

Background to legal frameworks



Across modern history, governments have shaped legal frameworks for a handful of emerging technologies. Those technologies must fit two criteria.

Why a legal framework?

In the 1840's pumping was a hot technology. Hundreds of companies started piping water from urban rivers to well-off households. The rivers were widely used as sewers, and pumping was generally only viable at high tide. So water had to be stored, filtered then boiled. But it was more convenient than leaving home with a bucket. The industry thrived.



Meanwhile tens of thousands were dying from cholera. Hundreds of organizations emerged to care for the sick and tend orphans.

Reformers then proposed universal water supply. Government initiation was essential; even the most ambitious water company couldn't flood valleys to create reservoirs or enforce a national water management strategy. Nor did they have incentive to commoditize a product commanding such premiums. The industry bought control of a newspaper to oppose the "socialization" of water.

Reformers persisted, winning Britain's [1848 Public Health Act](#). 24/7, instantly drinkable, water eventually eradicated cholera. The model spread across the globe.

Examples of legal frameworks

Historic legislation to support emerging technologies in two countries		
TECHNOLOGY	PIONEERING PHASE	SAMPLE GOVERNMENT ACTION
Public Gas Supply	Experimental intermittent supply to factories and workshops.	1817: (US) Baltimore allows first gas lighting in streets. 1820: (UK) Public Utility Act launched a uniform gas supply in Manchester then rest of Britain.
Public Water Supply	Regional water enterprises, differing in standards, reliability and level of service.	1848: (UK) Public Health Act made water supply the responsibility of regional government. 1895: (US) Metropolitan Water District of Massachusetts - the first regional supply system.

Postal Service	Ad hoc stagecoach services.	1839: (UK) Penny Postage Act 1847: (US) Use of stamps legally recognized
Public Railroad System	Assorted mine and factory railways.	1840's: (UK) Various Railway Acts. 1850's: (US) Federal Land Grants financed construction in return for cheap carriage of government goods.
Telephone	Experimental local systems	1880: (UK) Court ruling bought planning of a telephone system under jurisdiction of the Post Office. 1921: (US) Graham-Willis Act enshrined AT&T as a publicly regulated private utility.
Public Electricity Supply	Sporadic service to factories using differing voltages and AC/DC.	1882: (UK) Board of Trade starts licensing companies to provide regional domestic supply. 1919: (US) American Electrical Standards Committee formed.
Road system for the motor car era	Countless local track laying initiatives	1909: (UK) National Road Board 1916: (US) First Federal Highways Act
Air traffic control	Ad hoc initiatives by airlines and pilots	1919: (UK) Department of Civil Aviation established by government 1926: (US) Air Commerce Act
Broadcast spectrum	Ham radio, point to point communications, manufacturers' output.	1927: (US) Radio Act creates FRC for station licensing 1927: (UK) BBC Charter
Television transmissions	Manufacturer's experiments, unlicensed test stations.	1936: (UK) BBC Charter extended to TV 1941: (US) FCC authorized first commercial TV station

Why is the Internet not on this list? America's government funded its development directly rather than using its powers to incentivize other bodies to do so. Mobile telephony? Governments' ability to portion spectrum between providers was generally already enshrined in broadcasting legislation.

Criteria for a legal framework

Thousands of new technologies have emerged in the last two centuries. What's different about the tiny percentage that triggered legal frameworks around the world?

- **Solves a problem for governments:** Diseases, poor infrastructure for commerce or new industries mired in chaos are issues for politicians. Taxpayers pick up the tab when children are sick, workforce quality is poor, goods can't move or jobs aren't created.
- **Government can offer unique facilities:** Legislation can resolve a free-for-all (TV stations crashing into each other's spectrum), open markets (neutral air-traffic control replacing each

carrier's system which blocked new entrants), create stability (deciding which side of the road was driven, standardizing road signage) or co-ordinate (universal postage required standard charges and intermodal road/rail/foot delivery).

Rank any technology against these tests. The battle between competing formats for online music delivery for instance. It's a pain for consumers but creates minimal economic drag so potential damage from official intervention would far outweigh any benefits. And the public sector has negligible role as buyer, seller or regulator of music. Nor do official bodies really have access to anything the music industry needs.

But Market technologies? When citizens can't access opportunities and are pushed into shadow economies or exploitative marketplaces while resources are leaving the "real" economy for purely financial manoeuvres that's a problem across the economy. Government in aggregate is the biggest buyer in labor markets, when the supply-side can't connect welfare costs go up. Official bodies have multiple facilities that could underpin new exchanges.

Modern Markets meet the threshold for a legal framework.