

# Impact of regulation on future scenarios of Israeli telecommunications

Dr. Raúl L. Katz  
Adjunct Professor, Division of Finance  
and Economics

Director, Business Strategy Research  
Columbia Institute of Tele-information

*Ministry of Communications  
Israel*

*Tel Aviv  
January 7, 2010*

# Agenda

- Introduction
- Impact of telecommunications on the Israeli economy
- Future scenarios for the Israeli telecommunications industry
- Infrastructure sharing impacting future scenarios
- Conclusions

## The objective of this meeting is to share with you our perspectives of future evolution of the Israel telecommunications sector

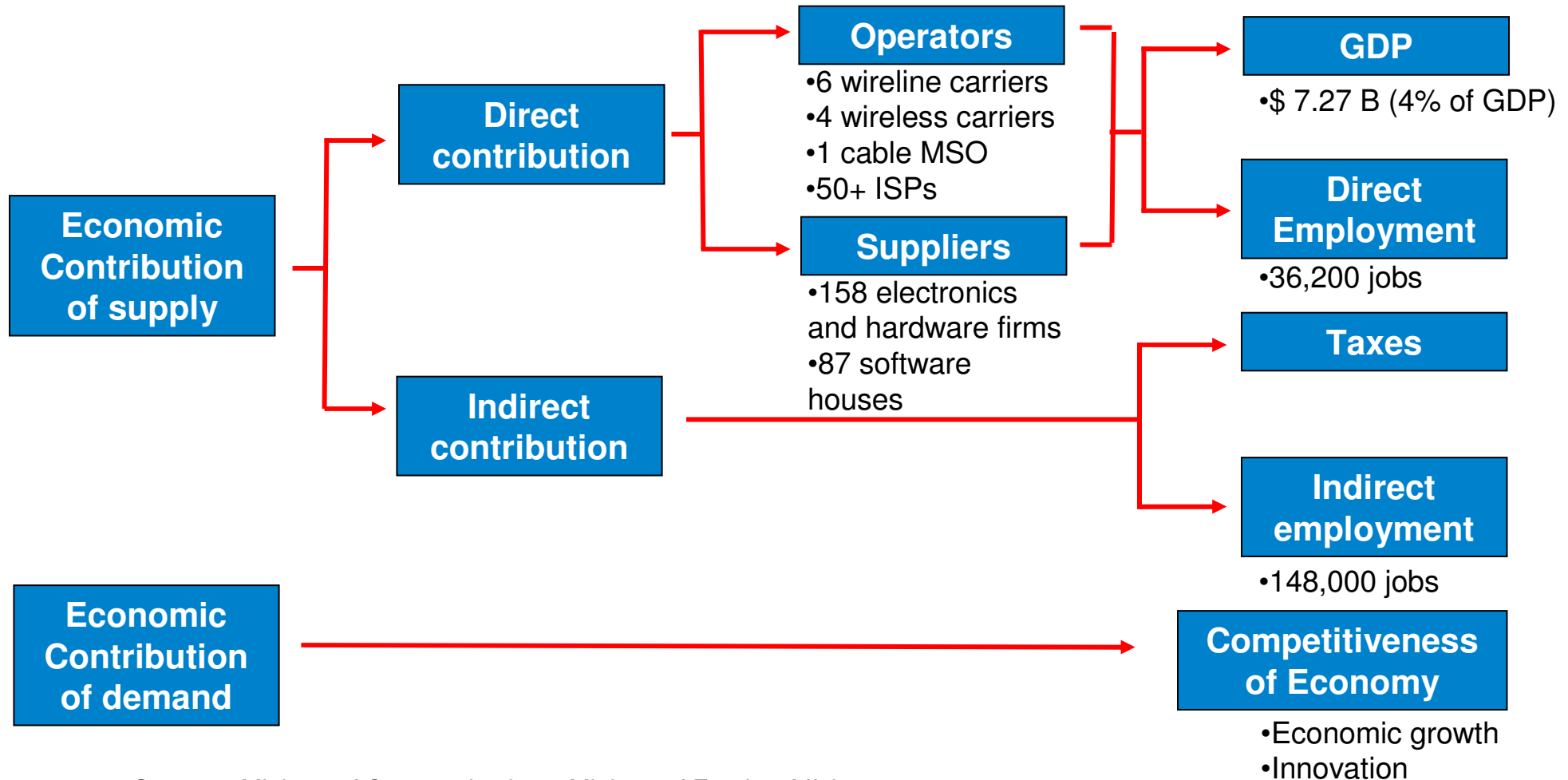
- Estimates of potential economic impact of initiatives in the Israeli telecommunications sector
- Potential industry competitive scenarios and their impact on consumers and the economy
- Regulatory initiatives that will stimulate the development of competition while ensuring sustainability of the industry
- Discuss potential opportunities to collaborate

# Agenda

- Introduction
- Impact of telecommunications on the Israeli economy
- Future scenarios for the Israeli telecommunications industry
- Infrastructure sharing impacting future scenarios
- Conclusions

# The Israeli telecommunications industry represents a substantial contribution to the country's economy

## ECONOMIC CONTRIBUTION OF THE ISRAELI TELECOMMUNICATIONS INDUSTRY



Sources: Minister of Communications; Ministry of Foreign Affairs

# There is substantial evidence that telecommunications contribute to economic growth

IMPACT	EXAMPLES OF BENEFIT
<ul style="list-style-type: none"> <li>Productivity</li> </ul>	<ul style="list-style-type: none"> <li>Labor productivity in ICT-intensive and ICT-non intensive sectors</li> <li>Productivity improvement in distribution processes and supply chain management</li> </ul>
<ul style="list-style-type: none"> <li>Value chain reconfiguration and location of firms</li> </ul>	<ul style="list-style-type: none"> <li>Relocation of firms to optimize production processes as a function of availability of high capacity telecommunications services and quality of services (influenced by telecommunications such as hospitals, schools, and public services)</li> </ul>
<ul style="list-style-type: none"> <li>Employment</li> </ul>	<ul style="list-style-type: none"> <li>Creation of jobs as a result of firm relocation in search of labor cost arbitrage</li> <li>Self employment driven by residential telecommunications services</li> <li>Employment generated by manufacturing and deployment of telecommunications equipment</li> <li>Employment generation driven by tele-commuting</li> </ul>
<ul style="list-style-type: none"> <li>Economic growth</li> </ul>	<ul style="list-style-type: none"> <li>Strengthening of economic activity of industries with high transaction costs (commerce, financial services, etc.)</li> <li>Consumer surplus generated by new telecommunications services, lower prices and a reduction in travel time</li> </ul>

# In particular, broadband deployment has a significant potential for creating jobs

## EMPLOYMENT CREATION OF BROADBAND STIMULUS PROGRAMS

COUNTRY	STIMULUS INVESTMENT (USD billion)	CONSTRUCTION	EXTERNALITIES	TOTAL
UNITED STATES	\$ 6,390	128,000	136,000	264,000
SWITZERLAND	~\$ 10,000	~110,000		110,000+
GERMANY	\$ 47,660	541,000	427,000	968,000
UNITED KINGDOM	\$ 7,463	211,000	69,500	280,500
AUSTRALIA	\$ 31,340			~200,000

Sources: Katz, R. and Suter, S. (2009). *Estimating the economic impact of the US broadband stimulus plan*, Columbia Institute for Tele-Information working paper; Katz, R., P. Zenhäusern, S. Suter, P. Mahler and S. Vaterlaus (2008). *Economic Modeling of the Investment in FTTH in Switzerland*, unpublished report; Libenau, J., Atkinson, R. (2009) *The UK's digital road to recovery. LSE and ITIF*; Australian government. Katz, R., S. Vaterlaus, P. Zenhäusern, S. Suter and P. Mahler (2009). *The Impact of Broadband on Jobs and the German Economy*; Columbia Institute for tele-Information working paper

# Broadband is being considered by numerous countries as key platform to affect economic growth

COUNTRY	NATIONAL BROADBAND PLAN	KEYNESIAN STIMULUS PLAN	GOVERNMENT INTERVENTION
United States		<ul style="list-style-type: none"> <li>Grants of \$7.2 B to deploy broadband in unserved and underserved areas</li> </ul>	
Australia	<ul style="list-style-type: none"> <li>Nationwide service of at least 12 Mbps</li> </ul>		<ul style="list-style-type: none"> <li>Government commits S\$14.16B to deploy and operate nationwide broadband network</li> </ul>
Singapore	<ul style="list-style-type: none"> <li>Stimulate technological innovation and enhance national resilience by providing 1 Gbps access</li> </ul>	<ul style="list-style-type: none"> <li>Spur economic growth</li> </ul>	<ul style="list-style-type: none"> <li>Government invests up to S\$1B to improve project's business case and fulfill policy objectives</li> </ul>
Germany	<ul style="list-style-type: none"> <li>Have universal broadband access (1 Mbps) no later than by the end of 2010 and provide to 75 %of households access to at least 50Mbps by 2014</li> </ul>		
Sweden	<ul style="list-style-type: none"> <li>By 2020 provide 100 Mbps to 90% of households and businesses</li> </ul>		<ul style="list-style-type: none"> <li>State-owned fiber backbone combined with municipal networks</li> </ul>
Brazil	<ul style="list-style-type: none"> <li>Extend broadband service to unserved areas and increase penetration in urban areas</li> </ul>		<ul style="list-style-type: none"> <li>State-owned fiber backbone operating also as retailer of last resort</li> </ul>
Portugal		<ul style="list-style-type: none"> <li>Government announced an E 800 m credit line for the roll-out of NGAN as part of a 2.18-billion-euro plan to boost the country's economy</li> </ul>	
Ireland		<ul style="list-style-type: none"> <li>The government will invest 322 million in a National Broadband Scheme aimed at completing country coverage</li> </ul>	
Canada	<ul style="list-style-type: none"> <li>Four programs to promote broadband development resulting in an overall investment of C\$ 300 million</li> </ul>		
Finland		<ul style="list-style-type: none"> <li>Fund 1/3 of NGN roll-out</li> </ul>	
New Zealand		<ul style="list-style-type: none"> <li>Government investment to boost fiber deployment</li> </ul>	

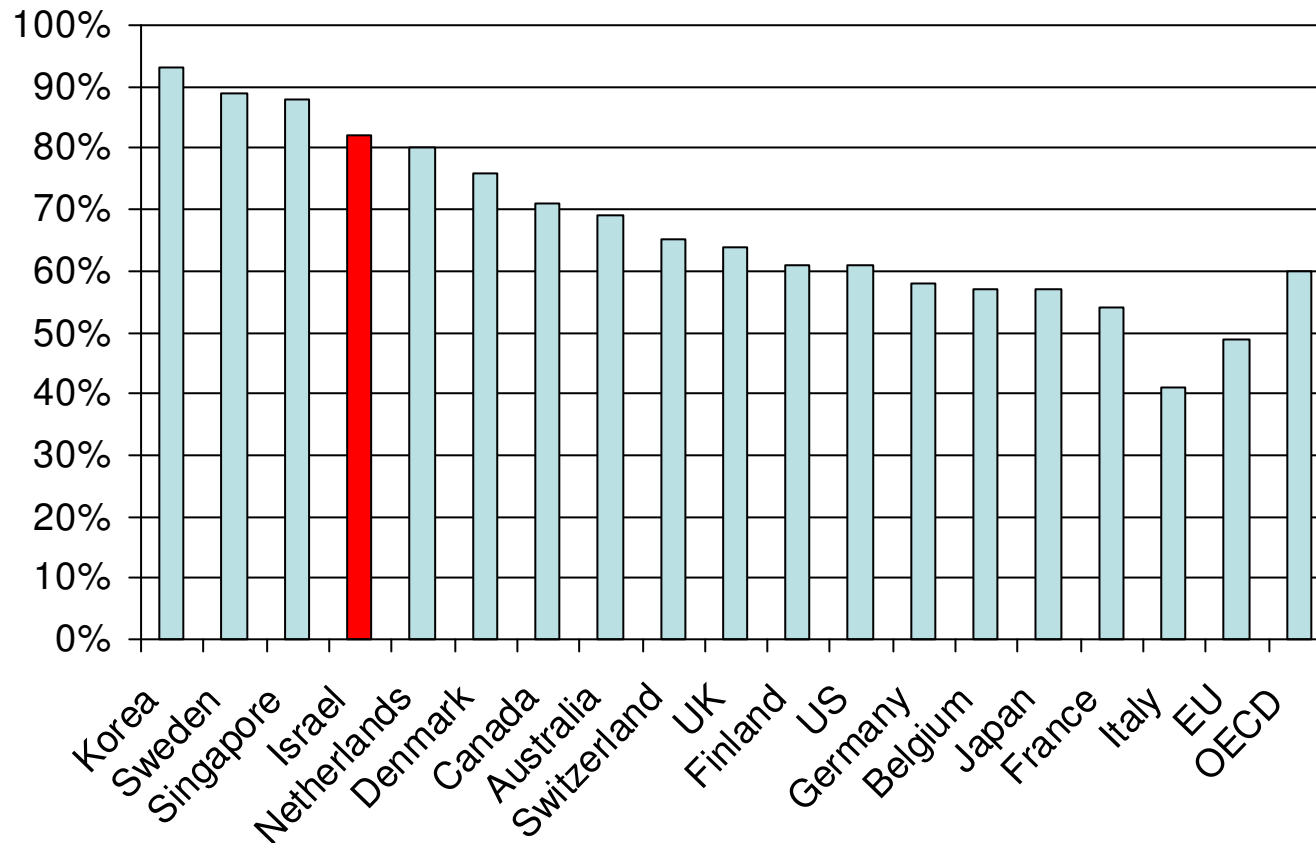


## The international broadband experience is applicable to the Israel environment along four dimensions

- At 99% household coverage of competing broadband technologies, Israel does not have a supply gap
- However, a demand gap still exists; 17% of households could have broadband but do not (issue of digital inclusion)
- Furthermore, the average download speeds could potentially become an obstacle in stimulating usage leading to economic impact (innovation, productivity, eco-system impact)
- Finally, as a corollary, there appears to be the potential for an NGN national program that could act as an economic stimulus

# From a supply standpoint, there is a little room to improve the Israeli broadband penetration, which stands at the top of world performance

**BROADBAND PENETRATION (per household)**



Sources: OECD; FCC; Eurostat; BMWi; PTS; Infocomm

# However, emphasis on broadband demand could help reduce the demand gap

## ISRAELI HOUSEHOLDS PASSED/CONNECTED BY BROADBAND

TECHNOLOGY	COVERAGE (thousands)	SUBSCRIBERS (thousands)	CONNECTED/ PASSED IN %
DSL	2,031	1,005	48.3
Cable Modem	2,031	683	33.5
Total (assuming overbuilds)	2,031	1,688	83%

Sources: MoC; Government statistics



**ISRAEL DEMAND GAP: 17%**

COUNTRY	HOUSEHOLDS SERVED	HOUSEHOLDS CONNECTED	DEMAND GAP
Australia	89 %	69 %	20 %
Denmark	96 %	76 %	20 %
Germany	98 %	58 %	40 %
Korea	100%	93 %	7 %
Sweden	100 %	89 %	11 %
US	92 %	61 %	31 %

Sources: EU; FCC; BMWi; OECD; PTS; analysis by the author

## PROGRAMS FOR ADDRESSING THE BROADBAND DEMAND GAP

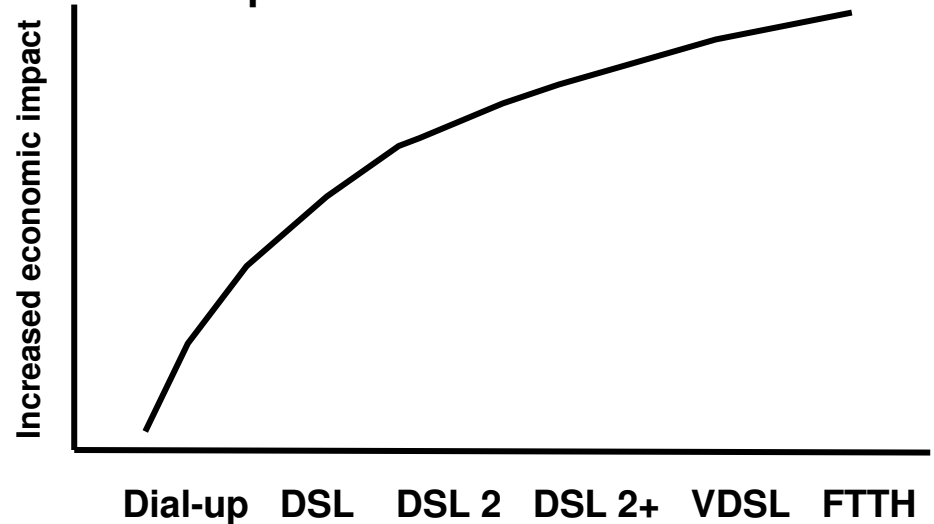
- Leverage public computer centers (e.g. libraries, schools) to foster consumer adoption (computer literacy training, technical support)
- Subsidize purchasing of computers for low income households
- Aggregate pockets of demand at the community level (chambers of commerce, civil organizations, affinity groups) to generate appropriate service offers negotiated with ISPs
- Develop social networks to share approaches and best practices
- Provide subsidized consulting services to SME managers to help them leverage broadband for new process innovation (supply chain, distribution)

# In addition, we believe that faster broadband download speeds and improved QOS could enhance economic output

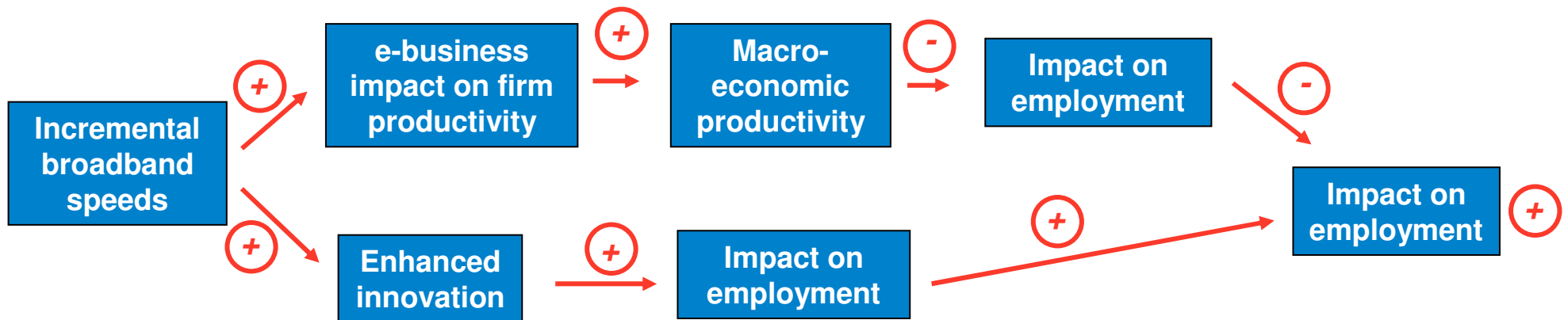
**Faster speeds improve productivity of knowledge workers**

Application	Download speeds		
	500 Kbps	5 Mbps	50 Mbps
Google home page	0.3 sec	0.03 sec	0.003 sec
10 Mbs worksheet	150 sec	16 sec	1.6 sec
High quality videostreaming	Very low resolution	Medium resolution	High resolution

**Big impact is achieved when transitioning from dial-up to broadband...**

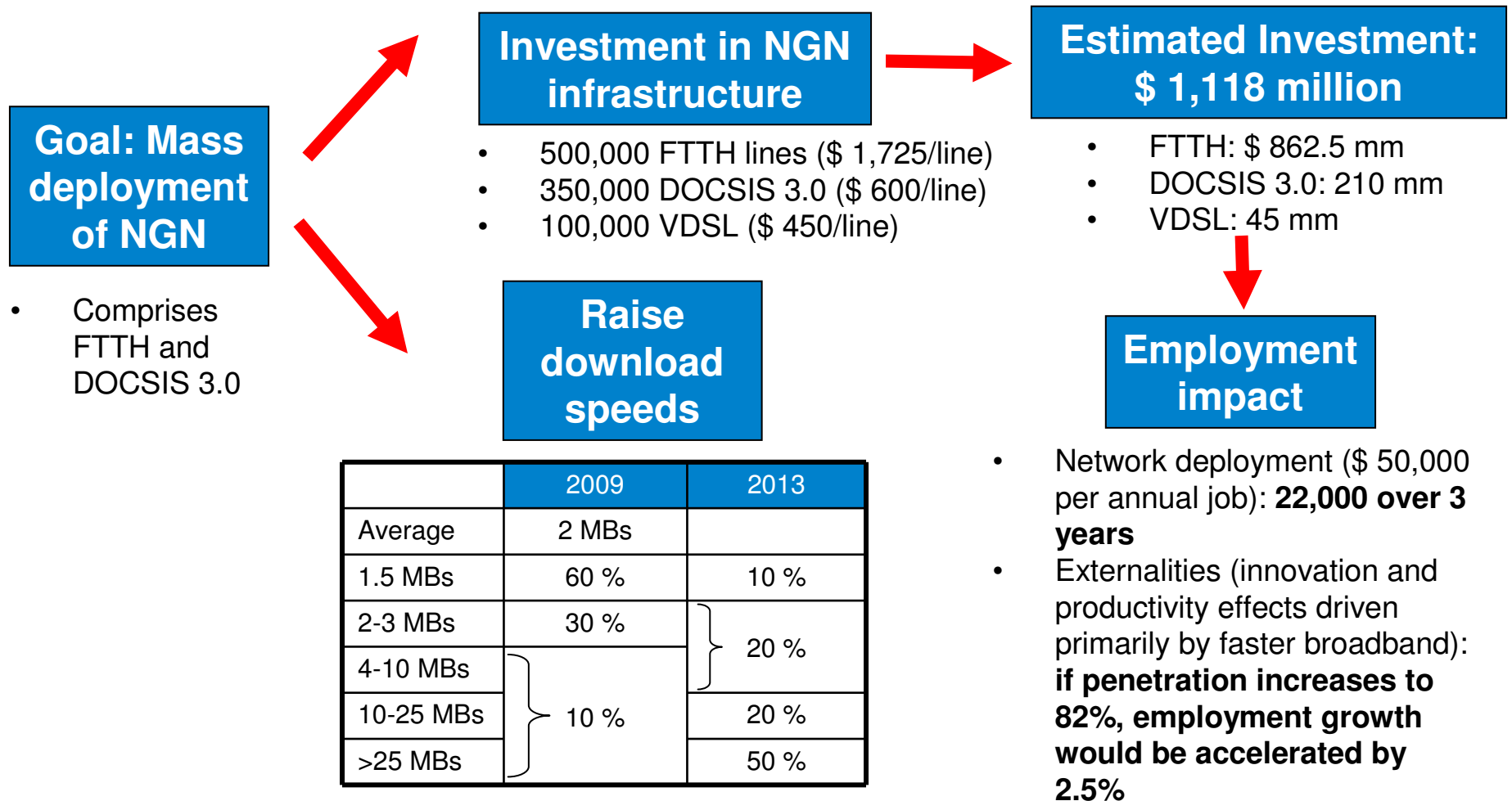


**...But faster speeds could have an impact on innovation**



# A radical NGN program could have a potential for generating jobs and increasing positive externalities of broadband

## ISRAEL: APPROXIMATE ESTIMATE OF EMPLOYMENT IMPACT OF NGN PLAN



## However, in order to maximize economic impact it is critical to define an optimal industry structure

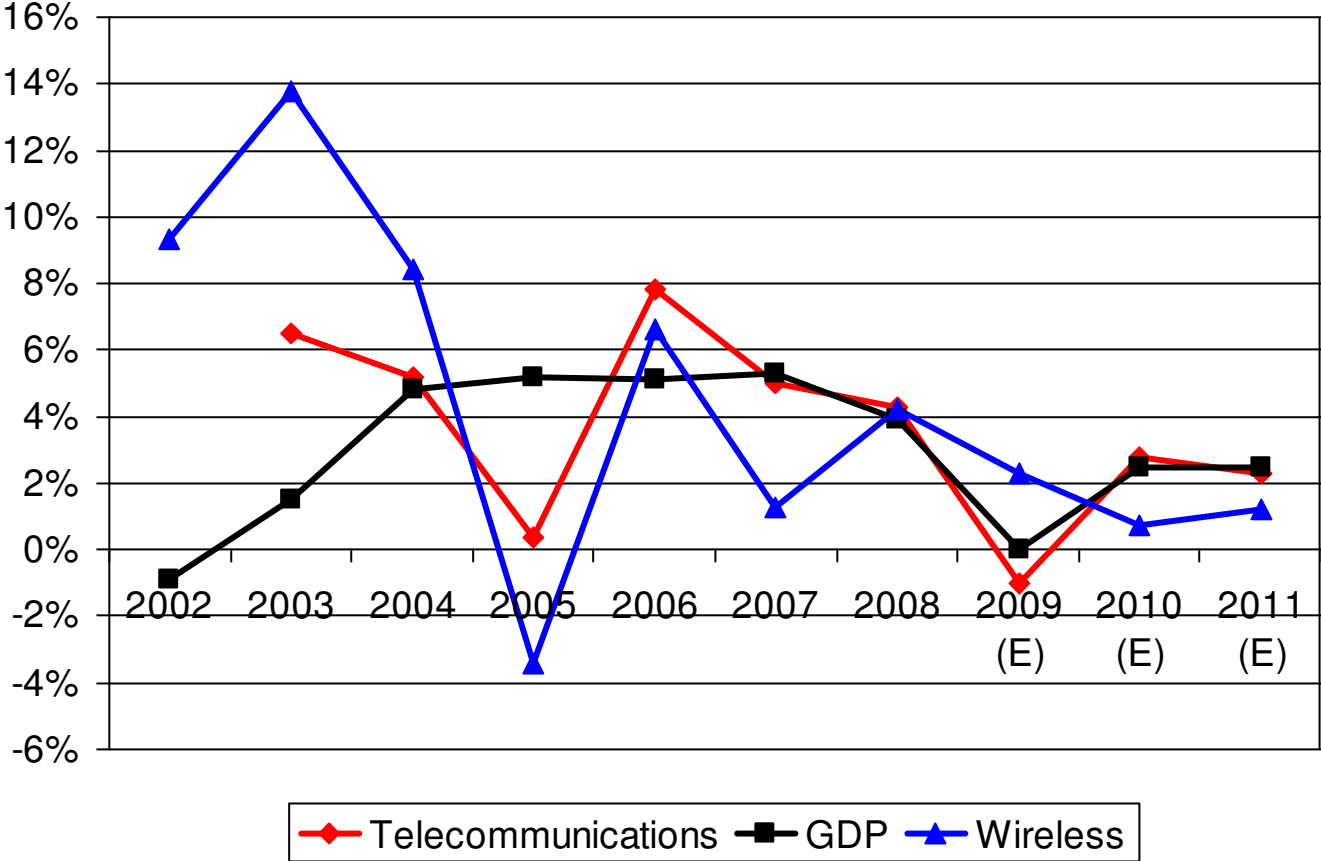
- How do we define policies that provide incentive for capital investment?
- What is the sustainable industry structure that provides the long-term capability for creating jobs, promoting innovation and reducing prices?
- What is the ideal number of industry players to maximize welfare benefits?
- How much “creative destruction”?
- What are the risks of increasing frictional costs of bankruptcies?
- How much asymmetric regulation?

# Agenda

- Introduction
- Impact of telecommunications on the Israeli economy
- Future scenarios for the Israeli telecommunications industry
- Infrastructure sharing impacting future scenarios
- Conclusions

# The Israeli market grew in 2008 despite the recession, although it is expected to slow down significantly in the future

### ISRAEL TELECOMMUNICATIONS MARKET



Sources: MoC; Merrill Lynch; The Economist; analysis by the author



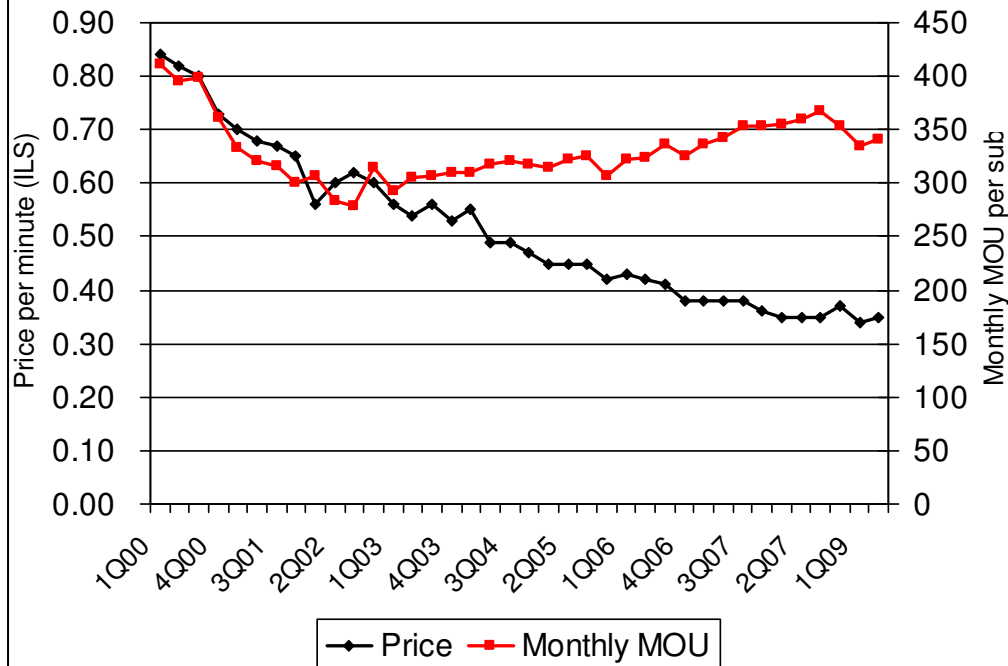
## Several uncertainties, beyond the macroeconomic environment, remain regarding the future evolution of demand

- Voice revenue will continue to decline as price elasticity falls further
- Data adoption will replace some of the falling voice ARPU
- Shifts in usage will continue to emerge (wireless vs. wireline, voice vs. data, local vs. LD, type of data)
- Further growth is dependent on more robust wireless substitution (FMC) and content consumption (quad-play, mobile TV, etc.)
- However, the adoption of both FMC and quad-play remains uncertain
- Changes in purchasing decision making (handset vs. plan, bundles)
- Changes in distribution channel preference (retail, On-line, Store in store)

For example, while data is expected to reach 19% of ARPU by 2011, it will not have grown enough to compensate for voice ARPU decline

**LOWER YIELDS WILL NOT BE OFFSET BY INCREASED MOU, RESULTING IN ARPU DECLINE**

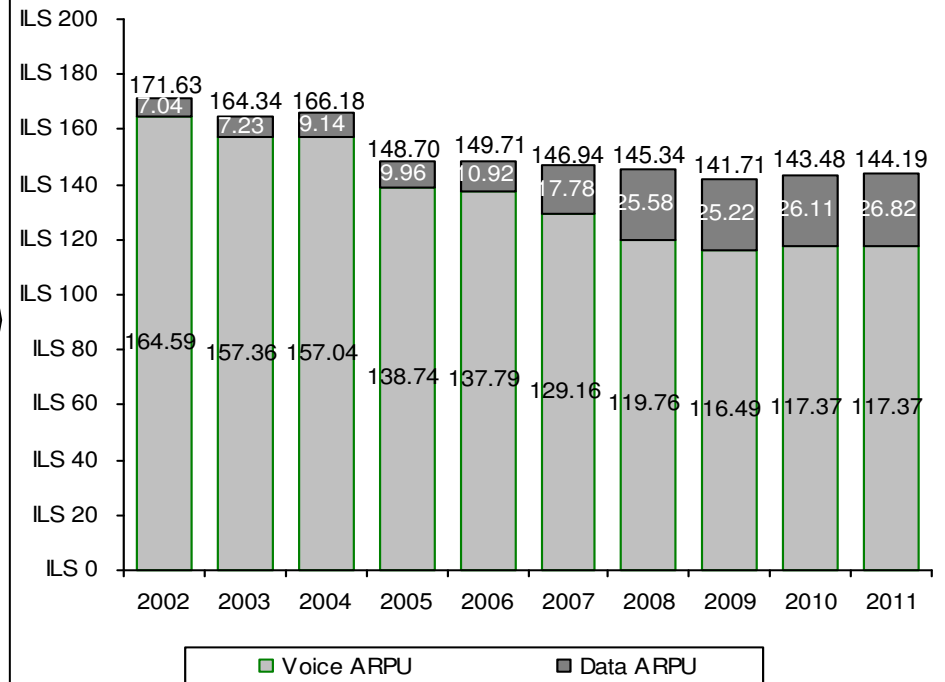
**ISRAEL WIRELESS PRICE vs. MOU (2000-9)**



Source: Merrill Lynch

**INCREASING DATA ARPU WILL BE INSUFFICIENT TO OFFSET DECLINING VOICE ARPU**

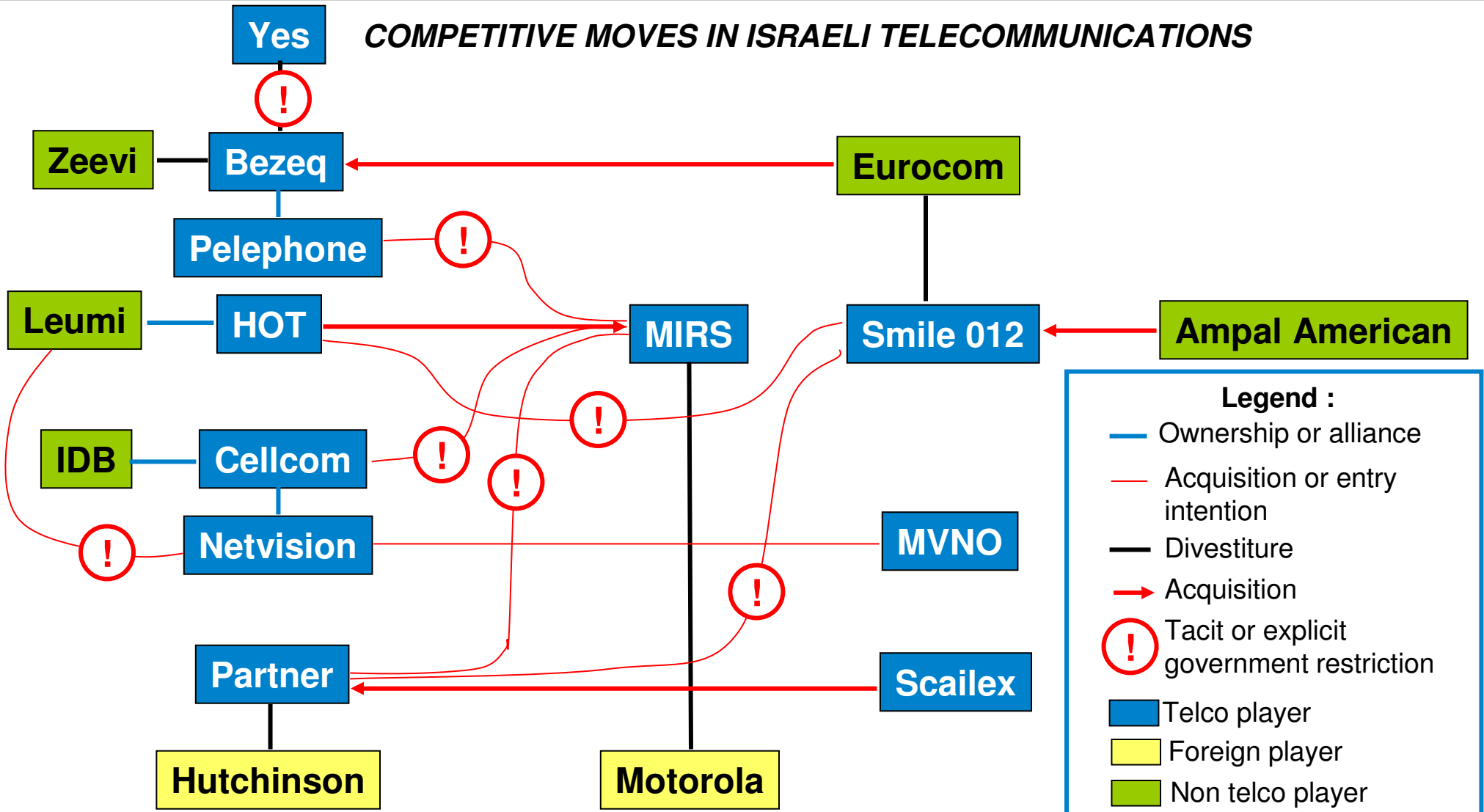
**ISRAEL WIRELESS ARPU (2002-2011)**



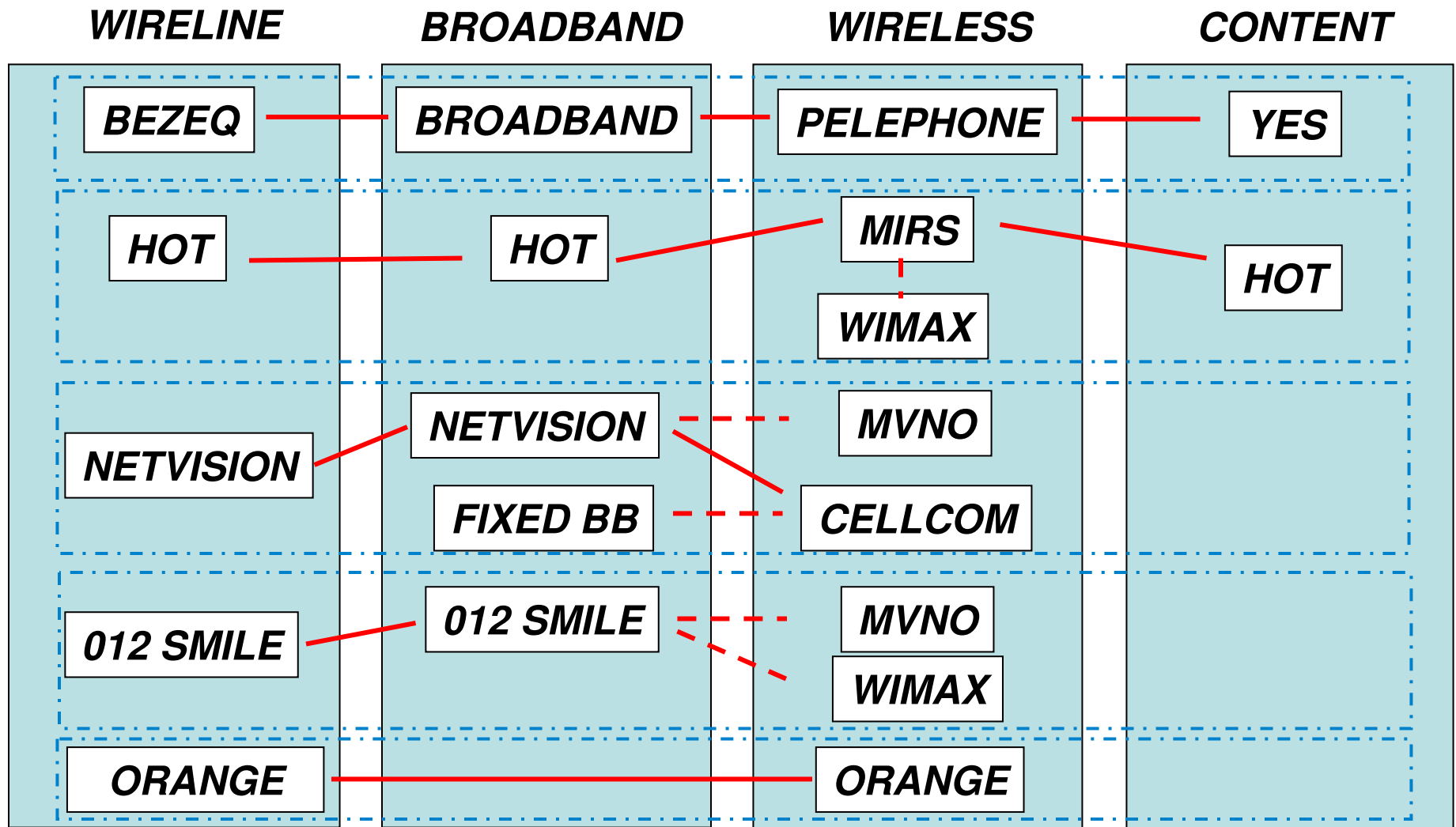
Source: Merrill Lynch

# These uncertainties, combined with other non-market factors, are prompting a supplier “shake up”

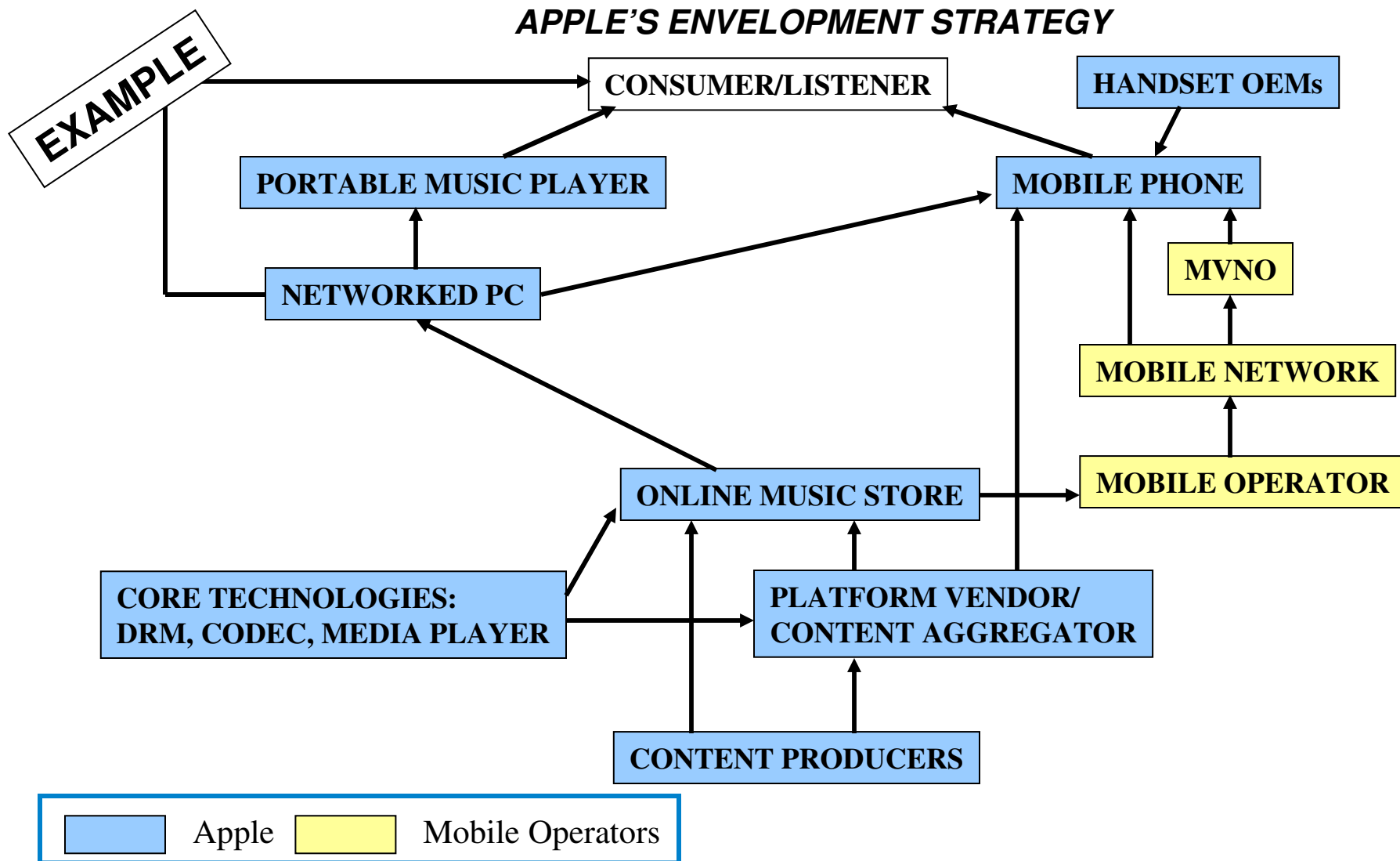
## COMPETITIVE MOVES IN ISRAELI TELECOMMUNICATIONS



In the near future, the industry structure is somewhat fragmented, but starting to show some embryonic cross-sector consolidation

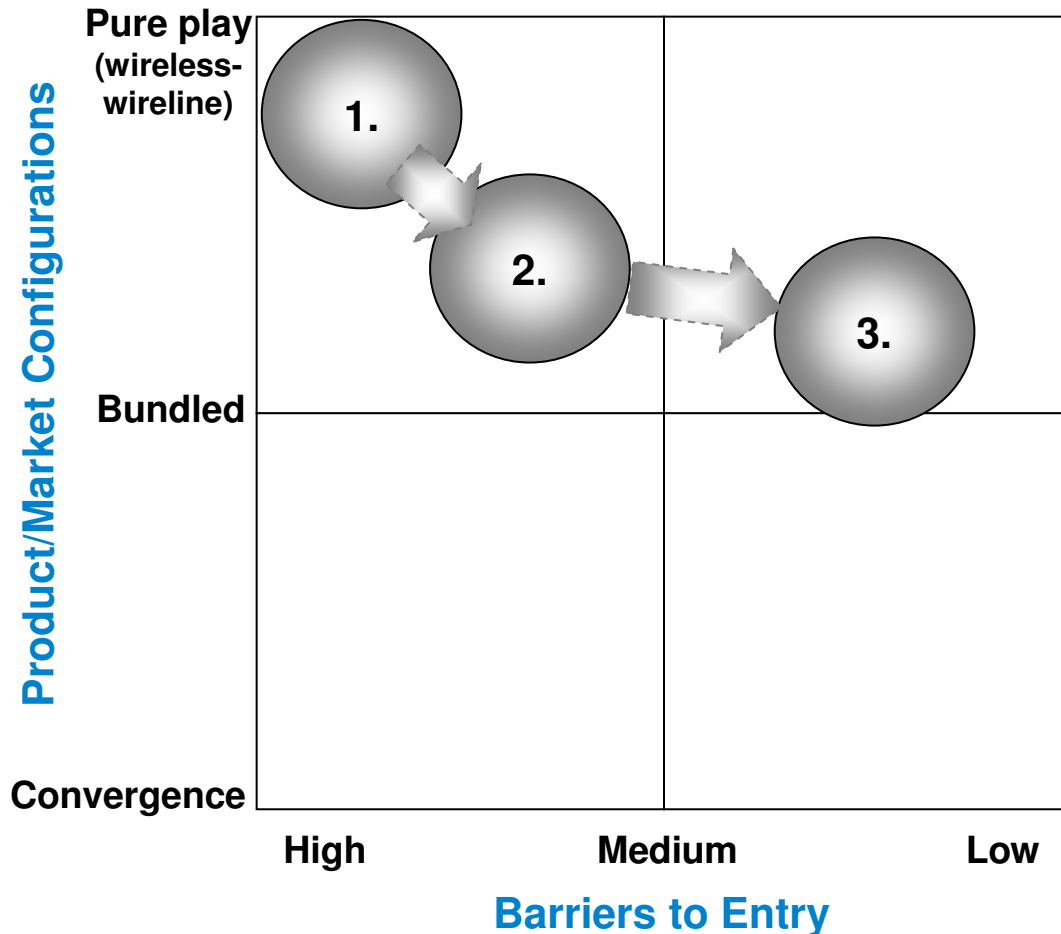


# The turbulence on the supply side could be exacerbated by the entry of other non-traditional players



# Low barriers to entry and lack of vertical integration are leading to a Heightened Competition Scenario

## INDUSTRY STRUCTURE EVOLUTION FRAMEWORK



1. MONOPOLY (past)



2. MANAGED COMPETITION (today)



3. HEIGHTENED COMPETITION (2-3 yrs.)

- Non traditional competitors take advantage of this market situation and an increasing number of them begin to offer wireless service (e.g. MVNO)
- The marketplace will be crowded with many players behaving disruptively in order to establish a foothold in the wireless industry, as a result existing carriers will face financial pressure
- Alternate technologies, like WIMAX, enable some players to bypass traditional wireless networks all together in certain areas
- Wireless remains the core business and is sold predominantly as a stand alone product
- Intense competition, among the MNOs, for MVNO clients leads continued declines in prices for voice and data

# The future competitive environment is characterized by two key trends

## BARRIERS TO ENTRY ARE DECREASING

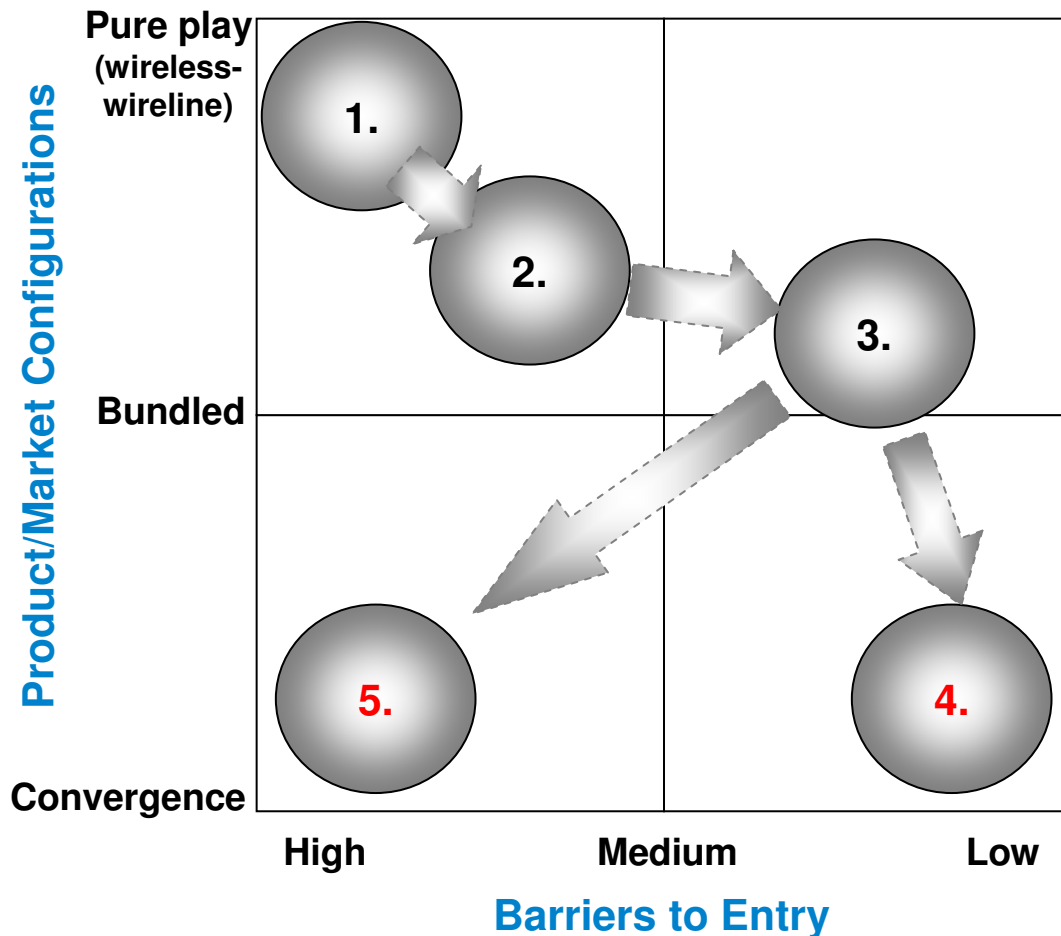
- Barriers to entry have fallen dramatically as MNOs would have opened their networks to MVNOs on a wholesale basis
- MVNOs may account for 15% of the market within five years
- In addition to MVNOs, new technologies allow new entrants to experiment with wireless service at much lower costs than before
- Capital might be available to fund the development of new technologies

## NEW BUSINESS MODELS ARE EMERGING

- New technologies and business models are rapidly developing and attracting entrants from outside the communications industry (handset OEMs, software players, content providers)
- Content providers are looking at ways to extract more revenue out of the traditional wireless content value chain
- Some telcos and cable TV players will be looking at ways to offer integrated communications services
- Other carriers will be extremely successful with the high usage low cost business model

# In the long run, two scenarios are possible for the Israeli telecommunications industry

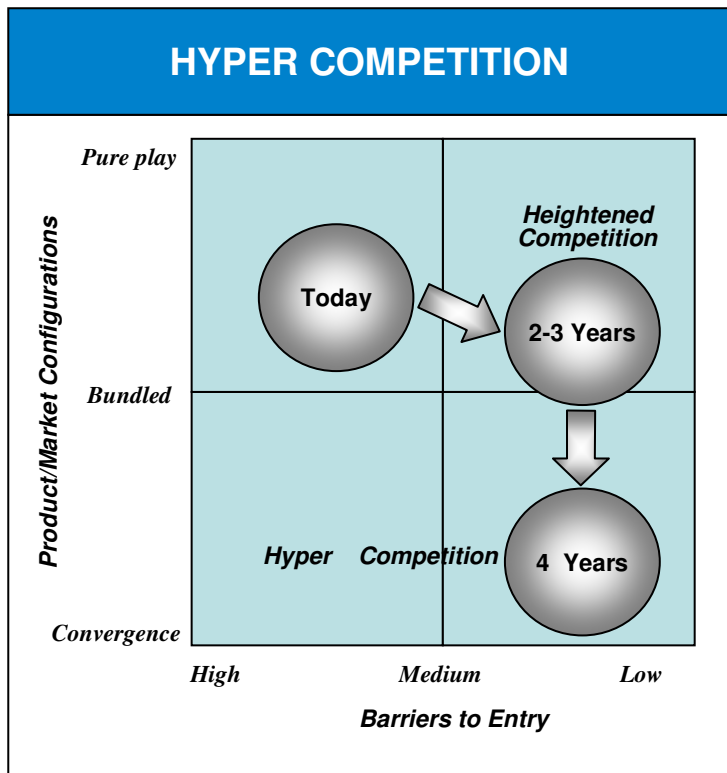
## INDUSTRY STRUCTURE EVOLUTION FRAMEWORK



- **4. Hyper-competition**
  - Technology significantly lowers the capital requirements for the industry
  - New entrants can offer products that are true substitutes to wireless
  - Brand, content, and applications drive wireless decision
  - The industry is divided among 6+ players
  - Non traditional competitors take advantage of this market situation and an increasing number of them begin to offer wireless service
- **5. Platform competition**
  - Capital requirements limits the ability of new entrants
  - The advantages of scale and installed base also favor incumbents
  - Carriers adapt to block/embrace new business models
  - A large acquisition is the only viable scenario for a new entrant
  - 90+% of the market remains in the hands of 3 players

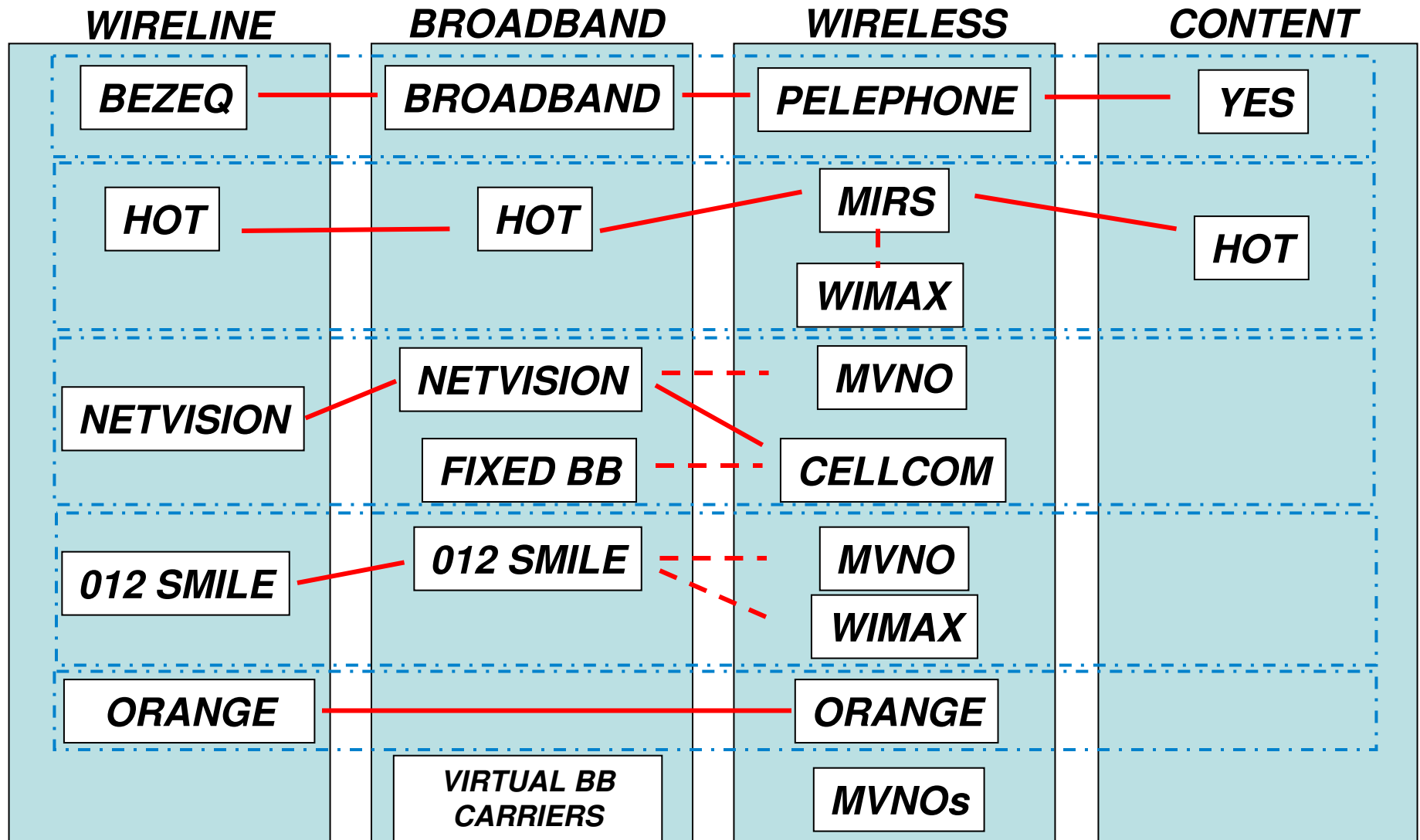


# The hyper competition scenario is characterized by intense supply fragmentation

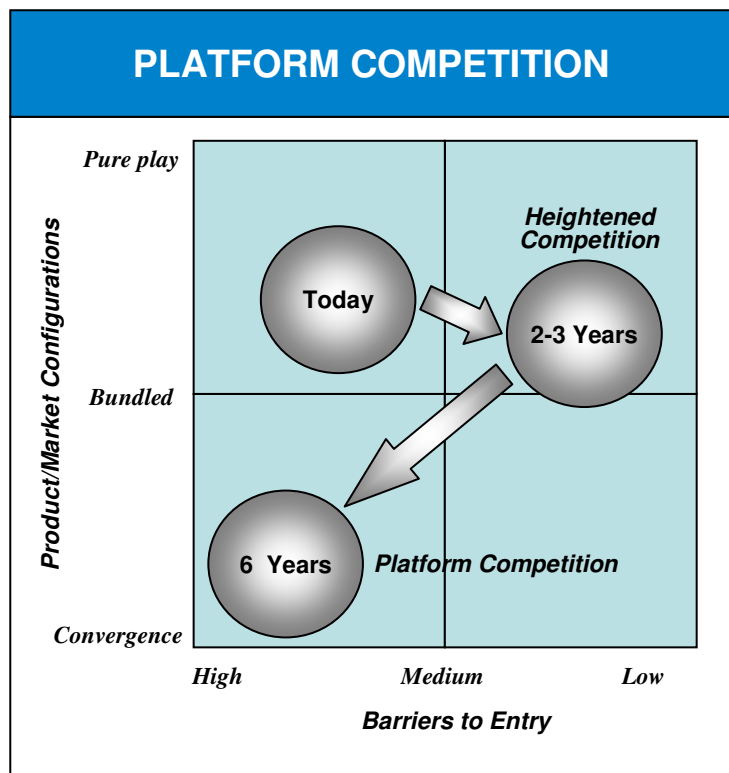


- Data and content adoption takes off and customers show a willingness to purchase wireless from content providers
- Facilities-based mobile players rapidly lose share as 25%-50% of customers show an interest in purchasing wireless from specialized players (content, brand, usage, etc.,)
- As a result of slow reactions and rapid technological advances MNOs are unable to reign in competition
- Alternate networks are feasible and device pricing collapses leading to the emergence of new network operators
- A new breed of company called the “NetCo” emerges which offers wholesale access to any player interested in offering wireless service (“ServCo”)
- An MNO spins off its retail arm and becomes a pure wholesale provider
- Existing wireless players are forced to drastically change their operating structure in order to survive with a dramatically lower customer base

# Hypercompetitive industry structure

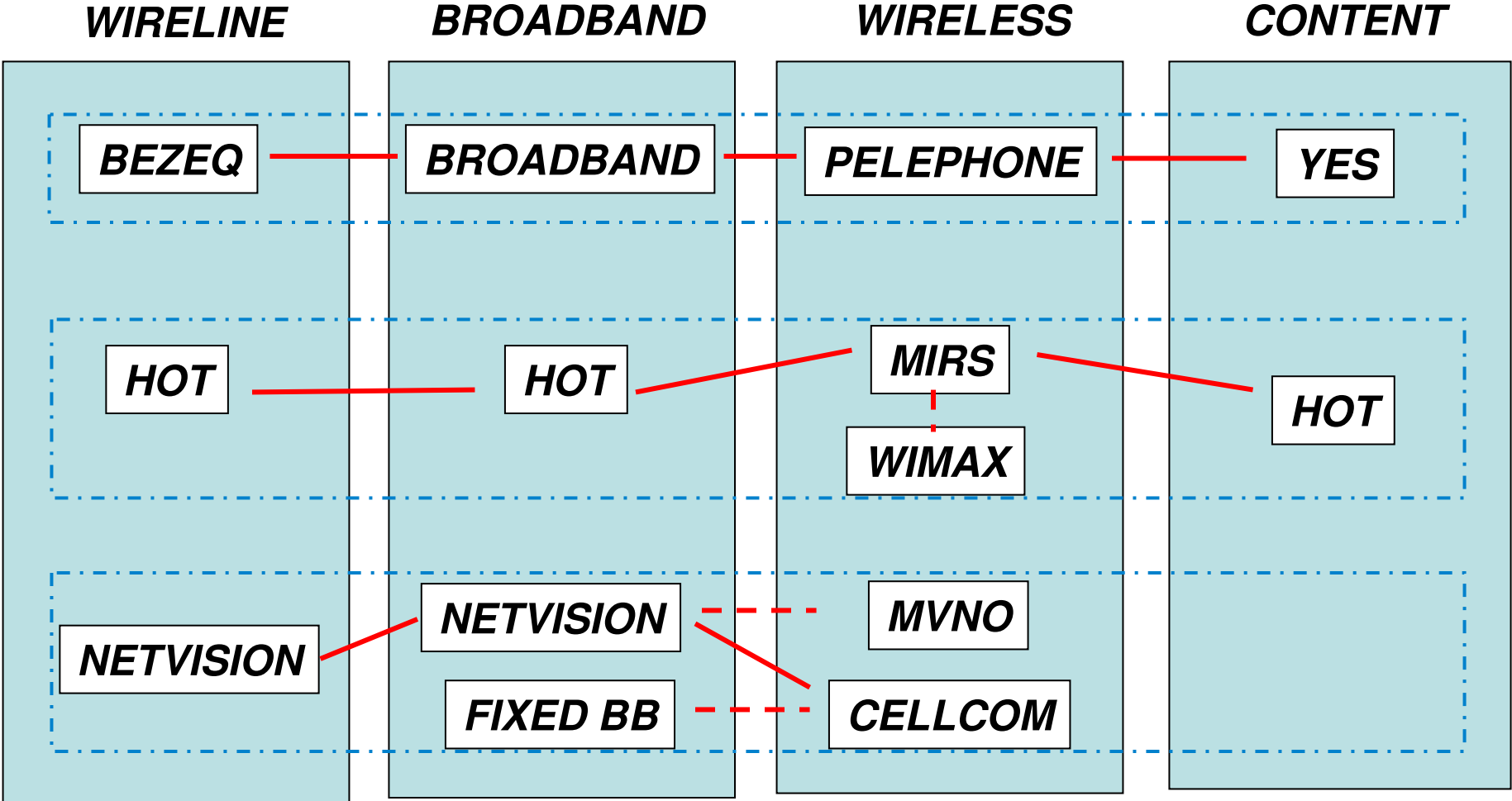


# By embracing new business models and blocking new entrants, the large players dominate the market in the platform competition scenario



- Telecom operators (Bezeq and HOT) rethink the wholesale model and vertical integration takes place as they acquire the few successful MVNOs
- Customers (25%-50%) demand integrated communications packages and a wide variety of content and product choices
- Telecom operators embrace new technology (within NGN/hybrid networks) and business models and quickly block new entrants from establishing any major presence
- Ownership issues get resolved as mobile, fixed, broadband and content distribution players tightly integrate
- No “killer app” but rather an assortment of new products (LBS, content, data, gaming, etc.,) all prevail in the market
- The required assortment of products and applications places smaller players at a financial disadvantage since they cannot afford the upfront investments and they rapidly lose market share

# 2.5 Player Industry Structure

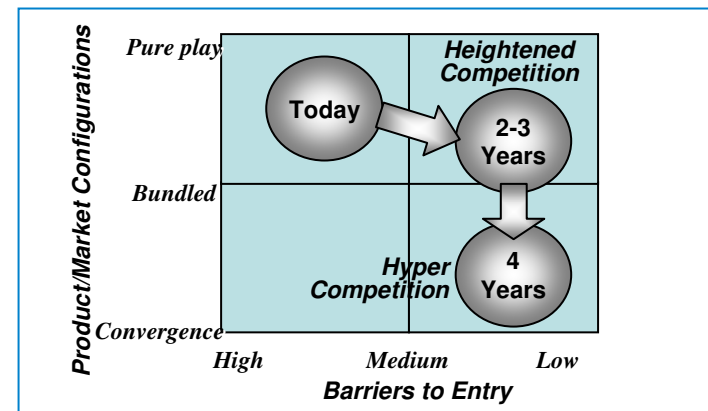
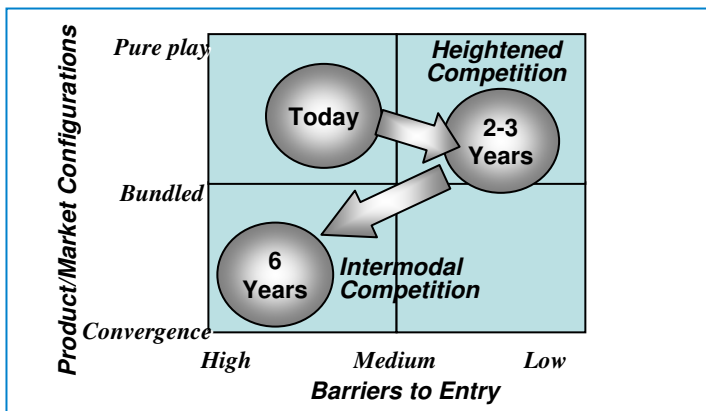
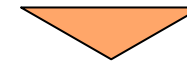
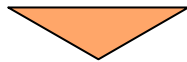


# The implications of either scenario differ for consumers, carriers and the economy at large

		TELECOM SECTOR	CONSUMERS	ECONOMY
<b>2-3 Years Scenario</b> <b>Heightened Competition</b>	<ul style="list-style-type: none"> <li>• Many new entrants enter the landscape fueled by technology and business model innovations</li> <li>• Majority of the existing carriers see a deterioration in financial performance</li> <li>• Heavy investment in technology (existing carriers and new entrants)</li> <li>• Discussion around the potential emergence of NetCos</li> <li>• Heavy investment in technology (existing carriers and new entrants)</li> </ul>	<ul style="list-style-type: none"> <li>• Market share fragmentation</li> <li>• Need to invest in new technology and products</li> <li>• Margin erosion <span style="float: right;">-</span></li> </ul>	<ul style="list-style-type: none"> <li>• Lower prices</li> <li>• New entrant Innovation benefits consumers <span style="float: right;">+</span></li> </ul>	<ul style="list-style-type: none"> <li>• Externalities driven by network investments and business model innovation</li> <li>• Margin erosion limit sector indirect impact <span style="float: right;">+/-</span></li> </ul>
<b>6 Years Scenario</b> <b>Platform Competition</b>	<ul style="list-style-type: none"> <li>• Transformation of MNO model to a complete communications provider (across products and platforms)</li> <li>• Competition between telco (Bezeq) and cable (HOT) signals the advent of the intermodal era</li> <li>• Advanced hybrid networks patch together cellular, WiFi, and WiMax technologies</li> <li>• Content drives data adoption and wireless becomes just another distribution platform for content</li> </ul>	<ul style="list-style-type: none"> <li>• Market share improves as a result of M&amp;A</li> <li>• Investments in integrated services pay off <span style="float: right;">+</span></li> </ul>	<ul style="list-style-type: none"> <li>• Price stabilization</li> <li>• Further advances in network technology and platforms <span style="float: right;">-/+</span></li> </ul>	<ul style="list-style-type: none"> <li>• Impact of new network technology on the economy (jobs, innovation) <span style="float: right;">+</span></li> </ul>
<b>4 Years Scenario</b> <b>Hyper Competition</b>	<ul style="list-style-type: none"> <li>• Low barriers to entry enable multiple players to become service providers and own customer relationship</li> <li>• The emergence of the “NetCo” model serves to fragment the industry and more than 10 players have an equal share of the market</li> <li>• Existing carriers are forced to transform and some become wholesale providers only</li> <li>• Wireless service becomes subsidized by content and advertising players, who capture most of the value</li> </ul>	<ul style="list-style-type: none"> <li>• Services increasingly commoditized</li> <li>• Carriers must shed cost to support reduced market share <span style="float: right;">-</span></li> </ul>	<ul style="list-style-type: none"> <li>• Benefits in terms of price competition</li> <li>• Carrier cost pressures might lead to lower product innovation <span style="float: right;">-/+</span></li> </ul>	<ul style="list-style-type: none"> <li>• Frictional costs (bankruptcies/ job losses) affect contribution <span style="float: right;">-</span></li> </ul>

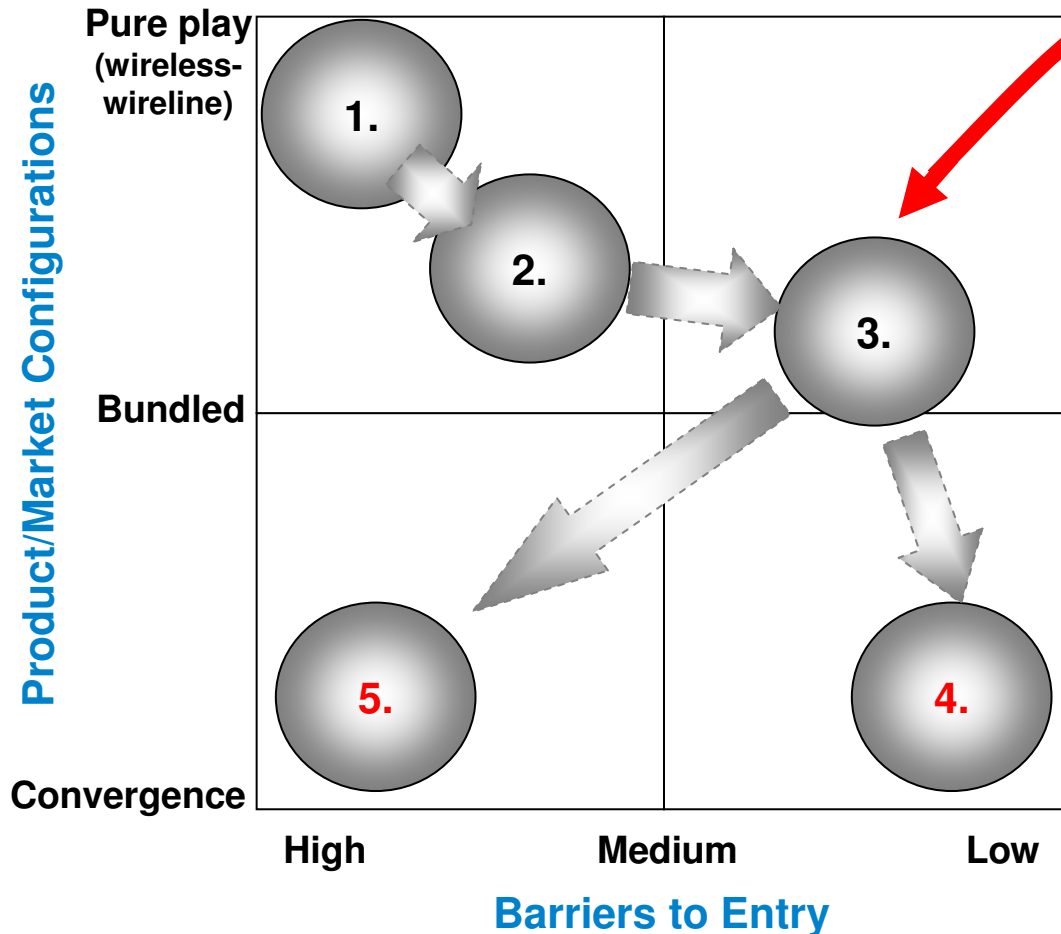
# The long-term scenario depends as much on the external environment as it does on the internal carrier response

<b>NO</b>	<b>EXTERNAL ENVIRONMENT</b> Will New Technologies Offer a Much Cheaper Way To Build Out Substitute Networks?	<b>YES</b>
<b>YES</b>	<b>INTERNAL CARRIER RESPONSE</b> Will Carriers Be Able to Raise Barriers to Entry Thereby Preventing New Entrants?	<b>NO</b>
<b>NO</b>	<b>REGULATORY APPROACH</b> Will regulator continue pushing for LLU, MVNO, MNP, and asymmetric regulation? Will antitrust authorities actively and tacitly restrict consolidation?	<b>YES</b>



# Scenario triggers indicate that the industry is definitely moving into heightened competition

## INDUSTRY STRUCTURE EVOLUTION FRAMEWORK



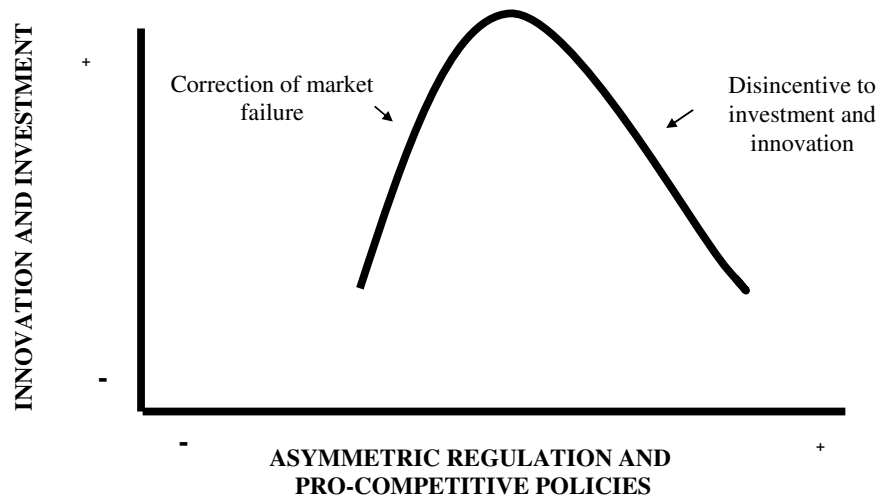
- Industry growth has significantly slowed down
- Telecom incumbent Bezeq revenues flat and market share dropped to 84.8% in the business sector and 77.3% in the consumer market
- Partner's revenue and profits down as a result of "challenging competitive and regulatory environment"
- Partner, Netvision and HOT have raised their wireline rates reflecting diseconomies of scale for Partner and low bundle profitability for others
- Withdrawal of international investors Motorola (MIRS) and Hutchinson (Partner) although this could be due to other reasons (e.g. international strategy)

# It is critical for the regulator to determine the appropriate regulatory model and policies

**Excessive regulation promoting irrestrictive competition could have a negative impact on the telecommunications industry's innovation and investment**



**REGULATION VS. INNOVATION AND INVESTMENT**



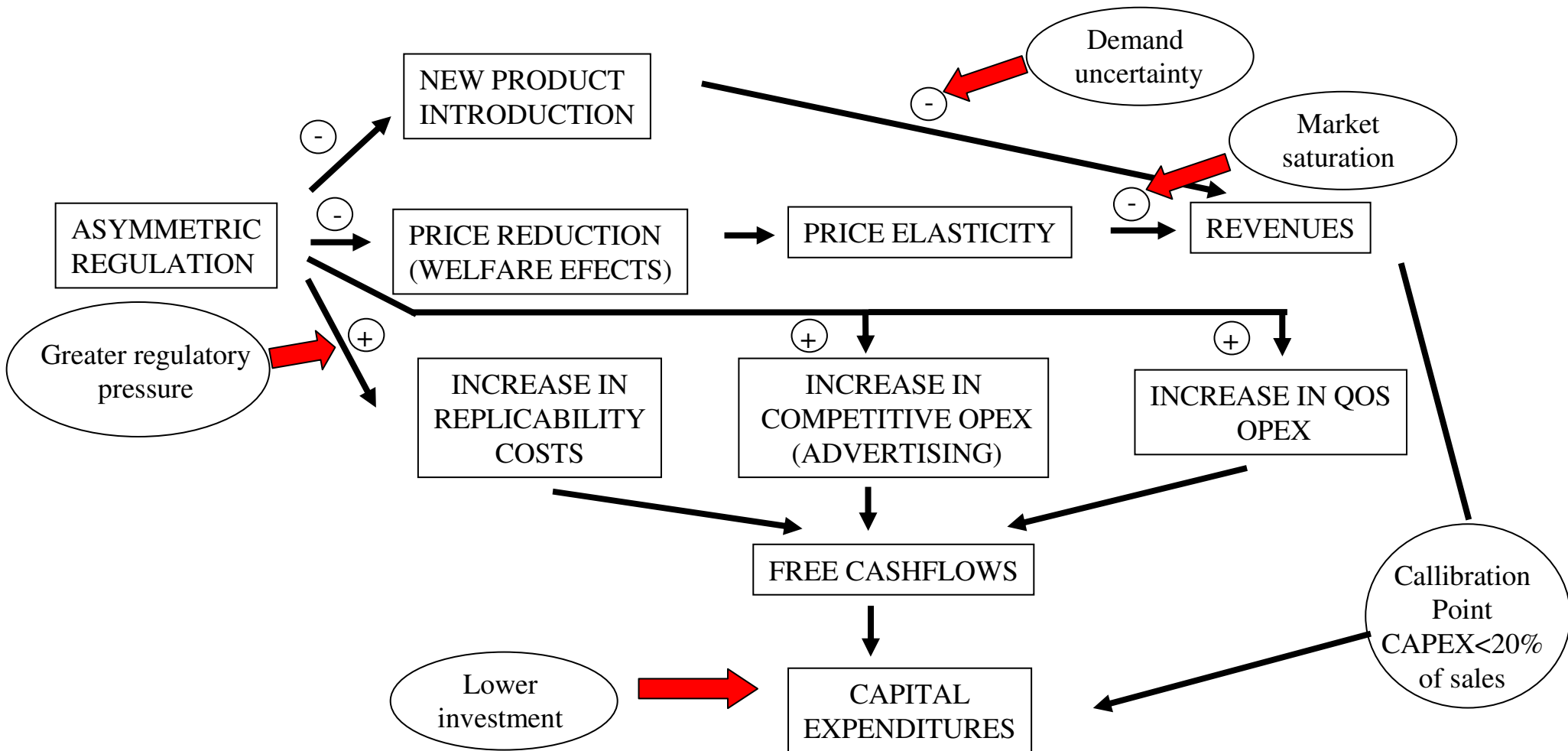
Source: Prepared based on Gual, J. et al. (2006)

- Recently completed research on drivers of NGN investment across 30+ countries found that unbundling local loops is negatively related, at a significant level, to the deployment of fiber to the home: consistent with all the literature previously reviewed, platform-based competition acts as an inducement of investment in forward looking technologies
- Pricing of broadband services is negatively related to fiber deployment: if pricing is an indicator of competitive intensity, the lower retail prices of broadband, the less incentive there is to deploy FTTH because, at lower ARPUs, the NPV of the fiber project diminishes



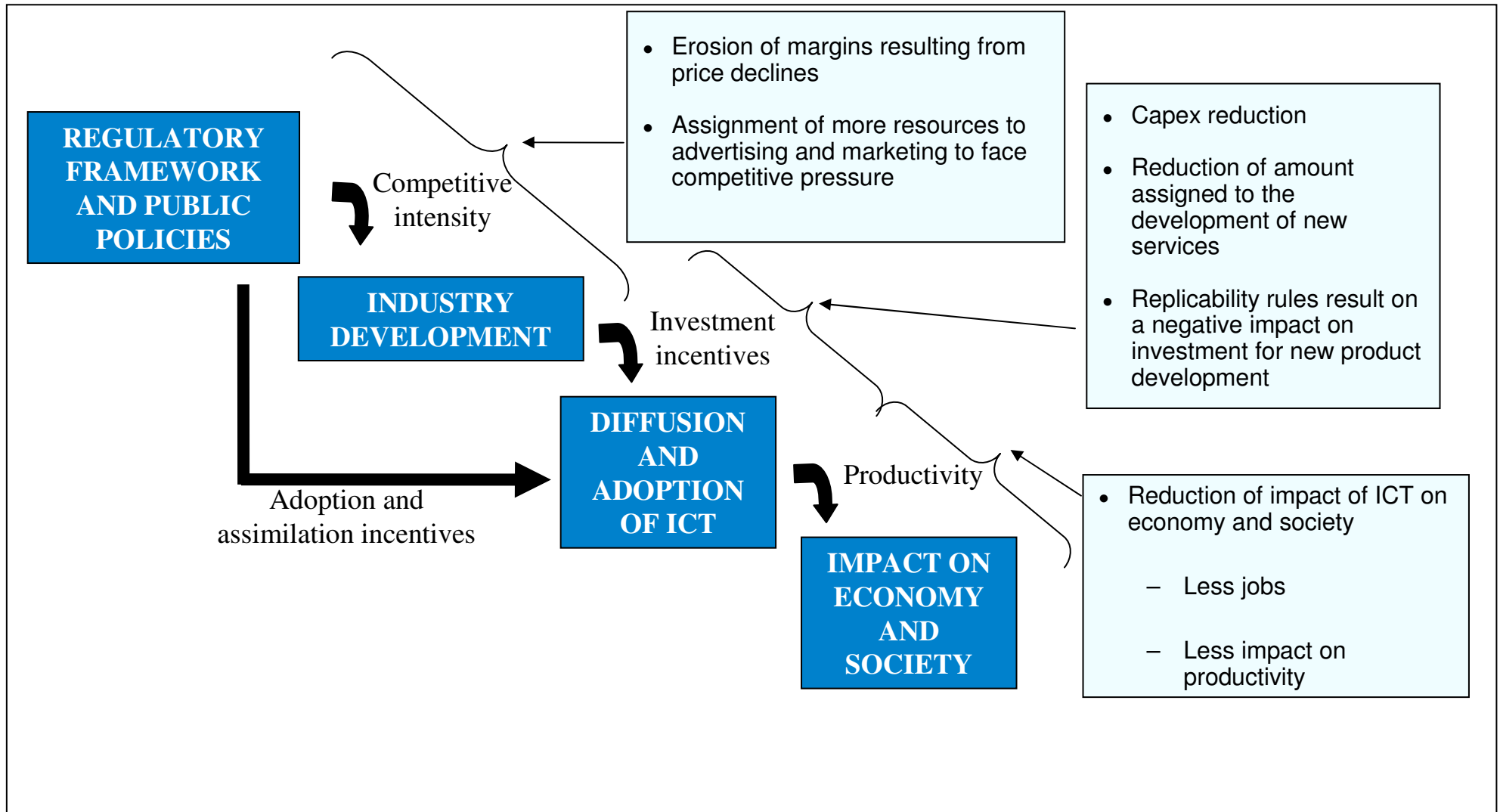
# The regulatory framework can affect the industry's investment in infrastructure and, consequently, the pace of innovation

## DEREGULATION AND INVESTMENT CYCLE: THE NEGATIVE CYCLE



# If the cycle turns negative, ICT diffusion could be affected and the positive impact on the economy and society could decrease

## IMPACT AND INTERRELATIONSHIP OF FACTORS

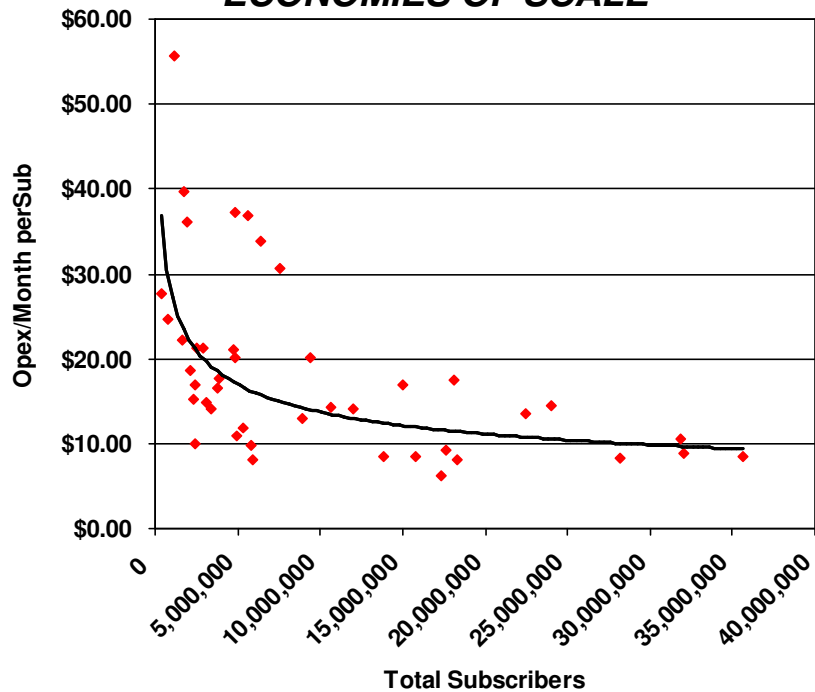


# Agenda

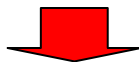
- Introduction
- Impact of telecommunications on the Israeli economy
- Future scenarios for the Israeli telecommunications industry
- Infrastructure sharing impacting future scenarios
- Conclusions

# Infrastructure sharing represents an adequate approach to stimulate competition by allowing small players to benefit from scale

**NA/EUROPEAN MOBILE OPERATOR ECONOMIES OF SCALE**

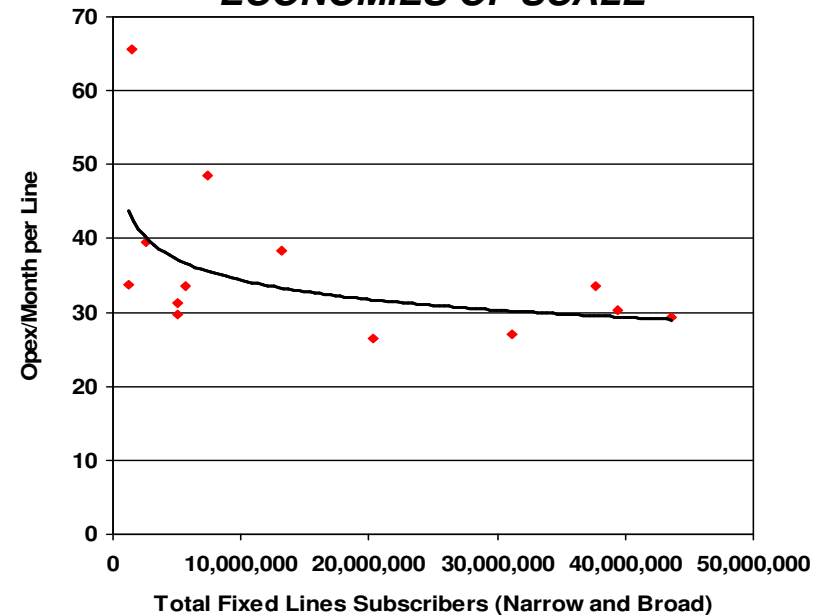


Total Subscribers



- Wireless economies of scale average 80% are driven primarily by the large fixed component of local radio network deployment and infrastructure costs
- Network sharing and MVNO policies allow new entrants and small players to benefit from economies of scale

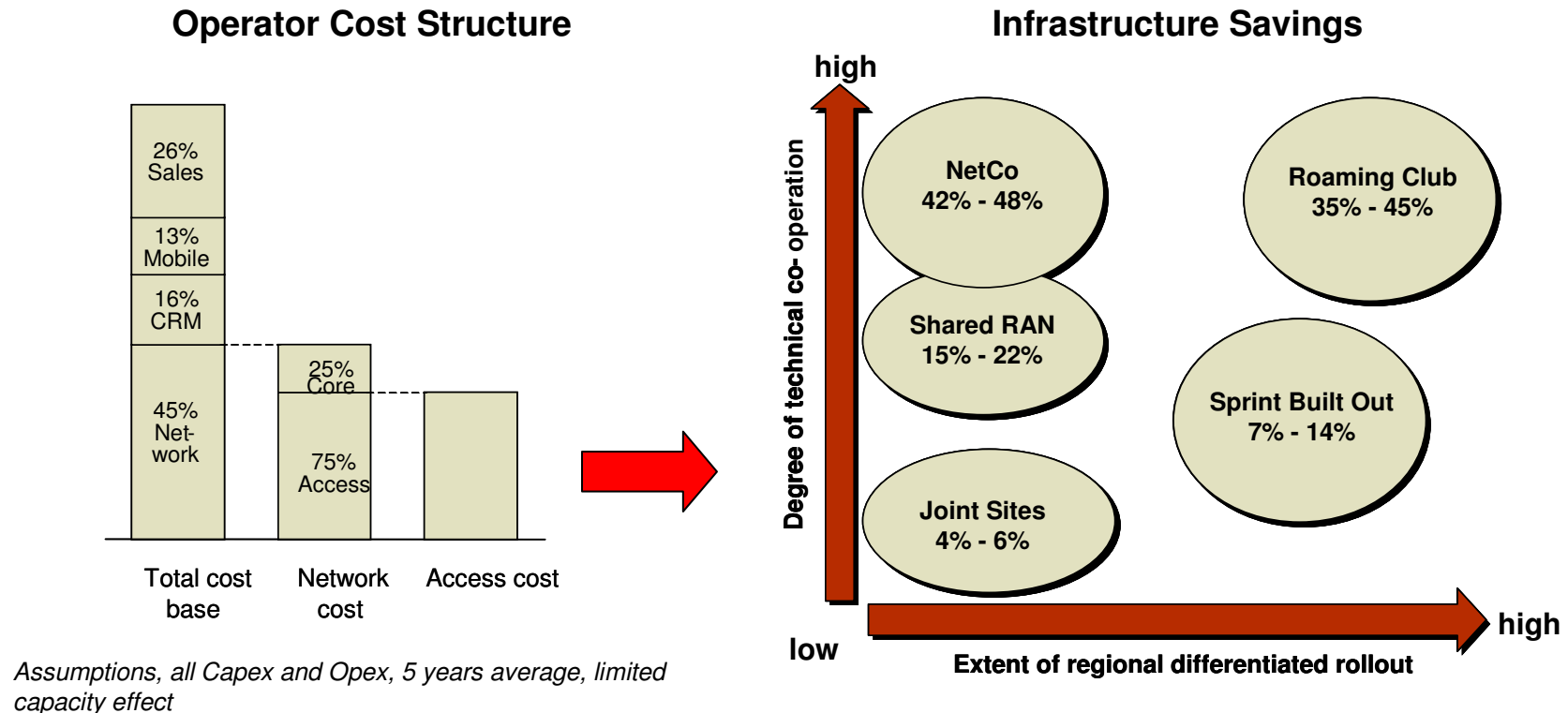
**EUROPEAN FIXED LINE OPERATOR ECONOMIES OF SCALE**



- Wireline economies of scale, while less pronounced than in wireless are driven by equipment costs, advertising, IT and other cost items
- Infrastructure sharing allow the development of broadband competition beyond two vertically integrated players

# Network sharing in the wireless sector is estimated to yield up to 48% reduction in access costs

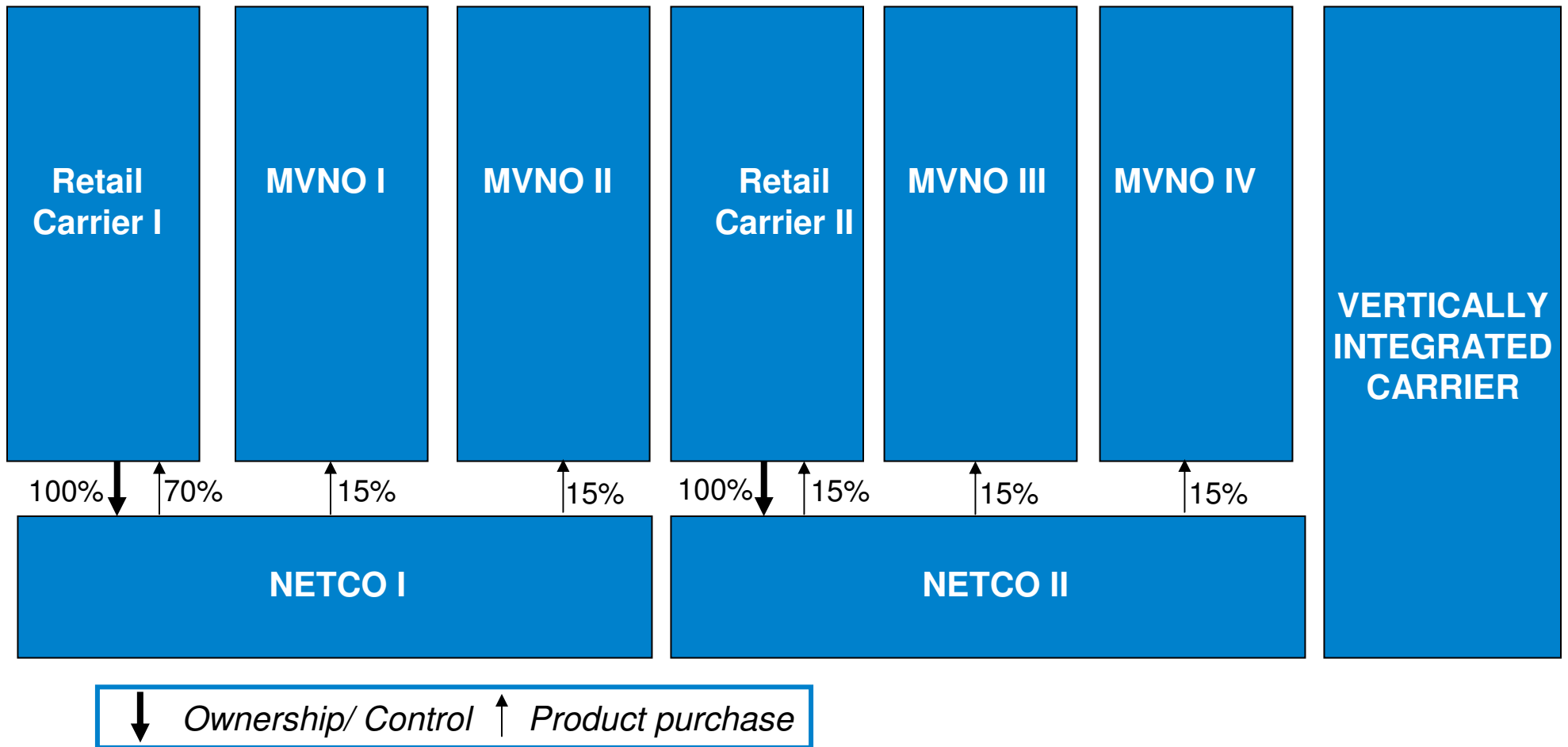
## IMPACT OF INFRASTRUCTURE SHARING ON OPERATOR'S COST STRUCTURE



**This justifies the agreement between Vodafone and Telefonica in Europe and similar agreements between carriers in North America**

# Wireless network sharing could be pushed to an industry model of wholesale/retail value chain fragmentation

## WIRELESS NETWORK SHARING INDUSTRY MODEL

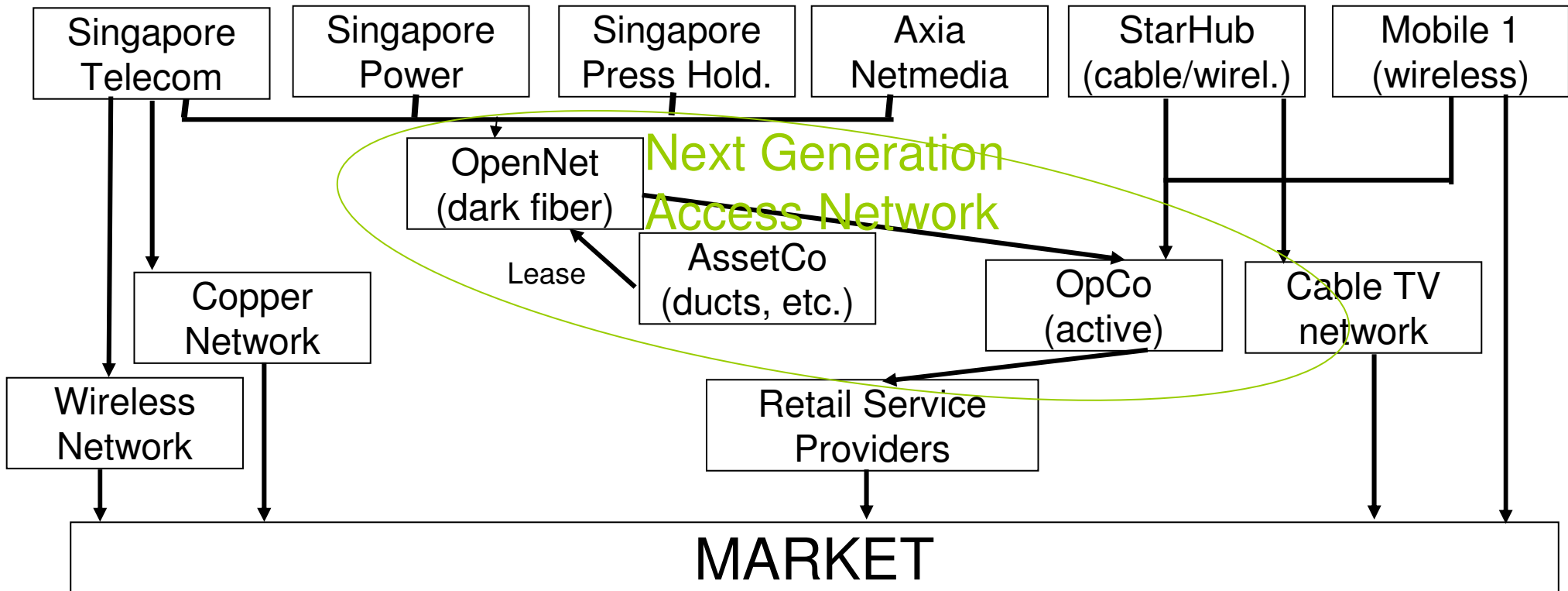


# Wireline infrastructure sharing can assume a variety of models

MODEL	CHARACTERISTICS	EXAMPLES
Structural/Functional Separation	<ul style="list-style-type: none"> <li>Local loop is spun off by incumbent into a fully owned (functional) or a standalone company (structural) offering access</li> </ul>	<ul style="list-style-type: none"> <li>United Kingdom</li> <li>Sweden</li> <li>New Zealand</li> </ul>
Layer 1 Separation	<ul style="list-style-type: none"> <li>Passive infrastructure is spun off by incumbent into an independent company</li> <li>Active layer is owned by another company</li> </ul>	<ul style="list-style-type: none"> <li>Singapore</li> </ul>
Local Loop Unbundling	<ul style="list-style-type: none"> <li>Incumbent offers access to its own infrastructure at a regulated wholesale price</li> </ul>	<ul style="list-style-type: none"> <li>European Union</li> </ul>
Multi-fiber model	<ul style="list-style-type: none"> <li>Incumbent constructs a four fiber model and sells IRUs to other entrants (submarine cable model) to share risk</li> </ul>	<ul style="list-style-type: none"> <li>Switzerland</li> </ul>
Risk sharing model	<ul style="list-style-type: none"> <li>Incumbent deploys fiber and allows entrants to buy access at time of construction with a risk-adjusted price</li> </ul>	<ul style="list-style-type: none"> <li>DTAG proposal</li> </ul>

# The Singapore model – a separation model - was deployed in order to fulfill the deployment of fiber in the local loop

## SINGAPORE: POTENTIAL INDUSTRY STRUCTURE





# The Swiss multi-fiber model represents an option to share fiber deployment risk with the incumbent

## SWITZERLAND: MULTI-FIBER MODEL COMPARED TO OTHER INFRASTRUCTURE SHARING

	NetCo's activities	OpCo's activities	Service Providers' activities
	Ducts and physical fiber	Data link and network layer	Application layer (services)
<b>Model 1 – «Multi-Fiber Model»</b>	2 carriers—Company A and B		n > 3 companies
	1 carrier—Company C		
	Company D	Companies E&F	
Model 2 – «One - Fiber Model»	1 carrier		n > 3 companies
Model 3 – «Dark - Fiber Model»	Company D	Companies J & K	n > 3 companies
		Companies E or F	

## Another wireline fiber sharing option under consideration is one of wholesale risk-sharing contracts

- Before roll-out, the “access seeker” (unbundler) enters into a binding commitment to buy a sufficiently large amount of bitstream accesses for a sufficiently long period of time.
- This obligation is independent from the actual market development and cannot be renegotiated (“sunk cost” for the unbundler as it is for the incumbent)
- If an “access seeker” does not invest upfront and is willing to wait until the market develops they can buy access through risk free contracts but that would entail a price premium to reflect the “wait and see” option value

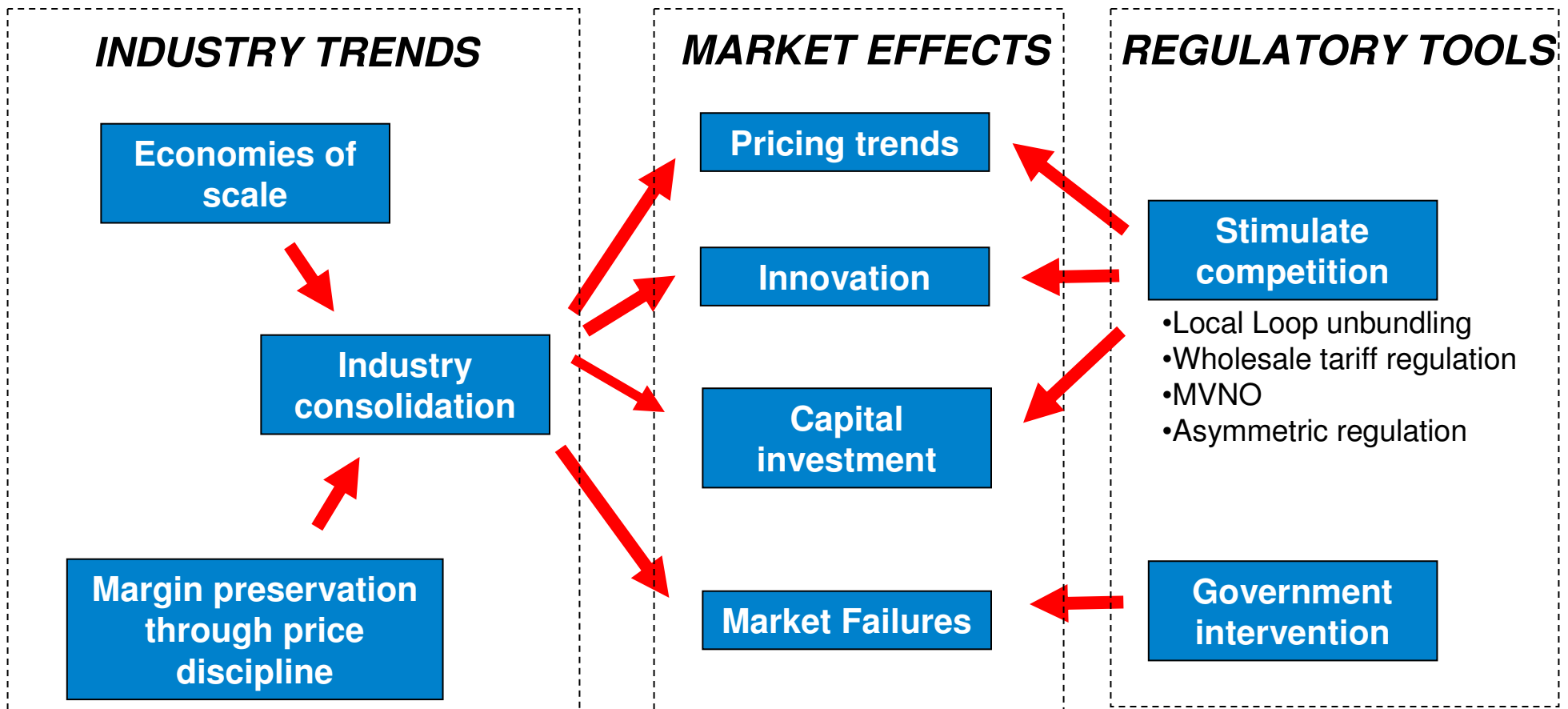
# Agenda

- Introduction
- Impact of telecommunications on the Israeli economy
- Future scenarios for the Israeli telecommunications industry
- Infrastructure sharing impacting future scenarios
- Conclusions

## In summary, decisions in the regulatory arena will have a significant impact on the future economic contribution of the telecom sector

- As shown, ICT in general and broadband in particular, have an important impact in fostering growth and employment
- However, a national program that opens the way to ultra-broadband platforms requires investment which tends to come from the private sector
- The competitive environment resulting from selected regulatory policies has an impact on the level of investment
- Two scenarios are open for development of the industry: each one carries positive and negative implications
- Regulation will have a significant impact on future industry performance
  - Tariffs (primarily interconnect rates and broadband wholesale access)
  - Spectrum allocation
  - Rules regarding industry structure in terms of restrictions to vertical integration of incumbent carriers
- The continuing regulatory pressure, combined with slowing industry growth will have an impact on industry performance
  - Wireless is reaching a saturation point in the industrialized world and in many emerging economies
  - Broadband penetration is slowing down in the United States, Japan and Korea and is expected to reach a similar stage in other industrialized economies within the next five years

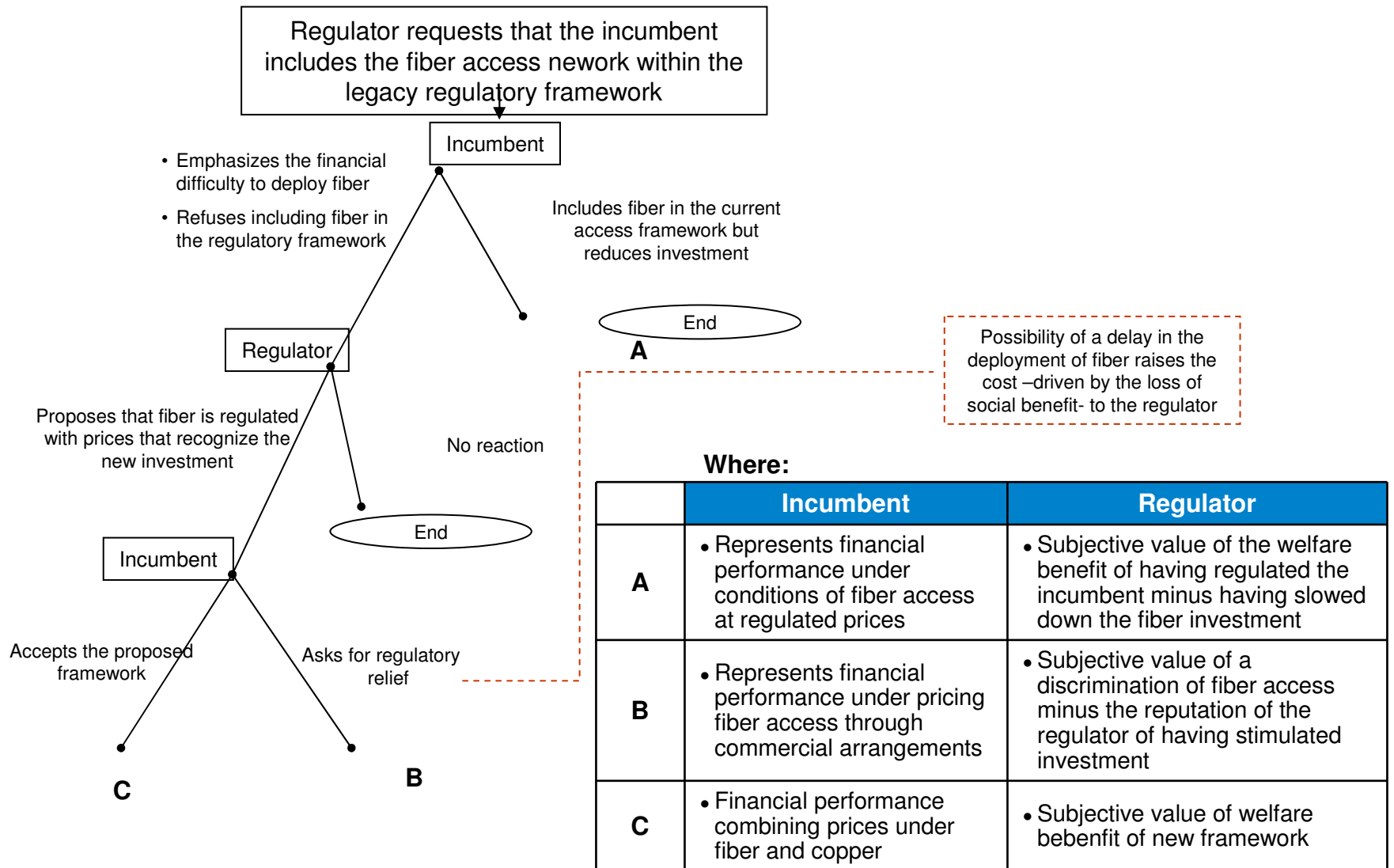
# A scenario of heightened competition challenges the regulator to benefit consumers while ensuring industry sustainability



**QUESTION: Does consolidation have a negative impact on consumers?**

**QUESTION: Does regulatory intervention have a positive impact on consumers and the industry?**

# The deployment of next generation access networks introduces another layer of regulatory conflict between the incumbent and the government

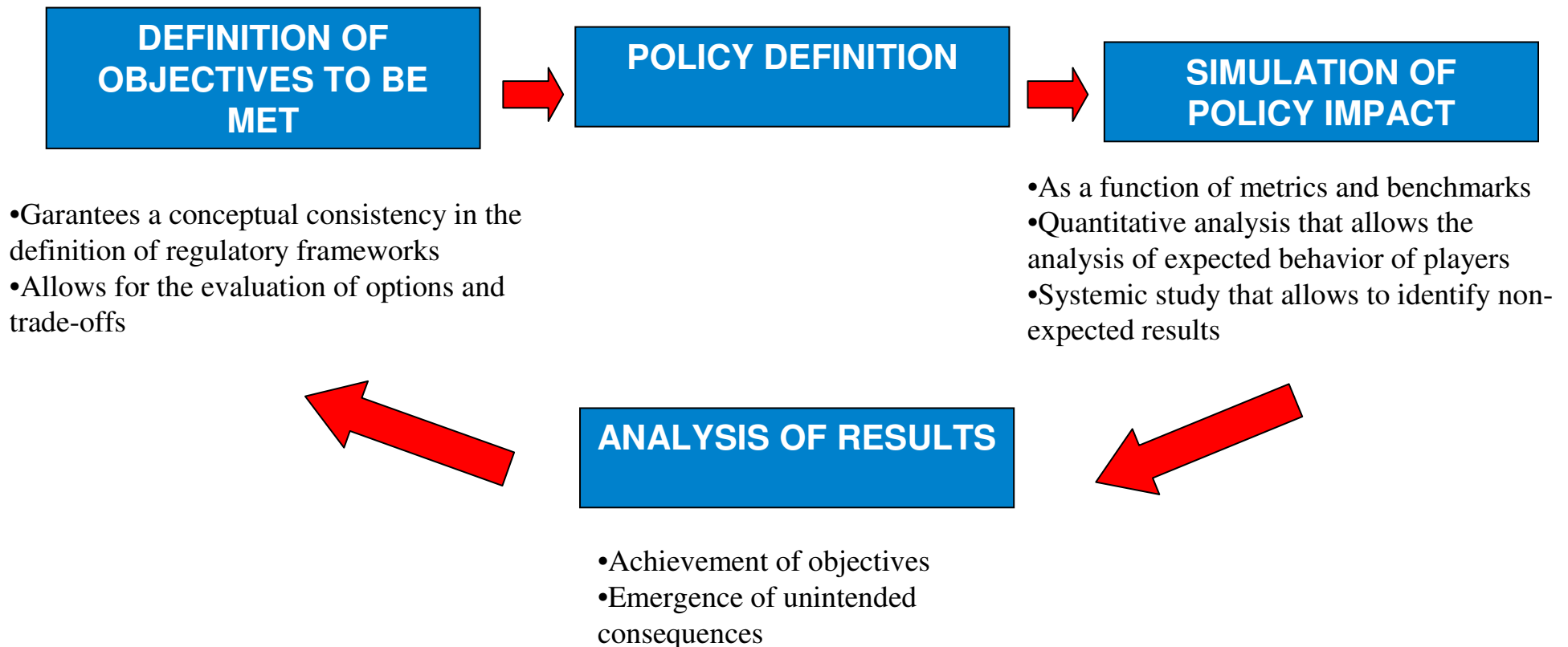


## It is critical that the regulator gains an understanding of potential outcomes of current regulatory and industry moves

- Several dynamics are at play in Israeli telecommunications
  - Will the telco incumbent react negatively to the regulatory and competitive pressure reducing its capacity to innovate and invest?
  - What will the frictional costs be of entry/exit of private equity (debt leverage, bankruptcies, job losses, etc.)?
- These dynamics are critical in terms of their potential impact of the sector on the Israeli economy
  - What happens if the current environment leads to under-investment in network deployment and innovation?

# A process aimed at formulating regulatory policies needs to consider an indepth analysis of expected results

## *REGULATORY POLICY FORMULATION CYCLE*





## We can help the Ministry of Communications at several levels

- Development of a National Broadband Plan that integrates the current initiatives within a comprehensive framework aimed at maximizing the short term and long term impact on the economy
- Conduct a simulation wargame that could formalize future competition scenarios, understand the behavior of industry players and determine potential outcomes
- Provide consulting support of the development of alternative regulatory approaches aimed at limit the negative impact on the industry of pro-competitive policies (e.g. network sharing agreements)

