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Spectrum policy and innovation: A Japanese perspective

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Outline

I. Introduction: Defining innovation
II. Telecommunications in Japan
III. Results
IV. Conclusion

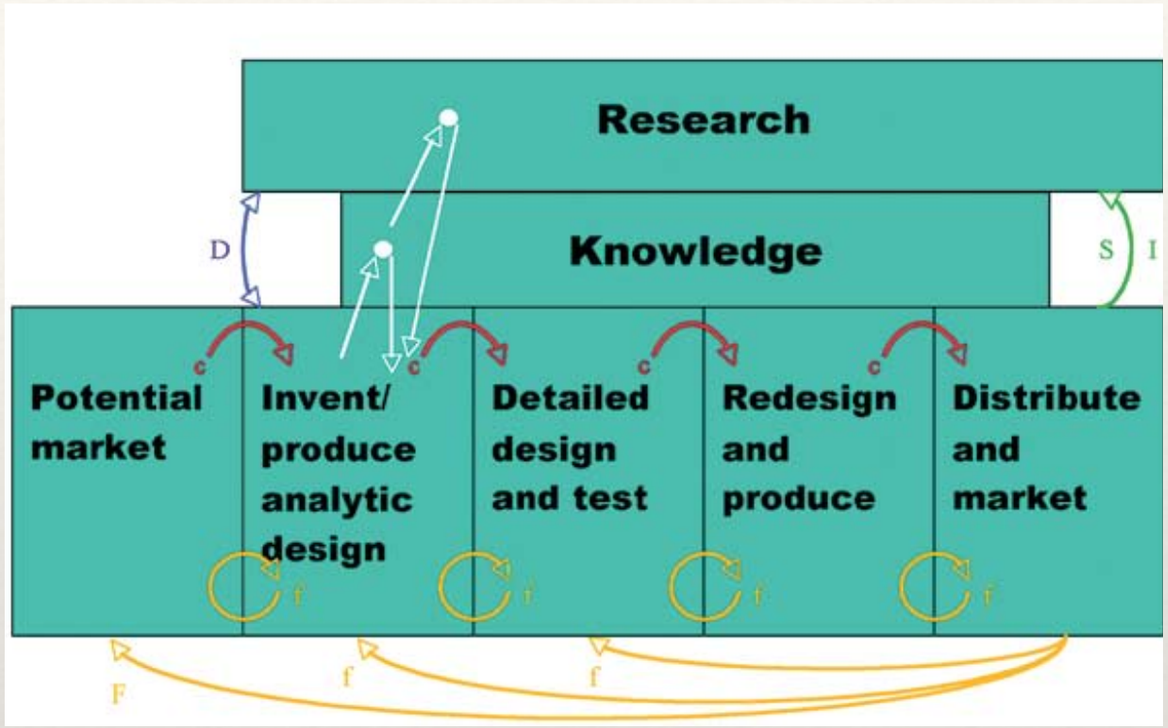
Image: Tokyo Sky Tree, source: nipomen2 flickr

I. Introduction

- Innovation as a **spectrum** policy aim?
  - innovation, investment (Peha 2005), dynamic efficiency (Nicita & Rossi 2013)
- Is there a **relationship** between spectrum policy and innovation in the field of telecommunications?
- What is understood by **innovation**?

Definitions of innovation

- Basic definition (Schumpeter 1912)
  - innovation = invention + value
- Theoretical frameworks
  - linear innovation
  - horizontal innovation
- Empirical evidence
  - R&D alone does not capture the complexity of the innovation process (Audretsch & Feldman 1996, Kim et al. 2011)
- How can we represent and measure horizontal innovation?



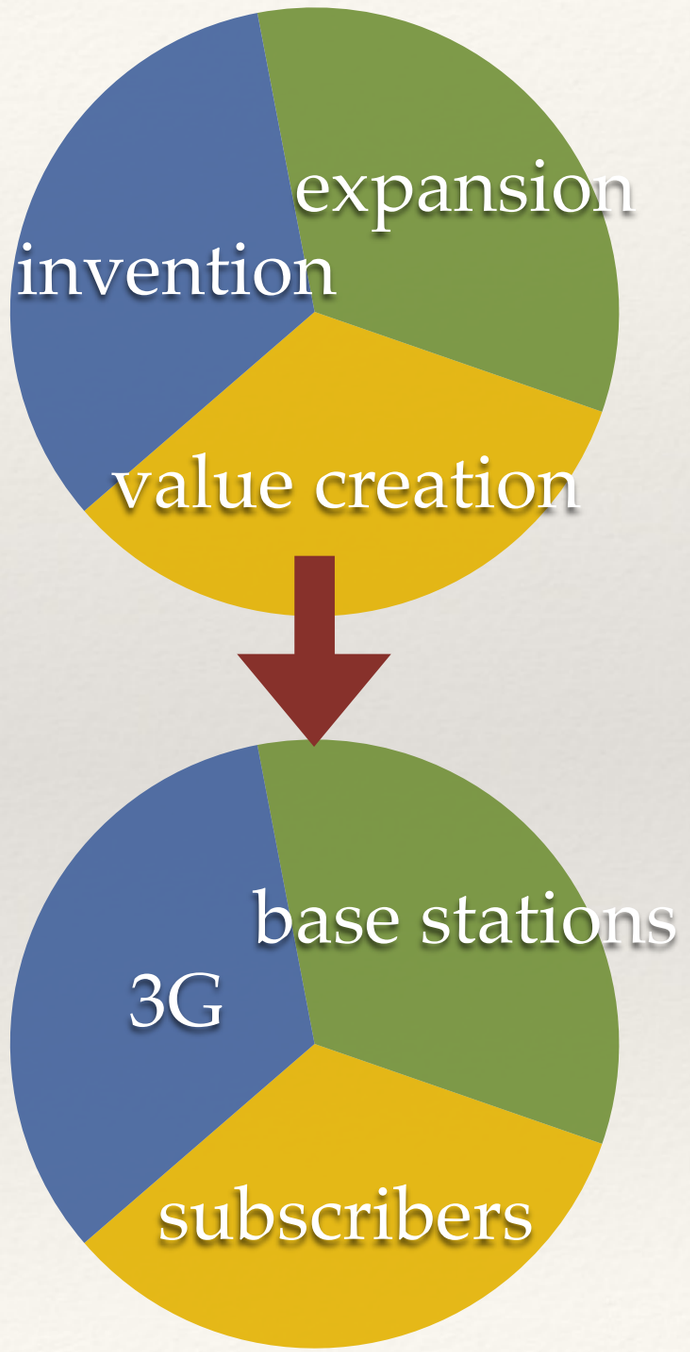
Horizontal or chain-linked model of innovation, Kline 1985
Image source: Gulbrandsen, 2008

II. Telecommunications in Japan

- Time of study: 2001-2013
- Japan's spectrum regulatory environment
  - Ministry of Internal Affairs and Communications (MIC)
    - Assigns, allocates, and manages
- Policy
  - "Equitable and efficient use of radio spectrum" (Radio Act 1950/2007)
  - Infrastructure goes first
- In this environment, is there evidence that policy influenced the appearance and diffusion of innovation?

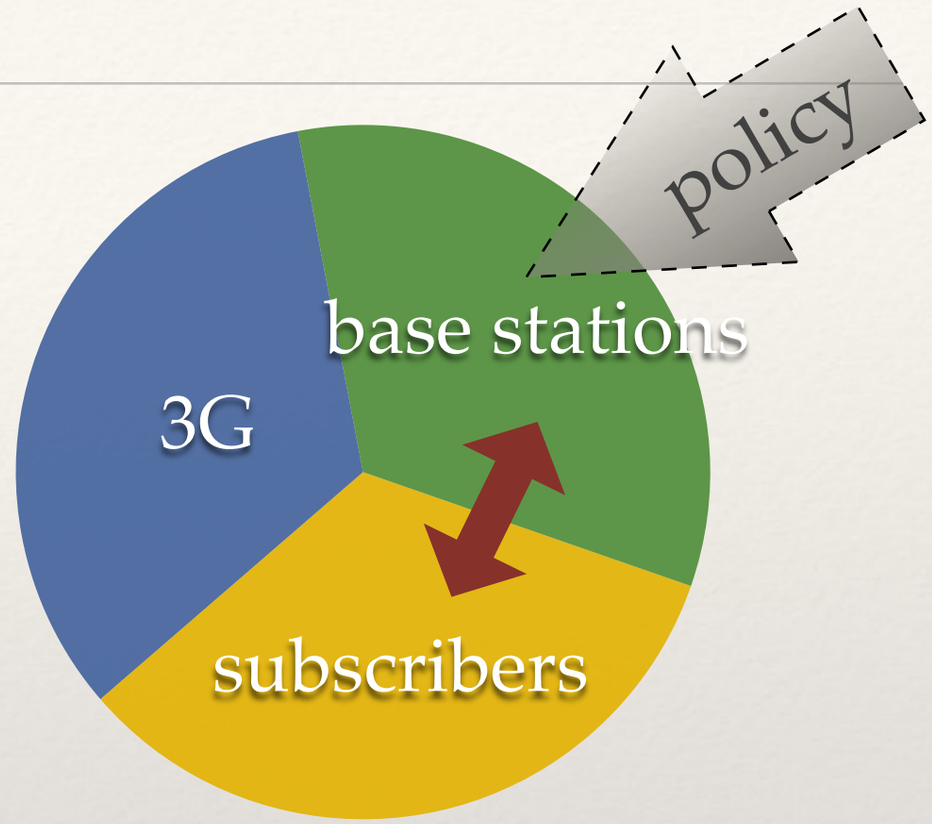
Capturing innovation

Framework	Case	Data source
invention	3G	
deployment	3G base station ratio	MIC / Statistics Bureau
diffusion	3G subscription ratio	TCA / MIC
policy events	allocations vs non-allocation	dummy variables; MIC



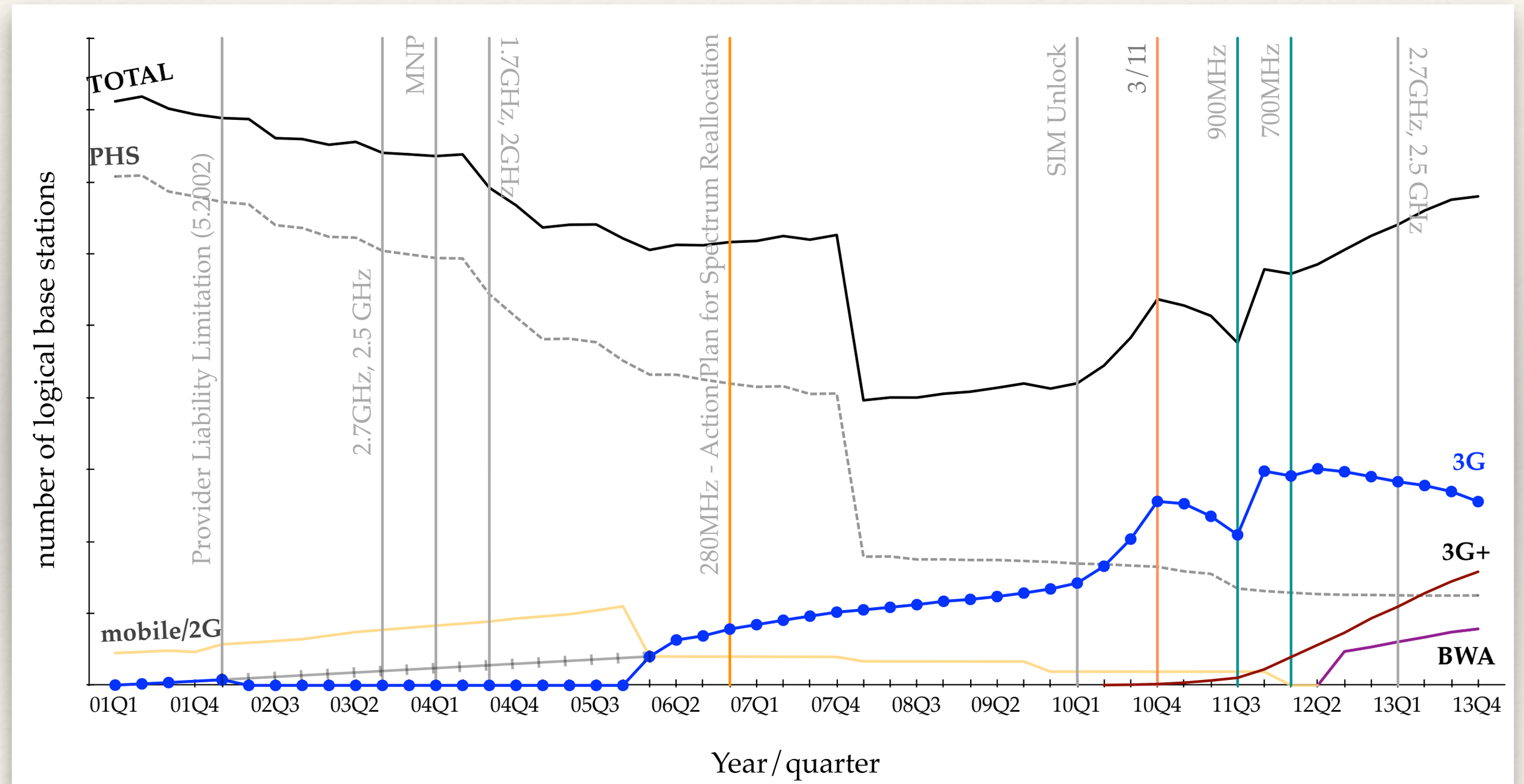
III. Results

- No evidence of a direct effect of allocation policies on either subscribers or base stations
- Strong correlation between base stations and subscriptions, r = 0.908, p = < 0.001, n = 51
- Weak negative effect of non-allocation policies on the ratio of 3G base stations



Obs = 52 R	3G base station ratio
non-allocation policy	-0.112** (0.0471)
constant	0.159

Interpretation



Data source: MIC

IV. Conclusion

- Policy, in the Japanese context at least, has a more observable effect at the end of an innovation's life cycle
  - focus on consensus and minimising disruptive acts
- Next actions
  - Beyond the Japanese regulatory environment
  - Looking at non-technological innovation

Selected References

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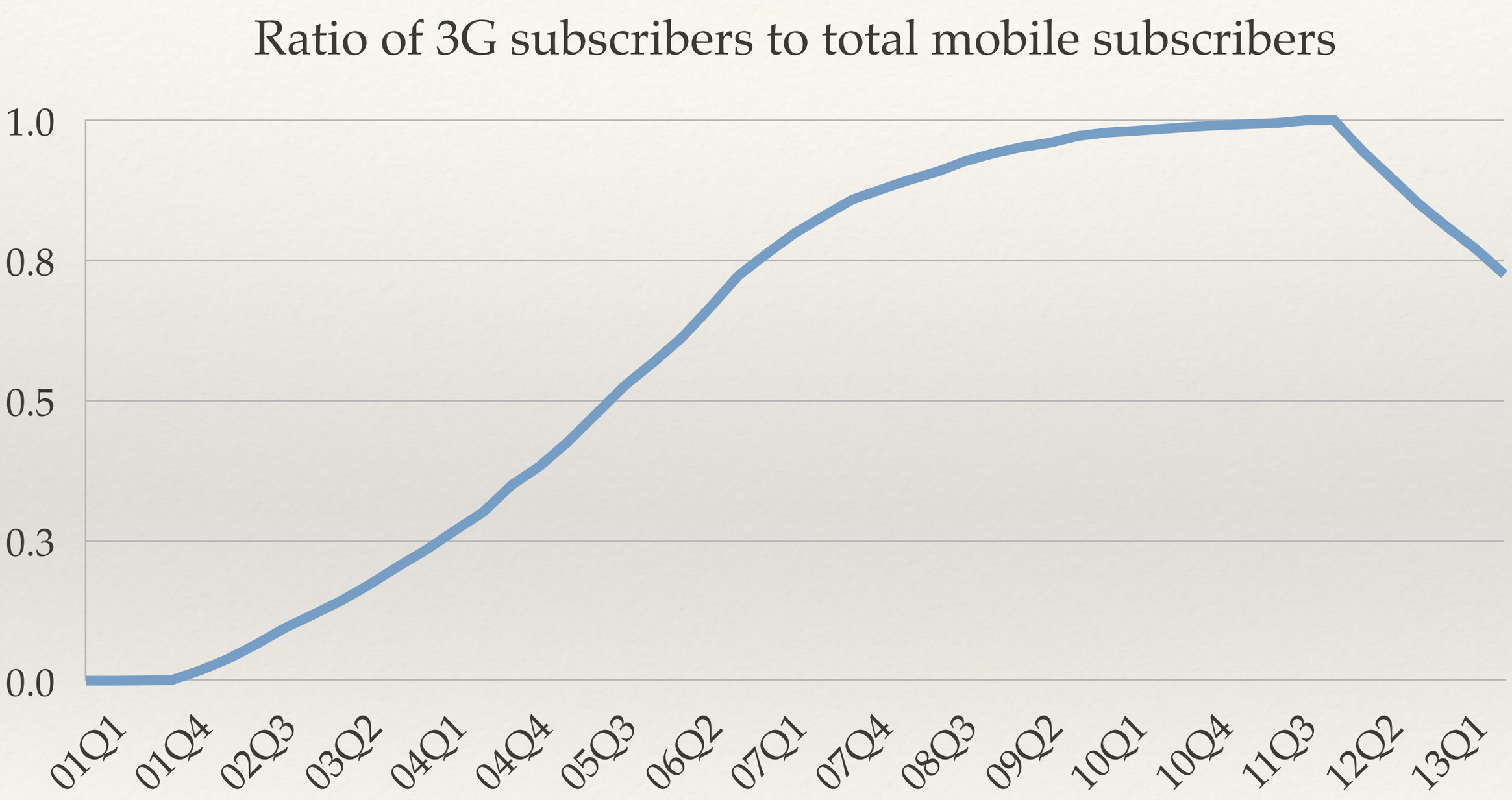
Thank you

3G: life cycle of an innovation



Data source: MIC/TCA