Table 1. Overview/Comparison of the Presentations

	Cave	Cowie	Clark
1. UK History/current state	Telecom Licensing/entry BT Price caps/Price structure USO Fair competition Interconnection Unbundling Historical cost Incremental cost Price-cap system Evaluation	Broadcast/Digital TV DTT, DSAT, also via Cable Players/BSkyB's strength Regulators (multiple bodies) Vertical integration Content Channels Delivery means (Ter., Sat., Cable) Delivery mode (Free, conditional, STB) Bottlenecks (gov. & private)	Regulation system Technological and business environment (Convergence) Objectives(5) Regulatory bodies(22) (Q re. coordination/jurisdiction) Evaluation Telecom economic, ex ante Broadcast: culture/content, ex post <complaint-driven>
2. Regulation/deregulation (with convergence)	Telecom law vs. competition law Ex ante regulation (prescriptive) vs. anticipated ex post penalty (prospective) Sector-specific regulation to general competition, "Normalization"	Weakened regulation (convergence) Light touch vs. interventionist BBC's view compulsory licensing publication of gateway tech. functional interoperability, standards	Single regulator vs. two regulators Likely outcome Competition regulator (under DTI) Content regulator (under DCMS)
3. The key issue of access (essential facilities, and resources services, gateway, bottleneck)	Trade-off of (1) giving reward to risk taking and (2) opening up and forming a level playing field		
	Telecom LLU STB(difficult)	Critical to 1999 EU Review dynamic, fast changes of technology multi-faced relations w STB	

Table 2. The "Access" Issue   A proposal

A What to regulate?
  (Identification of the target of regulation)
   Functional division of communication services
     (as opposed to division with respect to providers)   service component
   Based on the characteristics of services
     1. "Horizontal" division
        classification of a service based on its location in the network
        considered as a planar graph (nodes and links)
        examples : access, local exchange, broadcast, inter-exchange, control
        (signaling), etc.
     2. "Vertical" division
        classification of a service based on its location in the network considered as stack
         of functional layers (coincides with the direction of the payment for services,
         formation of value added)
        examples : infrastructure and spaces for infrastructure,
        transmission cables/fibers, IP services, one-stop shopping ("platform" services),
        WWW contents providers
     3. Horizontal and vertical division
        classification of a service into a cell of two-dimensional arrays
      (Table 3)

 B How to regulate?
     1. Baseline: Open and equal access
     2. Choice of regulation object (target)
          competition or monopoly with regulation
     3. Open accounting
     4. Relief (exception): A provider can apply for a relief by:
        (1) choosing a time period for relief, and
        (2) accepting a profit tax during the time period, where the tax rate is
            predetermined depending on the length of the relief period
         (The rate becomes higher as the length becomes longer.)

Table 3. Functional Division of Telecommunications and Broadcast Services

A. Network Components Horizontal Components B. Layers Components Vertical Components		Subscribers	Access routes	Access Nodes	Trunk Routes	Trunk Nodes	Control Nodes	Contents
		Supply	One-way Broadcast Two-way Communication	(Subscribers Switch, Broadcasting Station		Short-distance,	Long-distance	Nodes
			Wireless Wired Fixed Mobile			Wired Wireless	Wired Wireless	
Services	Customer Services Agent	Platform One-stop-shopping services (**billing**)						
	Information Production/Supply	WWW sites						WWW sites Production of Programs
	Transmission	"Broadcasting" Cable TV	Telephone Services Point-Point Connection , Private Services, Conference Services Multi-point Connection Internet Services (E-mail WWW)					
Network	Network Administration and Operations	Signaling Channel Administration Roaming	Subscribers' Numbers IP Address Administration			Traffic Administration, Control "Multiplexing"		
		Bit Stream Transmission	Voice Transmission Video Transmission, Transmission of Packets, Frames, and Cells					
Equipment and Infra-structure	Equipment	Customers' Premise Equipment TV and Radio Personal Computers, Headend Equipment **STB** Antennas, Transponders		Subscribers' Switch, Rooters Wireless Communications Equipment		Trunk Switches, Rooters Multiplexers Studios and Broadcast Terrestrial Broadcasting Equipment		
	Transmission Media	**Radio Spectrum** Coaxial Cables Copper Cables Spectrums Optical fibers			Radio Spectrum **Optical Fibers**			
	Infrastructures	**Satellites**	**Communication Poles Pole Attachment Spaces** **Tunnels**		**Conduit (Underground/seabed**	Satellites		
	Common Spaces	**Orbital Spaces** On Ground/Underground Spaces	**Underground/Seabed Space**		Orbital Spaces			