The “Digital Divide”

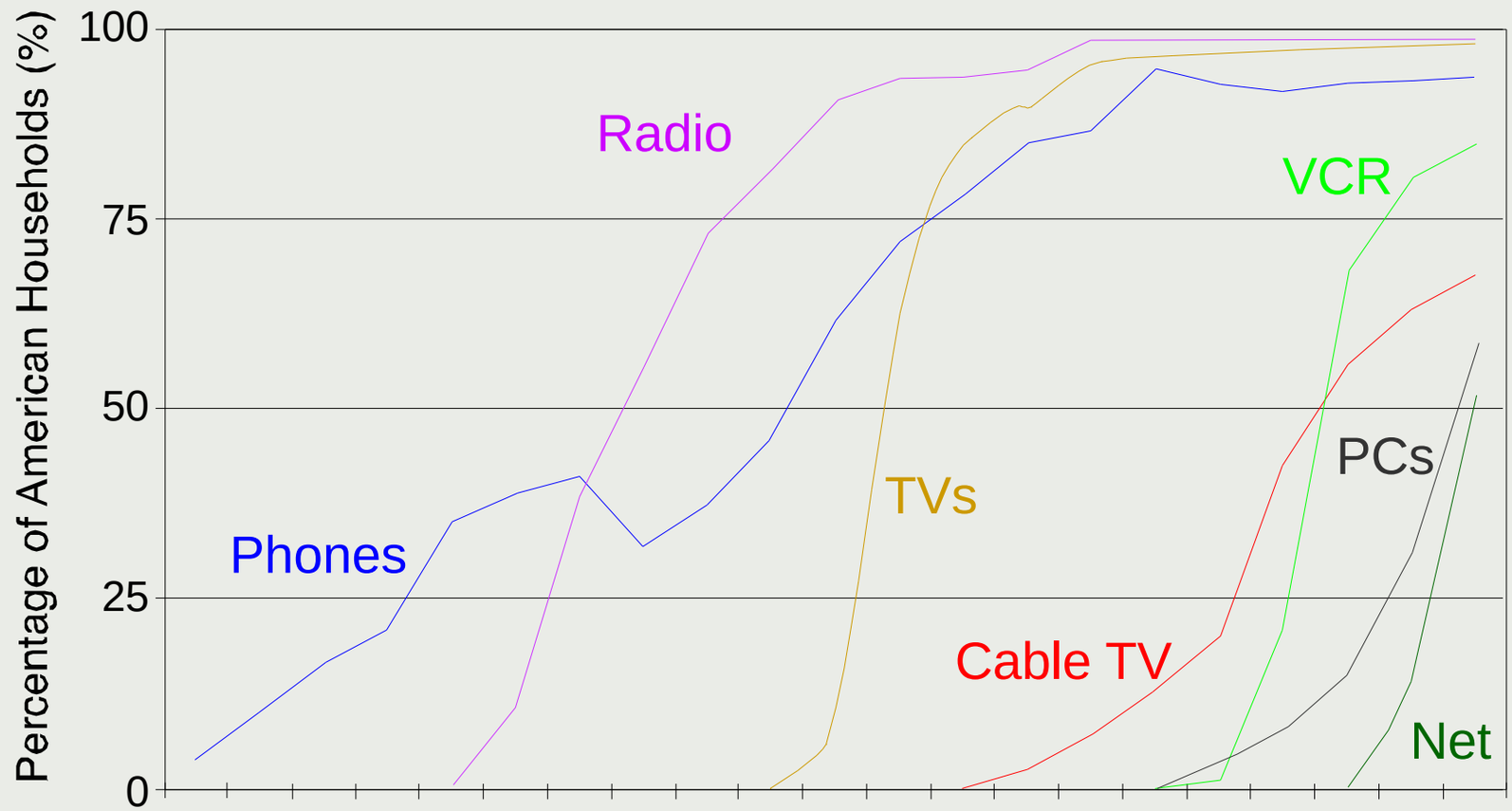
- Def ned (typically): Info-haves and info have-nots—but wait! There’s more…
- Contours:
  - Socio-economic status
  - Race
  - Gender
  - Culture of expertise, general culture, and cultural capital
- Is this just because “closure” in IT designs & meanings hasn’t happened yet? And cars…?
- Might it be that there’s just an adoption lag?

Two Universes of the Digital Divide

- In the “developed” world (not including the “3rd World” within —abandoned social groups, etc.) a specif c set of issues
  - information overload prevails
  - problems in monopoly-controlled access
  - Skill and cognitive gaps; a continuing need for “info literacy”
- In the 3rd world, different issues
  - Basic lack of access and infrastructure to provide it
  - Very real cost issues
  - Amazing human tendency to readapt and repurpose existin technologies
- Common problem: “technical f xes” are not the answer, as solutions cannot be parachuted in.

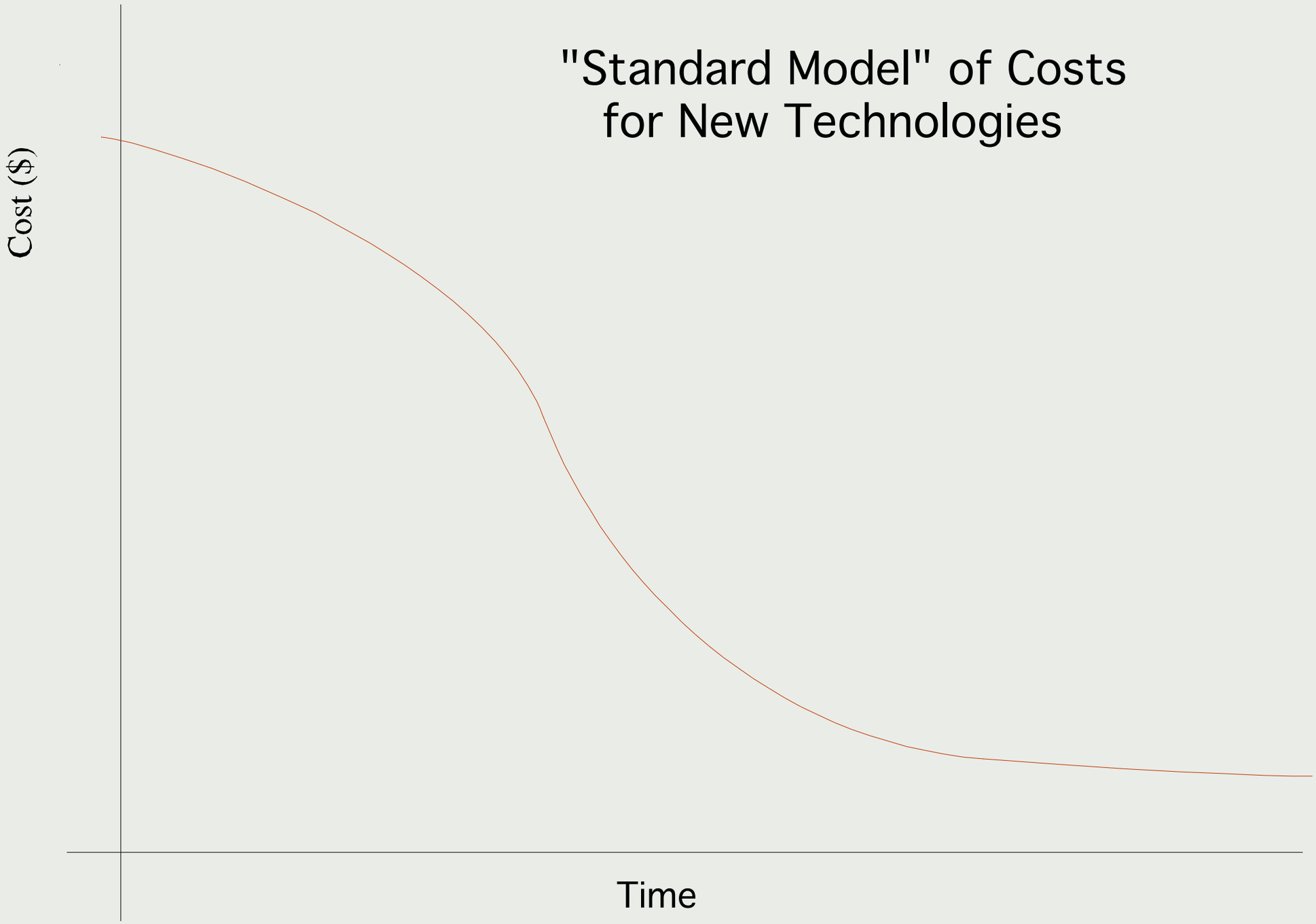
Some Claim That We'll All Grow Out of the Problem…

Rates of Adoption of New Domestic Technologies



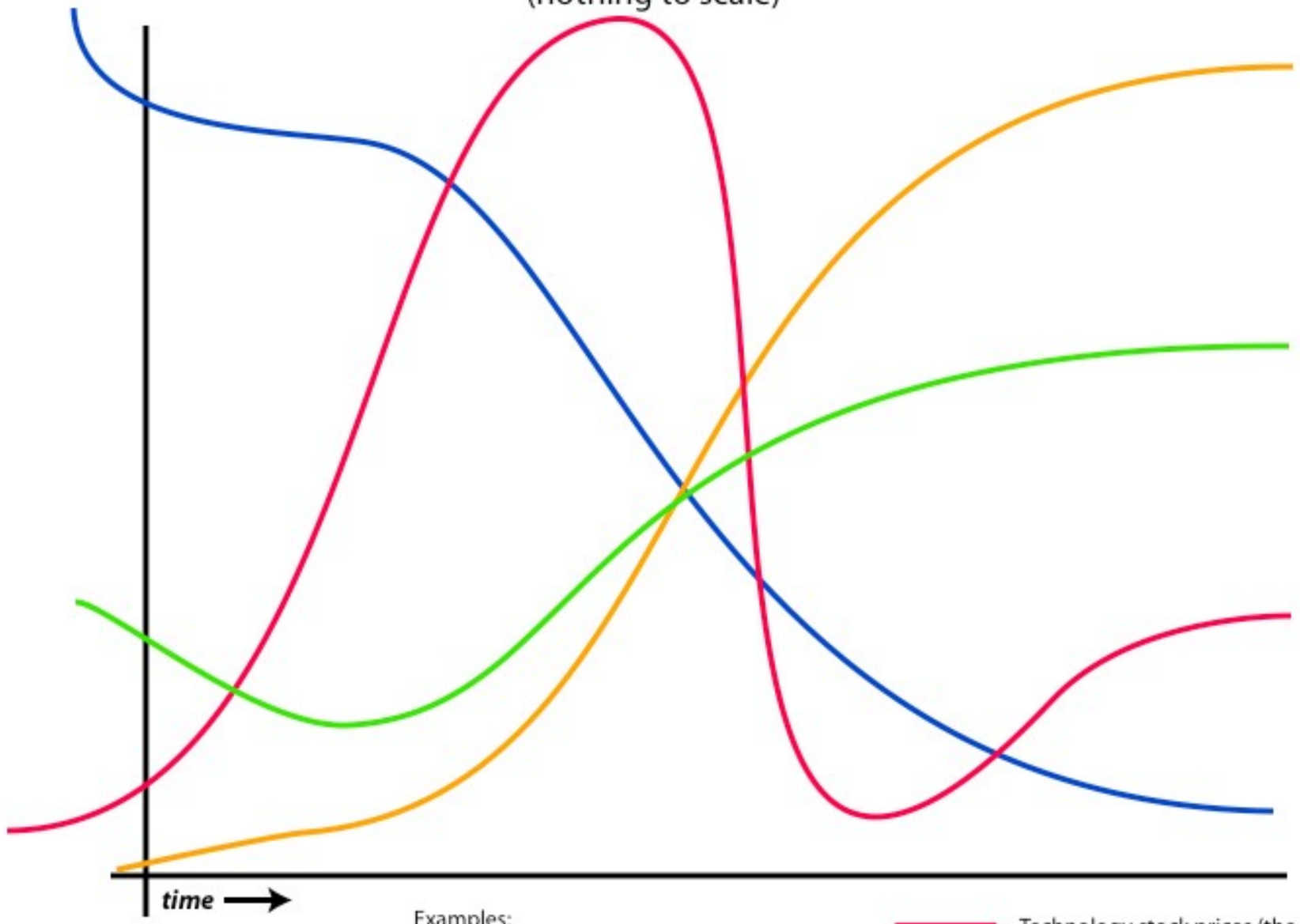
Source: Undetermined

"Standard Model" of Costs for New Technologies



Economic Trends in Technological Innovation

(nothing to scale)



Examples:

- Tobacco and slaves, 17th century
- Sugar and slaves, 18th century
- Canals and railroads, 19th century
- Electricity and InfoTech, 20th century

- Technology stock prices (the bubble)
- Per-unit technology acquisition costs
- Rate of new technology acquisition
- Long-term rate of productivity increases

Not So!

- In fact, popular adoption rates for PCs and Net access in the US (*not* in the 3rd World!) have largely flattened since 2001/2
  - Caveat: still rising adoption among elderly
  - Causes: lack of interest & cost of access—about 50/50 as explanation
  - US has highest costs (and often, lowest quality) for broadband access compared to EU, Korea, Japan, Singapore
    - Lack of competition in broadband service providers—hence the promise of municipal WiFi, broadband over powerline
    - Minimal regulatory controls, esp. over QoS, competition, and costs; constant side battles over “must carry” rules, etc.
    - Replicates mobile phone impasse (multiple standards, high costs)
  - Problem remains: why the lack of interest? Fear? Indifference?
- Will Net access in the US & the 3rd World be a “luxury good”?

Policy Solutions: Government Intervention Helped Before

- Telephones
  - lifeline rates provided cross-subsides from rich to poor users
  - Regulation to prevent monopoly pricing
- Electricity
  - Rural Electrif cation Administration helped install service in rural areas
  - Lifeline rates as well, and regulated pricing
- Automobiles
  - Federal highway subsidies & construction
  - Driver's education in schools led to more affordable insurance

A New Wrinkle in the US: Revising the Telecommunications Act of 1996

- An obsolete distinction: “communications” vs. “data”
  - Initially a difference invented by RBOCs (“Baby Bells”) to charge more for the latter
  - Now, each service—wired phones, cell phones, cable, perhaps even power lines—can carry any sort of packets, from on-demand video to voice and broadband
  - Only wired telephones have “universal service” obligation
  - Uneven application of “open wires” principle
- But wired phones are (perhaps) obsolete
  - Will they become the “tenements” of the information world, a ghetto for the poor?
  - Can we know which services will predominate a decade from now?
  - Will we structure into the law a new form of digital divide?

But Digital Difference Isn't Just About Technology…

- Throwing hardware at a problem doesn't necessarily work, and it's expensive
  - The US malady of the "technical fix"—are we culturally hard-wired for this?
  - Examples: did e-voting repair the problems in our electoral system? did trillions of dollars in WMDs end the Cold War? (will they win the "war on terrorism"?)
- Technology is, in the first instance, a human and social creation
  - Technical systems must "fit" into and be congruent with specific social arrangements and needs
  - Users must get a cognitive and cultural "handle" on a technology in order to use it
  - Hint: watch how users adopt and adapt new technologies—grandmothers and the Net, Kerala farmers and SMS

People adopt technologies in their own ways…

And we “repurpose” here—think about blogs…

Non-Economic Barriers to Entry

- Education and the tracking system
  - Problems of school quality at the local level
    - Poor and minorities
    - Forgotten working class
  - Subtle signals of incompetence by race and gender
    - Race: implication that melanin correlates with barbarity and renders people of color too barbaric to do IT
    - Gender: stereotypes of “irrationality” imply that women can’t do the structured thinking needed for IT
    - Is IT about computation or imagination? [Midori vs. Perlman on violins?]
- Design issues?
  - Problems of “cognitive mapping” (HCI issue)
  - Socio-cultural issues of def ning “needs”: cellpones for me, javarings for others
- Cultural issues: is IT culturally for white men & Asians?

Five Possible Solutions for the US

- “Let it alone:” will falling prices for IT equipment and services solve it? Simply the growth of on-line communities?
- “Build it and they will come:” Al Gore and the IT/education infrastructure
  - Will wiring the schools solve this?
  - Free laptops? (and, of course, no training for faculty and stuff…)
- “Redesign it:” info kiosks and smart devices
- Change the ways of teaching: how-to vs. techno-empowerment
- Change the culture, educate the educators

Solutions in the 3rd World…

- Government and NGO-funded initiatives are promising, but…
  - Problems of paternalism, corruption
  - legacy institutions such as state-owned telcos
- Need to develop indigenous technological/intellectual capital —compare Africa and India
  - advantages of open source
  - innovative adaptations may result
- “Free market” solutions only enhance the power of existing elites

Delocating Difference: The Globalization of the IT Élite, and Emerging Divides

- Cores of IT communities as unif ed yet dispersed
  - Silicon Valley vs.Salinas, Ann Arbor vs. Detroit, Bangalore vs. Calcutta, Surenses vs. Longwy
- English as lingua franca of IT; American culture the assumed framework
- Is this illusory: where are the bottom rungs of the IT ladder?
  - Is learning by doing possible?
  - Overvaluation of documented skills: historical shift from f rst programmers as secretaries(!), to self-taught & math types, to CS majors

Conclusion: Choices We Face

- Basic: Net access and computer use can cut either way
  - Creation of egalitarian, democratic e-spaces
  - A reinforcement of the power of the haves
- Bridging and Joining vs. Dividing, both across nations and within them.
- It’s not just about money, but that cannot be ignored
  - Computing subcultures vs open cultures
  - The digital divide is as much a social/cultural problem as an economic one