Connectivity and Development

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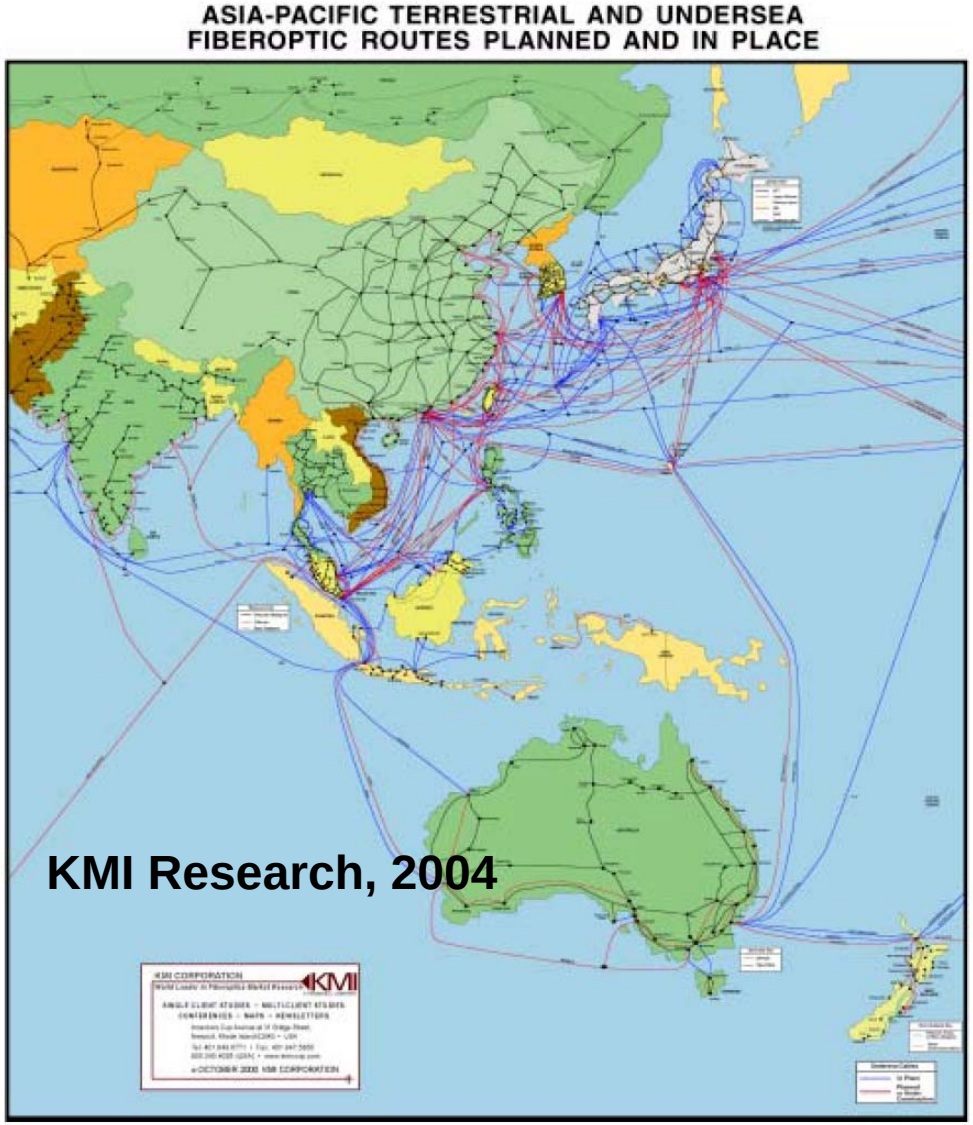
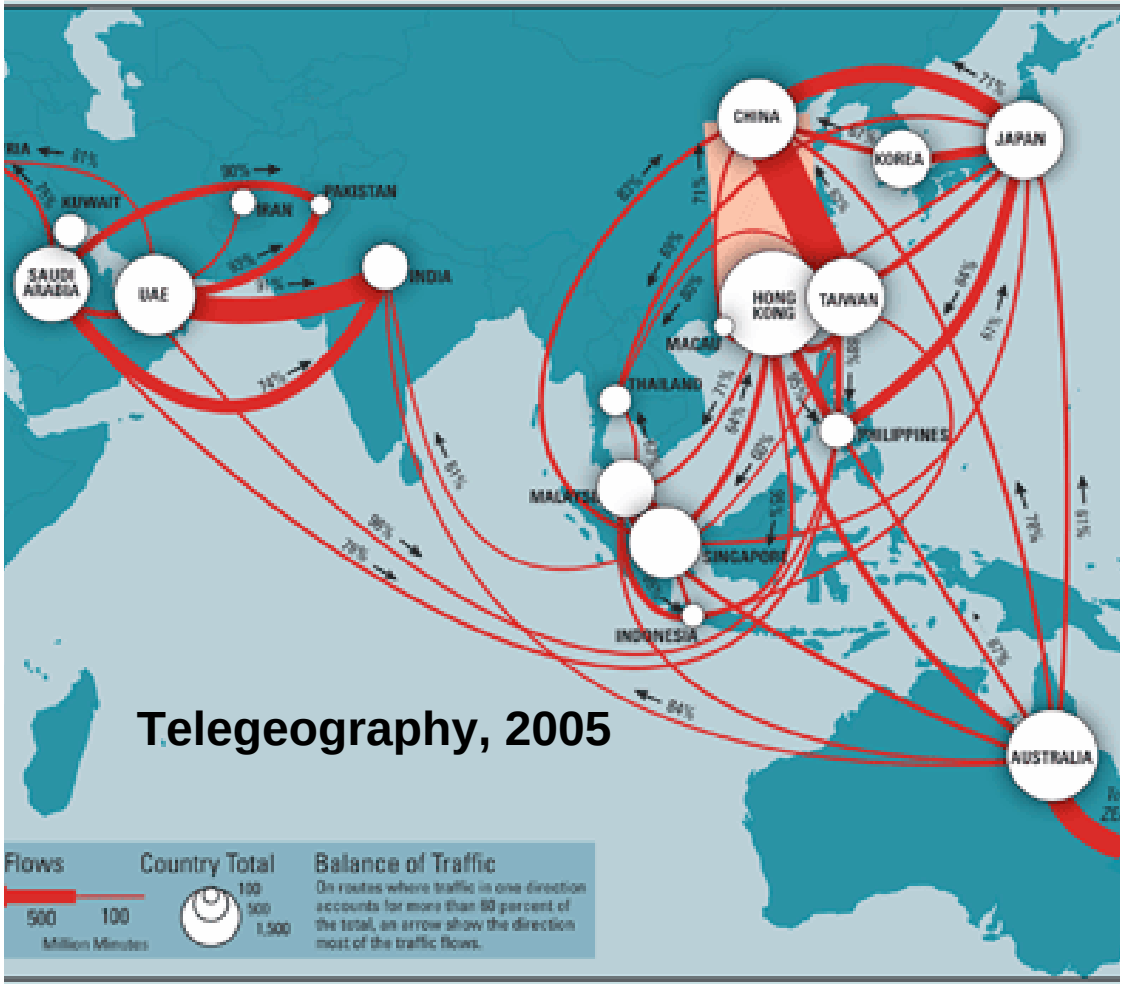
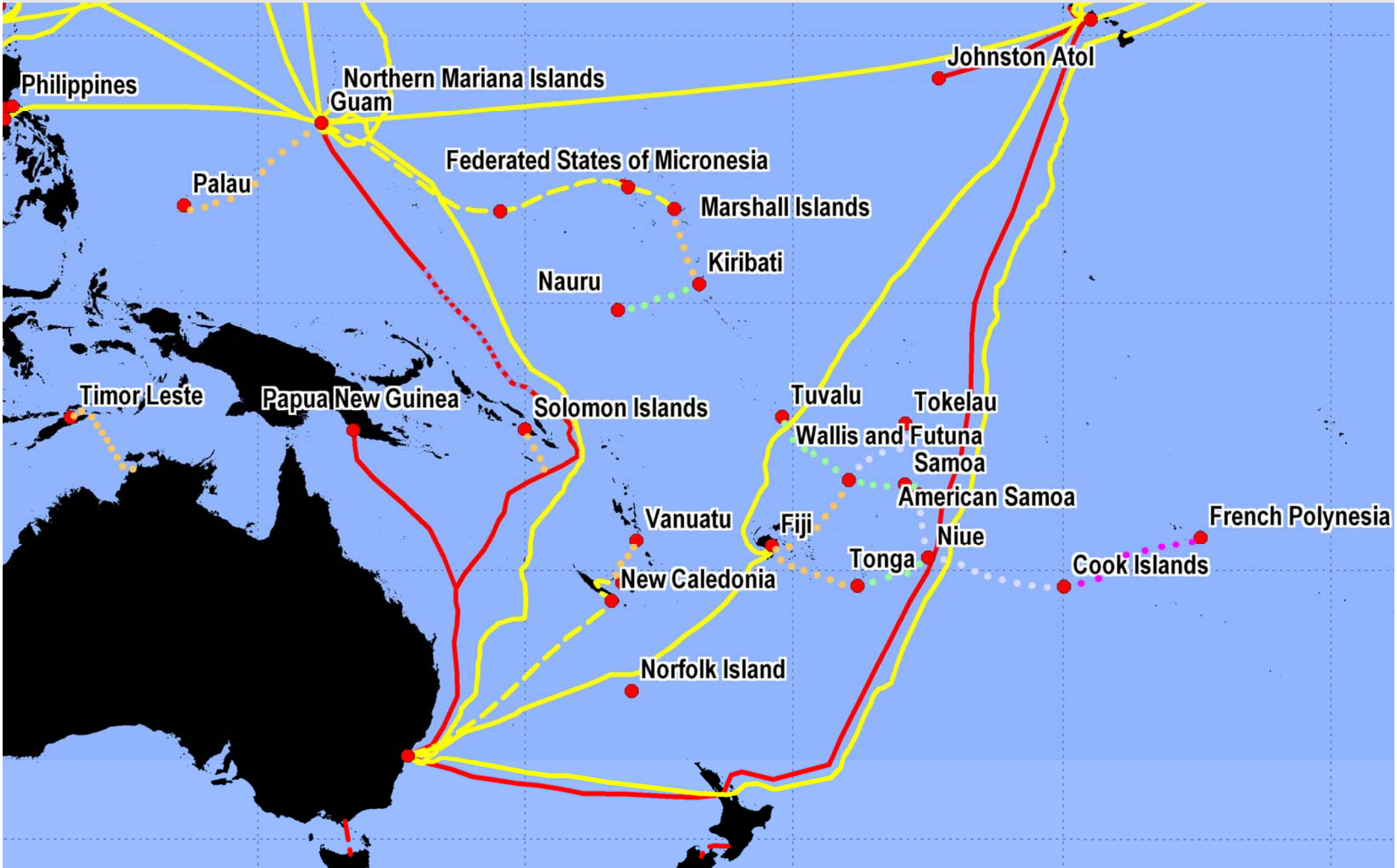
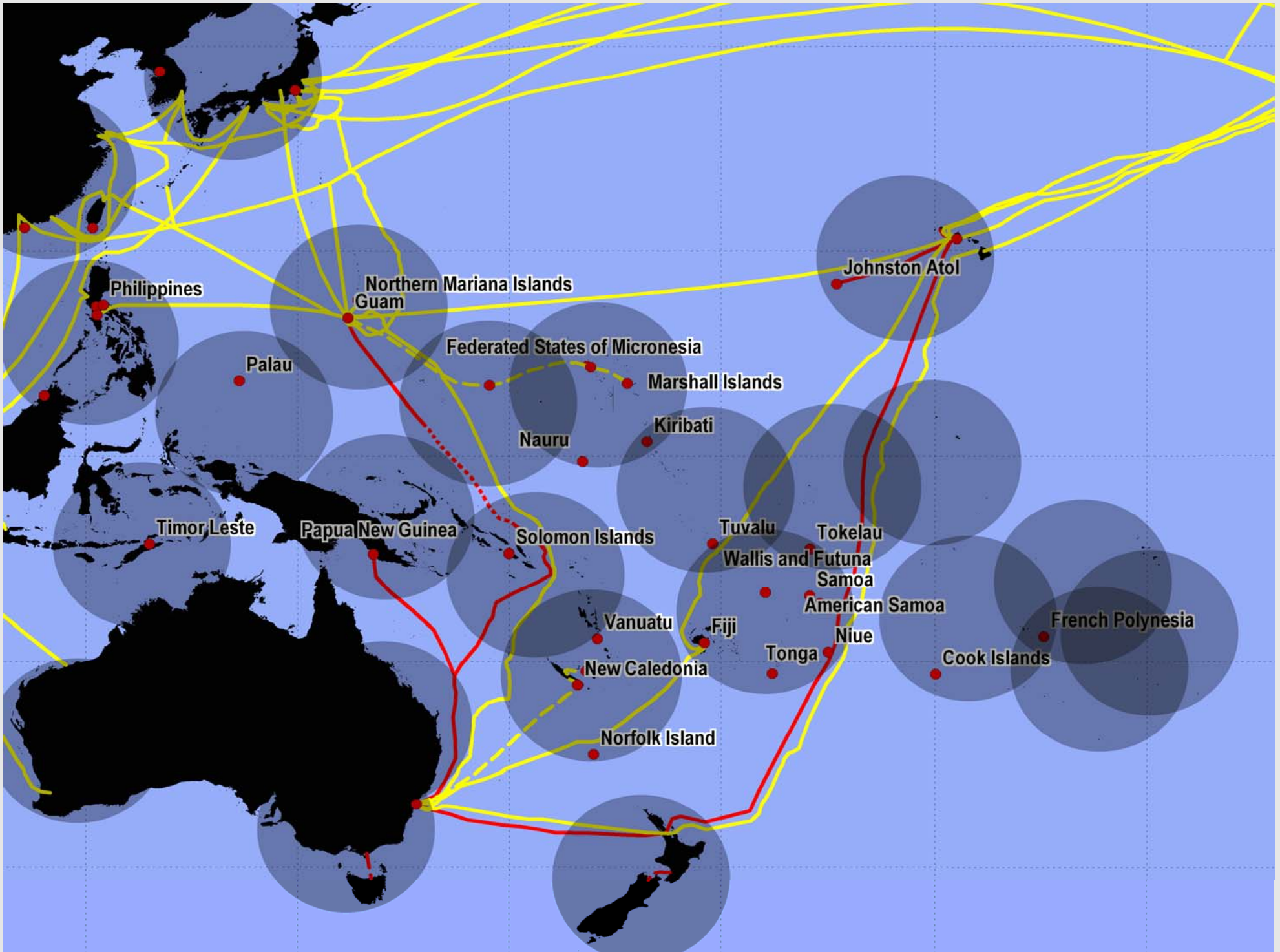




Pacific Connectivity: Current and "Possible" (1)



Pacific Connectivity: Current and “Possible” (2)



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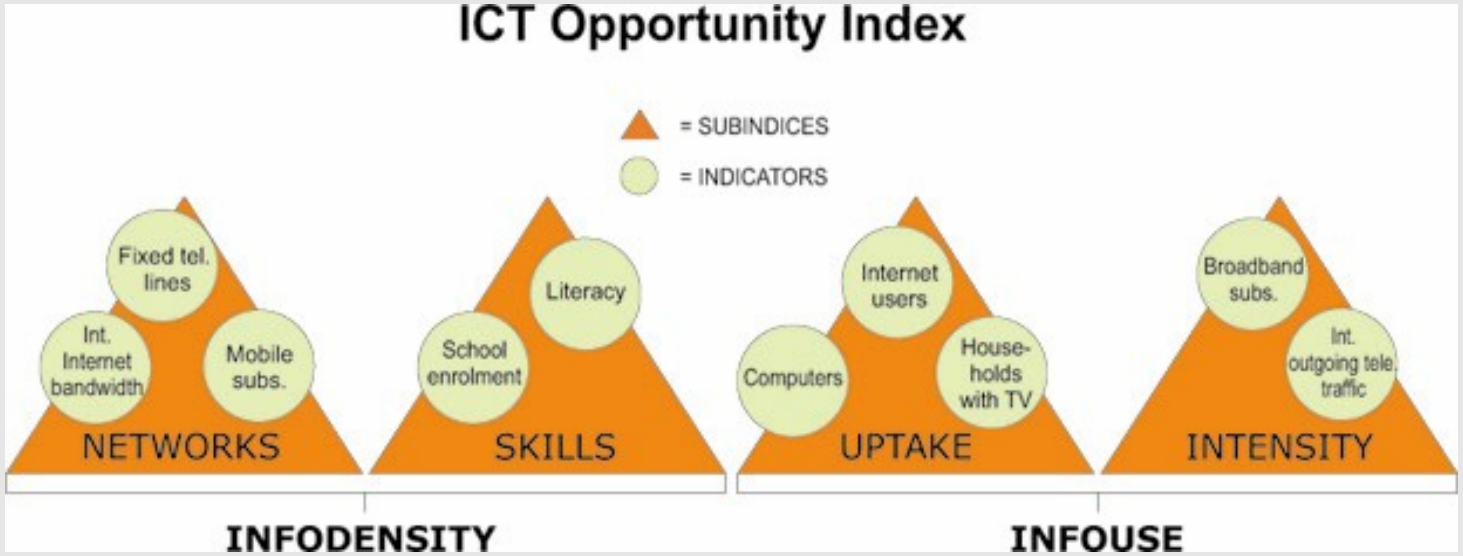
Paper findings in A-P Journal of ICST - 2006

- Roberto Pagan – UN ESCAP Stat. Division
- "Unfortunately, extensive and comparable statistics on ICT are not abundant – collecting them not mature yet."
- Small economies, esp. the Pacific, are often omitted.
- DAI (ITU, 2003) covers 41 A-P economies, 8 parameters.
  - Infrastructure (fixed & mobile phones), Affordability (Internet access price % of GNI per capita), Knowledge (literacy, school enrollment), Quality (Int. bandwidth per capita, broadband subscribers %), Usage (Internet %)
- WEF Networked Readiness Index covers 17 A-P countries, 48 parameters - - - ?!
- A question: What can we uniquely learn from these?



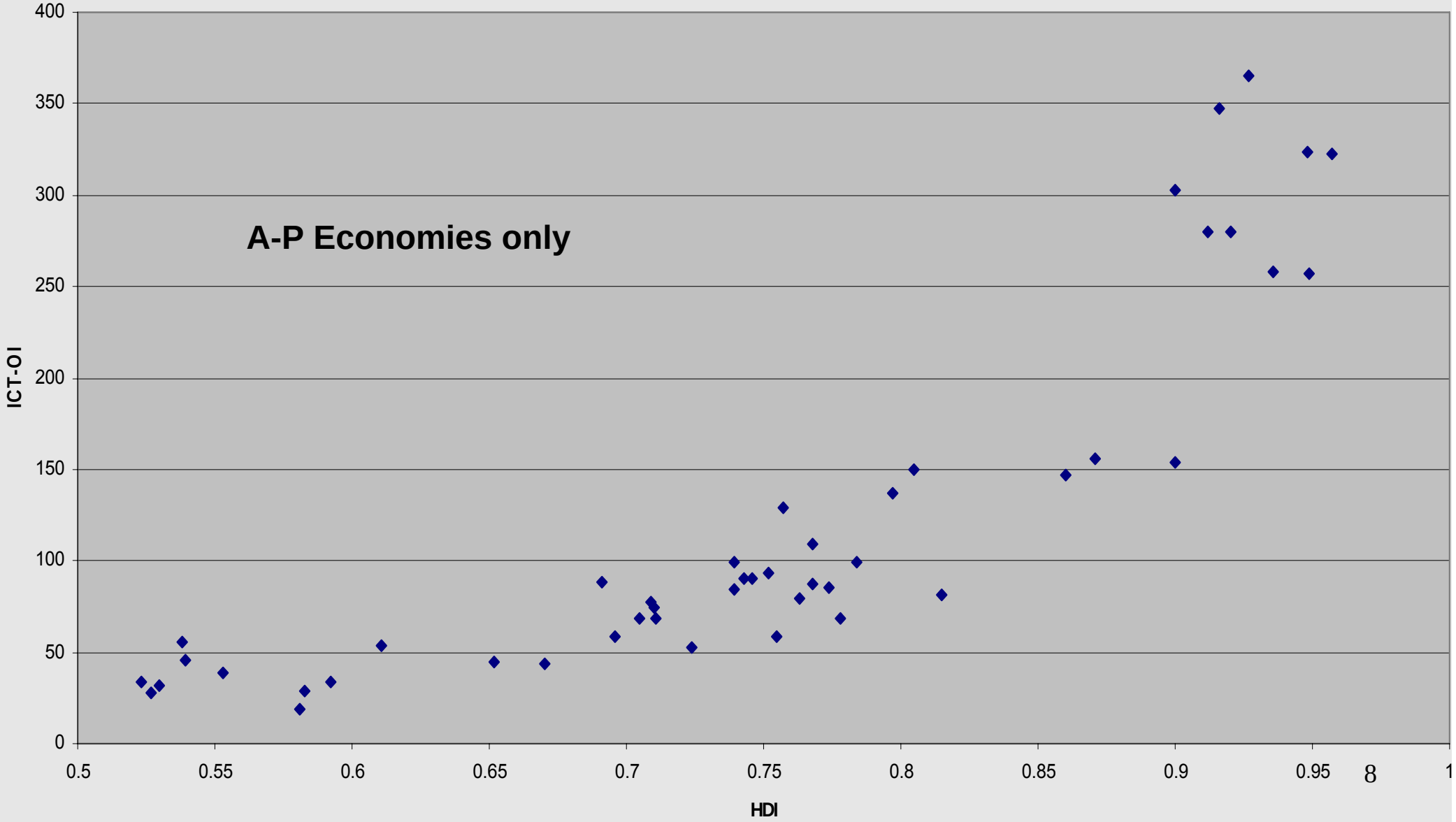
Can we do better? I think so . . .

- What relevant indicators are collected for many/most economies?
- What indicators describe the potential for a country to use & benefit from ICT?
  - Literacy, available funds, adoption-tendency . . .
  - Maybe we don’t need something new – use the established HDI
- What indicator(s) describe(s) the actual usage of ICT?
  - Phone users (fixed & mobile), Internet users (own or shared)
  - What might be better? Talking time? Internet usage time? Bandwidth use? (But we don’t have these yet.)

History of working with HDI

- Since 1987 – invented the HDI before UNDP published it
- Cluster analysis
- UNDP HDI => 177 economies - “~no progress since 1994”
- My HDI => 230+ economies
- Since ICSTD > describing the A-P situation
  - An indicator for every member, even if imperfect
    - Linus Torvalds => “given enough eyeballs, all bugs become shallow”
  - First draft ICST indicators made in 2004, pub. 2006
  - 2nd draft shown here, for pub. End 2007
- Became a foundation of Pacific Connectivity study
- Is a contribution to ICSTD's RG and trad. sections

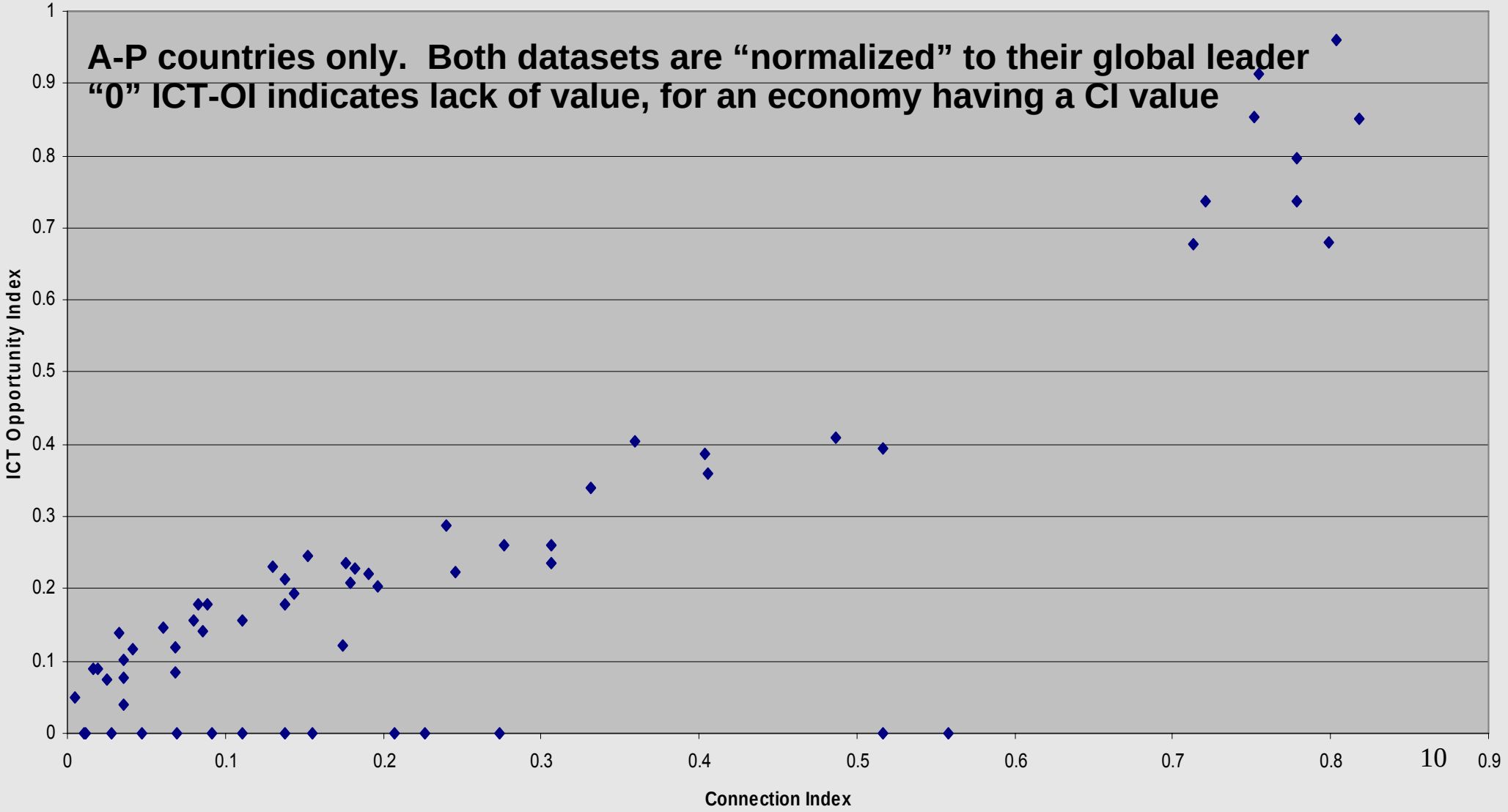
ICT Opportunity Index vs. HDI



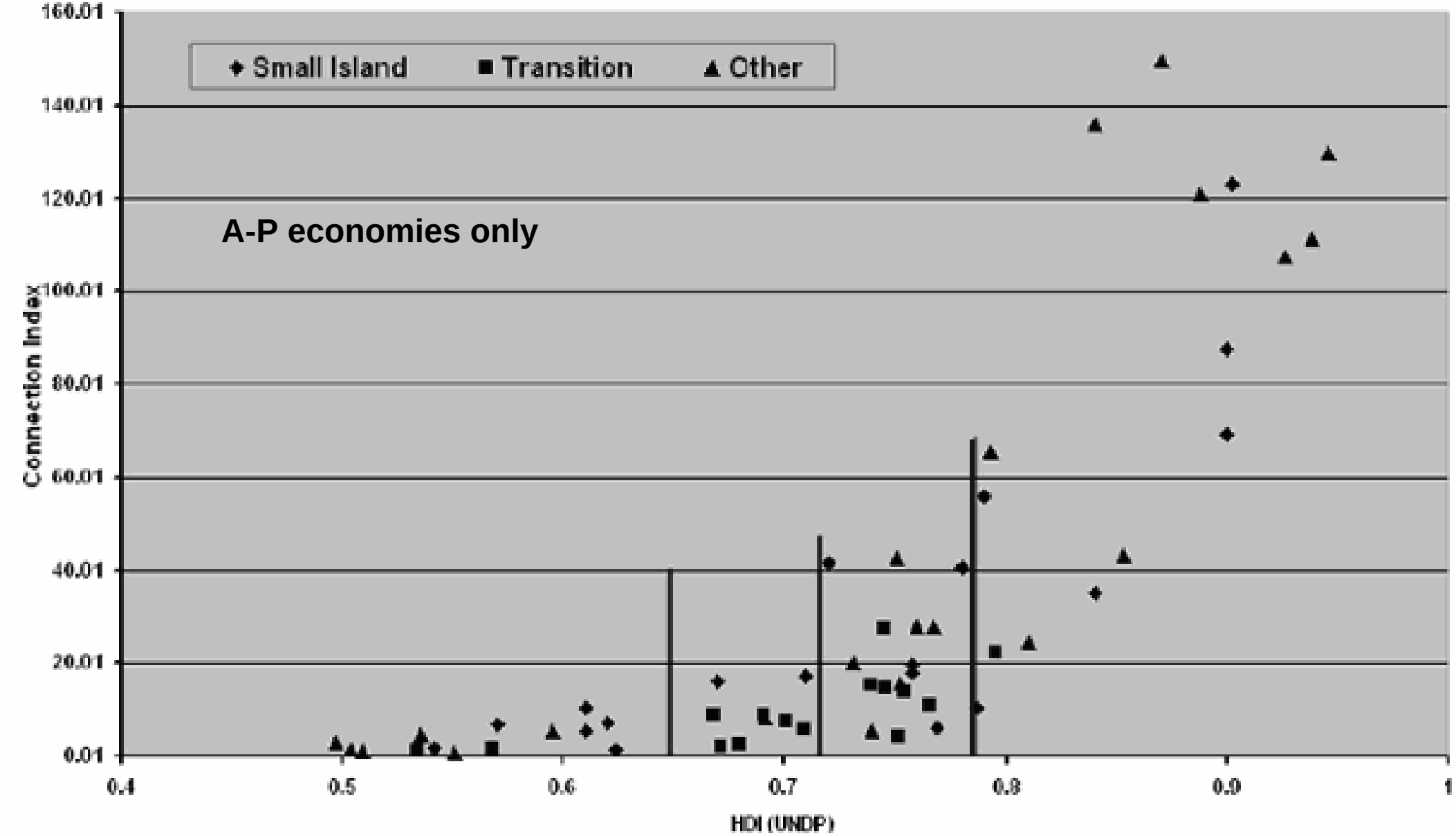
Switch from .ppt to .pdf

- Let's look at the handout .pdf
- HDI for “all” regional economies (2 digits ≠ UNDP)
- Lists DAI, DAI costs, Economist e-Readiness, World Bank preception of control of corruption
- Fixed & Wired Phones, Internet (ITU & other sources)
- “Connection Index” = Internet% + (fixed% + mobile%)/2
- Proposed here: current “committee-generated” indices combine potential and achievement => confusing
- Proposed here: CI and HDI do the basic job

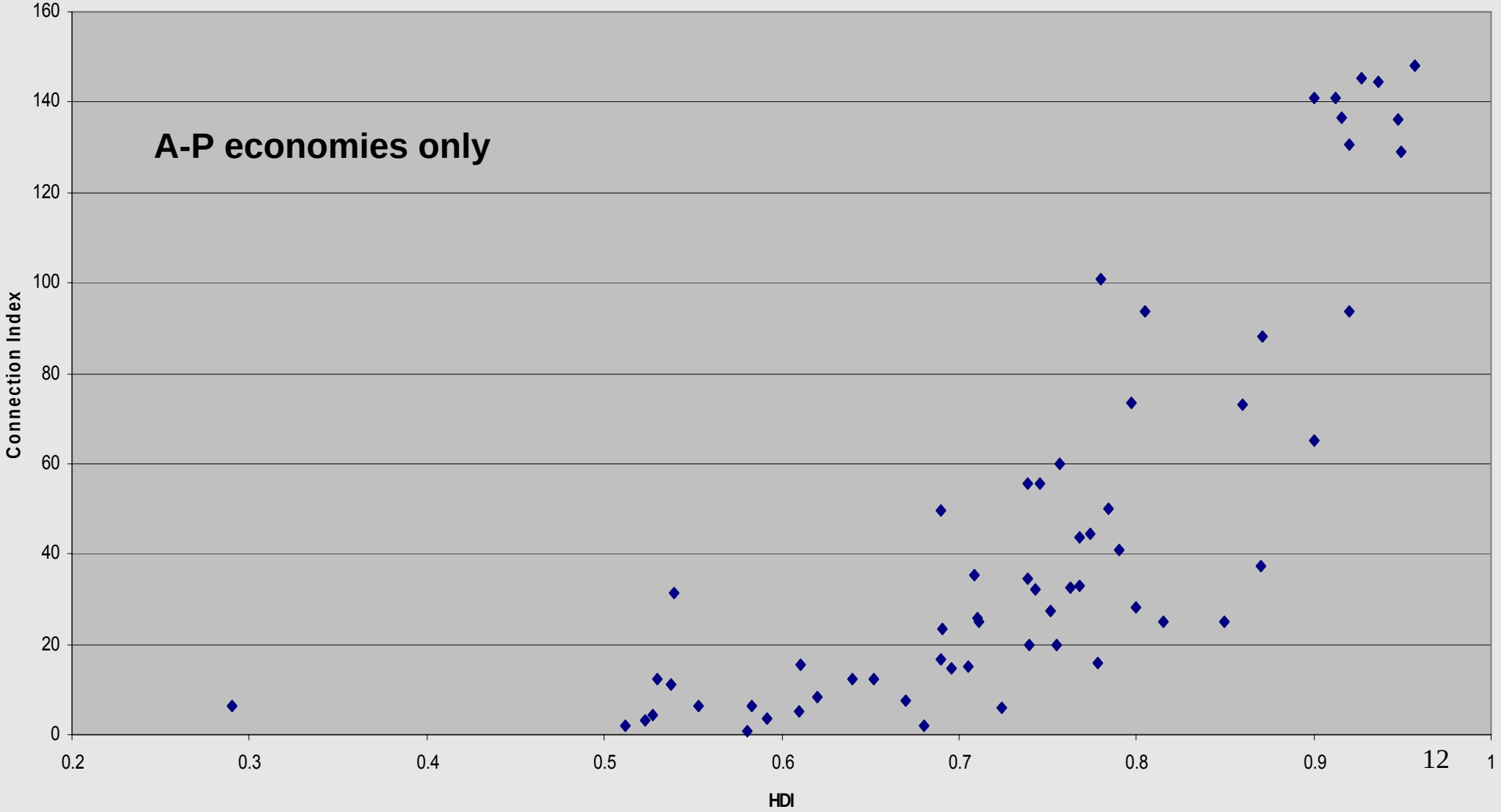
Connection Index vs ICT-OI
(VERY similar, much simpler to envision/manage)



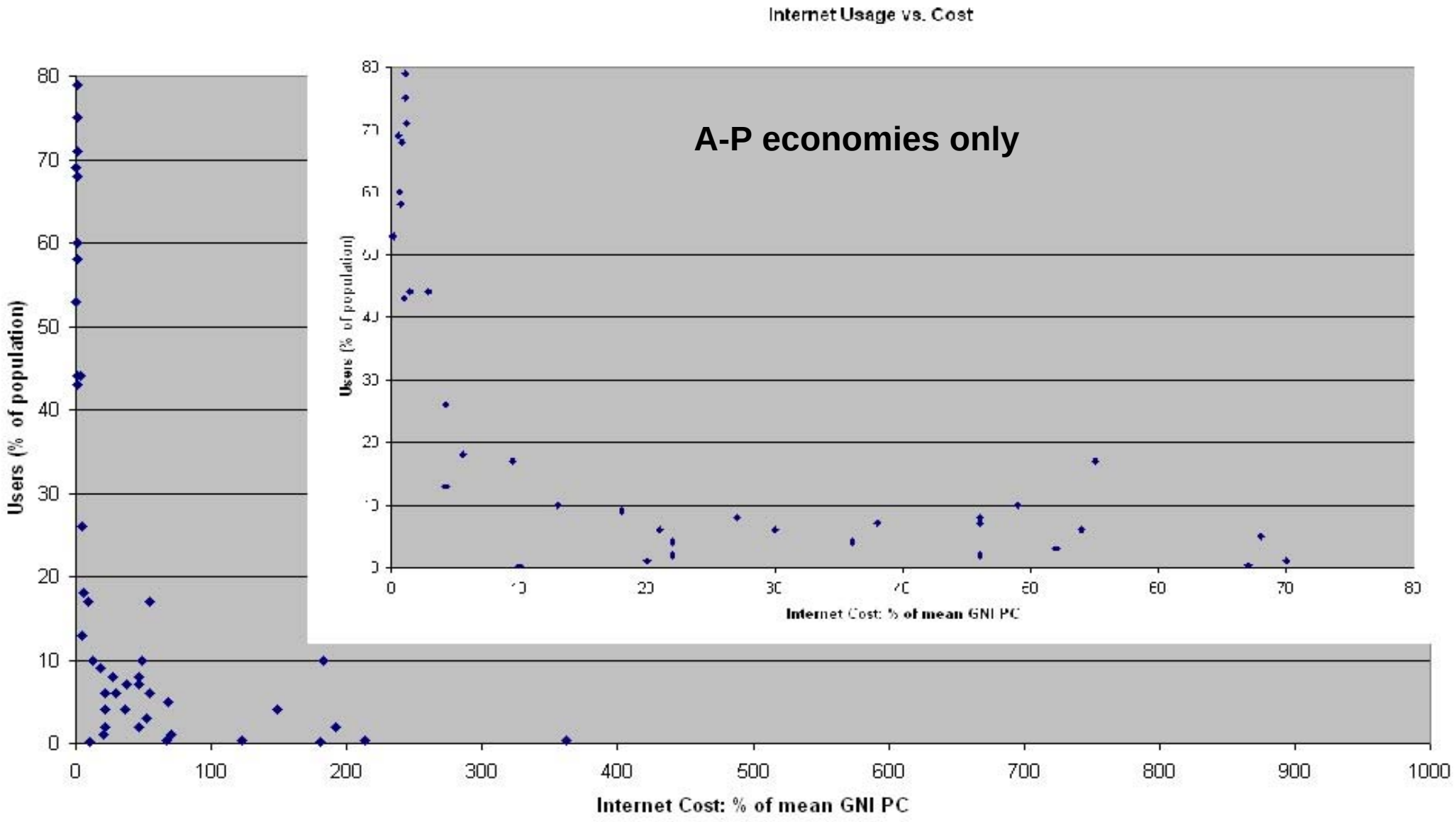
Connectivity & HDI 2004



Connectivity & HDI, “2007”



Connectivity vs. Cost: “2007” A-P



Connectivity vs. Cost: 2004 global

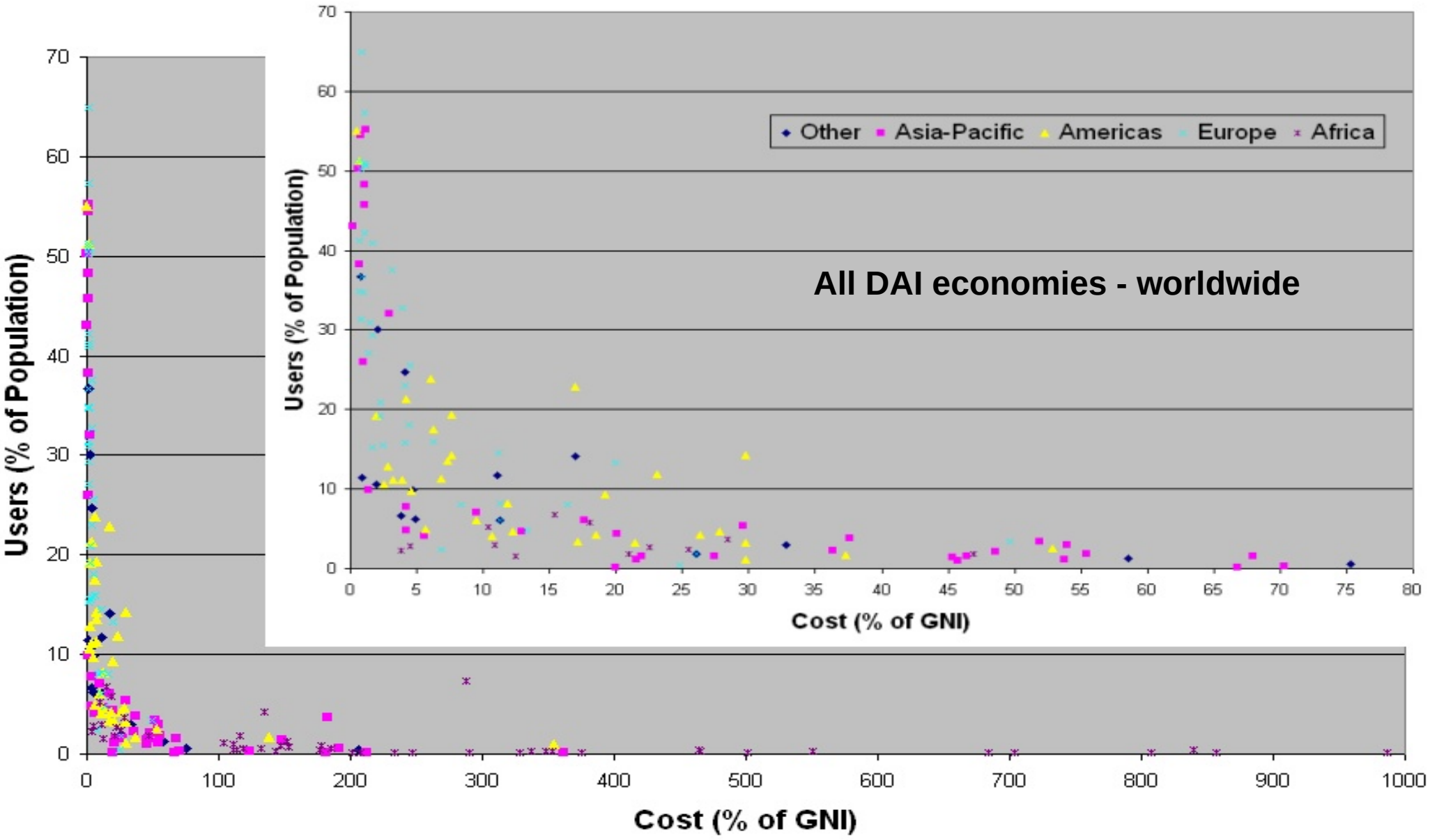


Table 1-1. Population, gross domestic product per capita, life expectancy at birth, literacy, and Human Development Index for Pacific island economies

Economy	Population** 2005	Population** 2015	GDP*** PC PPP	Life**** Expectancy	Literacy	HDI*****	GDP***** * Ratio
American Samoa*	57,084	55,696	5800	76	97	*0.81*	***0.5***
Cook Islands*	21,388	22,984	5000	72	95	*0.72*	***0.7***
Fiji	905,949	1,023,479	6066	68	99	0.758	***0.7***
French Polynesia*	274,578	309,714	17,500	76	98	*0.78*	1.6
Guam*	171,019	192,302	15,000	79	99	*0.90*	***0.7***
Hawaii*	1,263,000	1,385,952	53,123	80	99	*0.97*	1.6
Kiribati*	105,432	128,643	2397	62	100	*0.61*	***0.6***
Marshall Islands*	60,422	72,139	2300	71	94	*0.62*	***0.6***
Micronesia*	108,004	105,183	3900	70	89	*0.61*	1.0
Nauru*	13,287	15,494	5000	63	95	*0.71*	***0.7***
New Caledonia*	239,067	241,731	15,000	74	91	*0.79*	1.3
New Zealand	4,195,729	4,395,567	23,413	79	99	0.936	1.0
Niue*	1,733	n.a.	3600	70	95	*0.78*	***0.3***
Norfolk Island*	1,828	n.a.	27,000	78	99	*0.93*	1.0
Northern Mariana Is*	82,459	100,286	12,500	76	97	*0.84*	***0.8***
Palau*	21,492	22,577	5800	70	92	*0.76*	***0.6***
Papua New Guinea	6,002,079	6,789,589	2543	56	57	0.523	1.1
Samoa	183,308	177,195	5613	71	99	0.778	***0.6***
Solomon Islands	552,438	679,635	1814	63	77	0.592	***0.6***
Timor Leste	1,062,777	1,269,603	1033	56	59	0.512	***0.5***
Tokelau*	1,403	n.a.	1000	67	94	*0.63*	***0.2***
Tonga*	114,689	131,199	8694	70	99	*0.81*	***0.7***
Tuvalu*	11,810	13,676	1100	68	98	*0.67*	***0.2***
Vanuatu	217,955	235,949	3051	69	70	0.670	***0.7***
Wallis and Futuna*	16,025	17,367	3800	69	95	*0.71*	***0.5***

* Economies so marked lack a UNDP computation for Human Development Index. Presented values of HDI, using data from a variety of sources, are modelled by the author after the UNDP approach. Other parameters in this table also use data from a variety of sources.

** Data from censuses, and estimates for 2005-2006 and 2015 populations.

*** Gross Domestic Product, Per Capita, corrected for Purchasing Power Parity.

**** Life expectancy at birth.

***** Human Development Index. Where given in three decimals, the figure is from UNDP (2006). Where in two decimals, the figure is modelled by the author (Hastings, David A., 2007. Enhancing the Human Development Index. In preparation.).

******* GDP Ratio is the ratio of measured GDP per capita to the GDP per capita proportional to an economy's Human Development Index. For example, Samoa's GDP per capita is reported at US$6,823 in the 2006 Human Development Report, but the GDP corresponding to a GDP Index of .776 is about US$10,600. Thus Samoa's GDP ratio is 6823/10600 = .64. With Samoa's high literacy rates and low GDP/capita, Samoa might be a good location for a knowledge-industry SME, given adequate connectivity.

Reverse engineering The HDI

(Ed-I + H-I + Inc-I)/3 = HDI

	Proportionate		
HDI	**Lit**	**L.E.**	**Inc.**
1.0	100%	85y	$40K
0.9	90%	79y	$22K
0.8	80%	73y	$12K
0.7	79%	67y	$6.6K
0.6	60%	61y	$3.6K
0.5	50%	55y	$2.0K
0.4	40%	48y	$1.1K
0.3	30%	43y	$0.6K
0.2	20%	37y	$0.3K

For Tuvalu (Lit = 98%)

Actual Inc.= $1100/y

HDI = 0.67

HDI Prop. Inc=$5700

=>

GDP ratio = 1100/5700

= .193

= "bargain knowledge workers!"

Some concluding thoughts

- Keep indices “pure” rather than confusing hybrids?
- Use data that are “easy” to collect globally.
- Use data that are relatively straightforward.
- The basic indicators collected by ITU are probably appropriate – for anyone to build their own models from?
- CI (modified to a group model) and the already established HDI may be adequate to describe delivery and socio-economic situations for ICT.