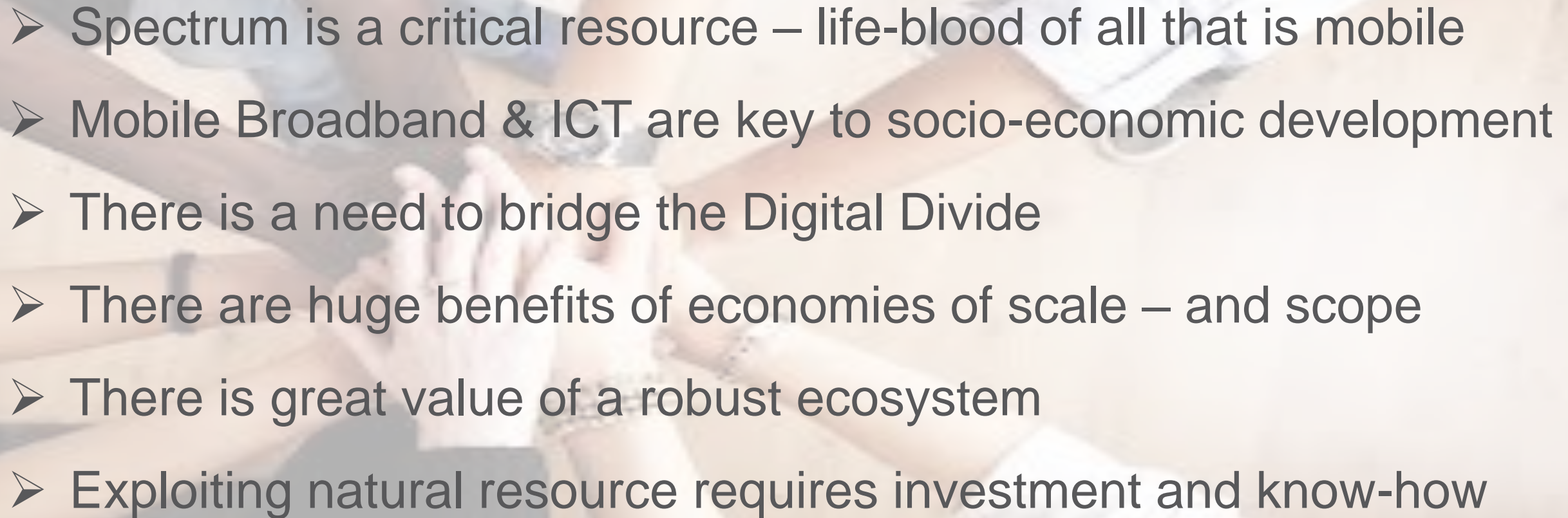
Policy

Markets

Markets do not fall like manna from the heavens.
They are created by legal precepts and institutional structures of a given country

LET'S AGREE ON A FEW THINGS



- 
- Spectrum is a critical resource – life-blood of all that is mobile
 - Mobile Broadband & ICT are key to socio-economic development
 - There is a need to bridge the Digital Divide
 - There are huge benefits of economies of scale – and scope
 - There is great value of a robust ecosystem
 - Exploiting natural resource requires investment and know-how

WHAT THE TVWS DEBATE IS ABOUT



FUTURE OF SPECTRUM MANAGEMENT



**HOW SHOULD SOCIETY DEAL WITH A CRITICAL RESOURCE
LIKE PRIME SPECTRUM (470 MHz – 694 MHz)?**

THE CENTRAL QUESTION



SHOULD PRIME SPECTRUM BE MANAGED THROUGH
DELIBERATIVE POLICYMAKING PROCESS,
OR SHOULD IT BE LEFT TO
THE WHIMS AND VAGARIES OF THE MARKETPLACE?

FRAMING THE ISSUES



LICENSED OR UNLICENSED SPECTRUM?



- Wireless *does* need a mix of licensed and unlicensed spectrum, and all spectrum should be exploited for social good.



- Ericsson supports unlicensed spectrum in 2.4GHz, 5GHz bands. Do *not* support the idea in sub-1GHz spectrum.

FRAMING THE ISSUES



WHITE SPACES

- Of course White Spaces should be exploited for social good. Ericsson not keen on TV White Spaces. Sub-1GHz spectrum should be licensed, dedicated and globally harmonized.
- Should under-utilized spectrum *be* 'liberated' & put to social use? Of course. But Licensed or Authorized Shared Access preferred.



FRAMING THE ISSUES



STATE VS MARKET

State vs. Market is *not* an either/or issue
Key is to find the right balance, through light-touch regulation

Licensing allows the State to guide the Market in socially desirable directions by attaching policy conditions and obligations (like geographical and population coverage, for instance)

Licensing also provides certainty and investor confidence

FRAMING THE ISSUES



OPPORTUNITY COST

- The 470 MHz – 694 MHz band has excellent propagation characteristics. This begs the question: Is TVWS the optimal way to use such excellent coverage properties that can help meet stated policy goals of inclusion?
- “No Opportunity Cost to Broadcasters” seems like a specious argument. The ‘Opportunity Cost’ is to society, post Digital Switch Over. Broadcasters were provided spectrum to use in the public interest.

NETWORK RULE OF THUMB



If it's a Wide Area Network,
offering services in public domain,
choose harmonized, standardized technologies
(to ensure QoS, service consistency, etc.)

If it's a private, 'controlled' network,
knock yourself out
on choice of technology



ON GOING THE DISTANCE



THE COST OF COORDINATION
IS SOMETIMES PAID
IN THE CURRENCY OF TIME.

BUT IT IS WORTH THE INVESTMENT

IF YOU WANT TO GO FAST, GO ALONE.
IF YOU WANT TO GO FAR, GO TOGETHER.

- AFRICAN PROVERB

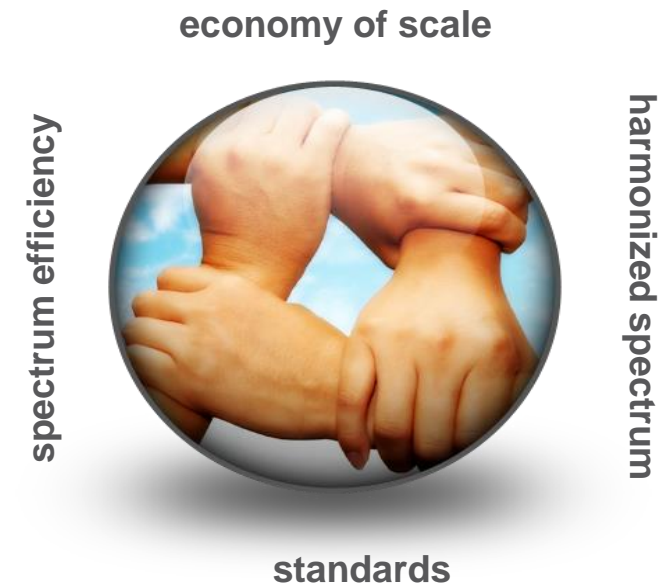
SPECTRUM HARMONIZATION, LICENSING & STANDARDIZATION: BENEFITS



Identification of common frequency bands at the international level for IMT – spectrum harmonization – and subsequent licensing of spectrum and standardization activity are key to meeting national policy goals.

Principal benefits of these activities are:

- Economies of scale, lowering cost of coverage of marginalized, low-population density areas
- Efficient use of spectrum for wide area coverage,
- Cross-border operation and coordination,
- Regional and Global roaming capabilities
- Simplifying design of equipment, focusing R&D investments,
- Ensuring Interoperability for choice, convenience
- Providing long-term investment assurance for manufacturers, network operators, others



Providing affordable broadband services and applications for all

A LOOK AT SOME NUMBERS



6.6 BILLION

mobile subscriptions
globally in Q3 2013

85%

of North American mobile
subscriptions will be LTE by
2019

>65%

of the world's
population will be
covered by LTE in 2019

5.6 BILLION

smartphone subscriptions
globally by end 2019

9.3 BILLION

mobile subscriptions
globally by end 2019

10X

growth in mobile
data traffic between
2013 and 2019

>50%

of mobile data
traffic will come
from video in 2019



WHY THESE NUMBERS MATTER



JOBS

**Because all kinds of societal goals
– political, economic, developmental –
are intrinsically tied to the growth of
Mobile Broadband**



EDUCATION



TRANSPORTATION



PUBLIC SAFETY



POLLUTION



HEALTH



ENERGY



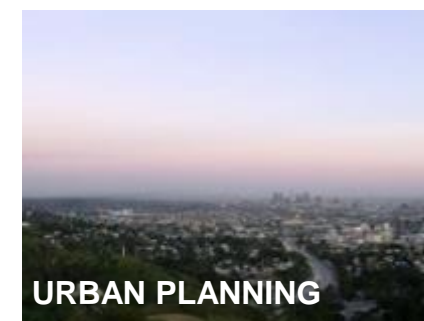
FOOD AND AGRICULTURE



GREEN ASPECTS



DIGITAL DIVIDE



URBAN PLANNING



E-GOVERNANCE

PILOTS & POLICY PRESCRIPTIONS



- Lot of TVWS trials and pilots reported in the media. Good idea, marred by marketing hype.
- All research, academic or commercial, is welcome exploration.
- But serious research requires peer review, and replicability. No conclusive studies presented in the ITU WP 5A or 5D yet.
- Growing number of pilots and trials, and increasing academic research, speaks only to growing interest in a technology.
- On-going research should not be conflated with policy prescription.



PILOTS, POLICY – AND MIRACLES



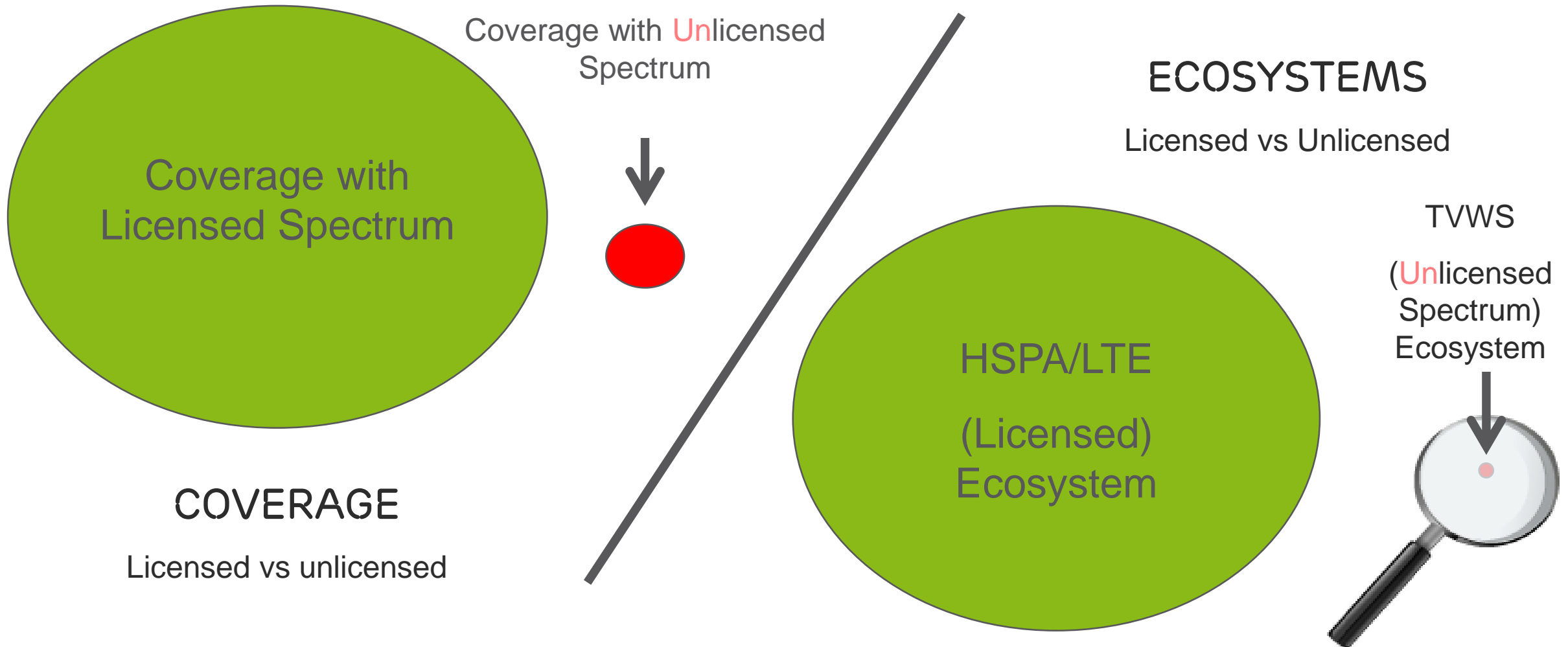
‘License-exempt regime will unleash new & innovative business models that will help bridge digital divide’



A more likely scenario:
Self interest will drive players to cherry-pick and thwart policy goals of inclusion.

COVERAGE AND ECOSYSTEM

LICENSED VS. UNLICENSED SPECTRUM



ABOUT PATCHWORK QUILTS



Should Patchwork Quilts
be made by cutting
broadcloths?
Or with left over scraps
of fabric?

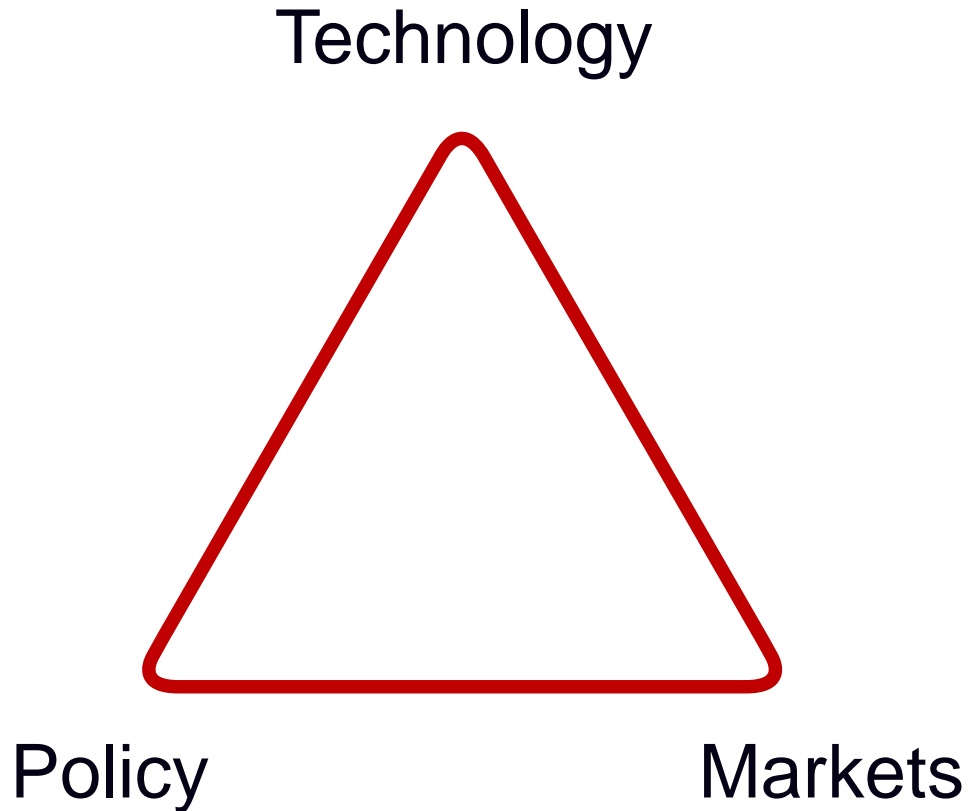
Is there a spectrum crunch here? If not, why not deliberate and get things right?

Complete
DSO

Assess
social
needs

Allocate,
assign
spectrum

IMPLICATIONS FOR POLICY



REGULATORY
FORBEARANCE

REGULATORY
CERTAINTY



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