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European broadband policy – regulation vs. Facilitation

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European broadband policy – regulation vs. facilitation

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1. Introduction

“Industrial policies – meaning policies by which governments attempt to shape sectoral allocation of the economy are back in fashion” (Greenwald & Stiglitz, 2012).

This paper will discuss the interplay between two different approaches to ICT policy – a regulatory and a developmental approach. The objective of a regulatory approach to telecom policy is to create a stable policy framework for a liberalized telecom market with real competition. The instruments in this approach are rulemaking and correction of market failures. However direct market interventions are to be avoided. This approach is theoretically supported by mainstream economics. The argument is here that a stable regulatory environment reduces transaction costs and stimulates investments (Spiller & Tommasi, 2008).

The developmental approach is to stimulate investments and the use of ICT through various public sector initiated activities. The instruments applied could be demand stimulation via public consumption or subsidies to use or supply ICT services. This includes direct market intervention e.g. in the form of public private partnerships providing public support to infrastructure development. This approach is supported by (Stiglitz, 1998) and in line with concept of the developmental state (Johnson, 1982)

Within the EU, the approaches of the regulatory state and the developmental state have been connected to two different streams of policy initiatives. The first stream focuses on reforming the telecom service industry through implementation of a series of regulatory packages, while the second stream has a broader perspective, as it includes the entire ICT ecosystem. This stream includes a series of consecutive development plans such as e-Europe, i2010 and Europe 2020.

The hypothesis to be tested in this paper is that both approaches can be observed in European ICT policy, but that the relative importance of each of these two policies has varied from time to time, and after a period with focus on regulatory policies there seems to be a revival of developmental oriented policies.

The approach will be to analyse regulatory trends through a review of EU policy documents in order to document possible changes in policy priorities with regard to development of a European broadband infrastructure.

Historically, public ownership has been the main mode of regulation of public utilities (including telecom) in Europe. According to Majone (1997), European countries were forced to change their mode of governance in direction of a regulatory mode of governance in response to the challenges created by increasing international competition and deepening economic integration within the EU in the late 1970s. This included privatization of public enterprises including public utilities, liberalization of markets, and regulatory reforms. With privatization, new modes of governance had to be developed.

The European telecom reform implemented in the 1990s has been successful in terms of market growth, but it has turned out that the regulatory mode of governance also has had its limitations. In the past decade it has been realized that the EU liberalization initiatives have been unable to create sufficient investments in network investments (Melody, 2013). Especially in rural areas, public initiatives are seen as needed if the objectives of the Europe 2020 are to be achieved.

The revival of the developmental mode of governance within the ICT area is related to ICT convergence and the growing importance of access to ICT services. The revival does not imply a return to Keynesian inspired policies practiced in the post-war period. Developmental initiatives must conform to a liberal market environment, and private enterprises are involved whenever it is possible, e.g. with the establishment of public private partnerships.

2. Regulatory and developmental functions of the state

The paper distinguishes between two different approaches to ICT policy – a regulatory and a developmental approach. This distinction is inspired by Chalmers Johnson (1982) and by Giandomenico Majone (1997). In his book on the Japanese post-war miracle, Johnson introduced the concept of the developmental state as opposed to the regulatory state. According to Johnson, the role of the state bureaucracy in a developmental state includes ‘first, to identify and choose the industries to be developed (industrial structure policy); second to identify the best means of rapidly developing the chosen industries’ (Johnson, 1982).

The developmental state is contrasted with the regulatory state, where the state is mainly concerned with facilitating economic competition, but not with direct intervention in substantive matters. Japan was an example of a developmental state while the US is mentioned as an example of a regulatory state. Johnson (1982) claims that state intervention and especially the role of the Ministry

of Trade and Industry (MITI) played an instrumental role in the successful economic development in Japan. In a later contribution, he suggests that other East Asian countries (Hong Kong, Taiwan, Korea, and China) each have developed their own versions of the developmental state (Johnson, 1999).

Majone (1997) distinguishes between three different types of public intervention: 1) Income redistribution, 2) macroeconomic stabilization, and 3) market regulation. According to Majone, governments in all countries are engaged in all of these three activities, but there are different priorities among countries. The objective of market regulation is the correction of market failures in order to achieve Pareto-optimal allocation of resources. The rationale for this kind of policy is thus rooted in neoclassical theory. Macroeconomic stabilization may involve regulatory as well as developmental types of interventions.

With inspiration from Keynes, fiscal and monetary policies were supplemented by what Majone (1997) calls more intrusive forms of capital allocation and nationalization of key sectors in post-war Western Europe. Majone (1997) labels a state, which is a planner, a direct producer of goods and services, and an employer of last resort, as a positive state. Although the positive state is linked to Keynes and the Social Democratic welfare state concept, the kinds of state interventions in the market are in line with the policies of Johnson's developmental state. However, the positive state and the developmental state are both defined in specific historical and geographical contexts. The concept of the developmental state was developed for an analysis of policy strategies applied by governments in East Asia in order to catch up with the more advanced western economies, while the concept of the positive state is developed for a comparison of governance regimes within Western Europe and North America. There are important differences between the two concepts. The positive state, for instance, focuses on stabilization and redistribution, while the developmental state focuses on economic growth. Nevertheless, compared to the regulatory state, they share the approach of direct government intervention in the market, and the policy instruments applied are, to a large extent, similar.

In table 1, inspired by Majone (1997), central characteristics of the developmental, the positive, and the regulatory states are presented with respect to main functions, instruments, main areas of political conflict, institutions, key actors, policy style, policy culture, and a political accountability. Majone includes in his comparison only the positive and the developmental states. The main characteristics of the development state are the authors' interpretation of the developmental state as defined by Chalmers Johnson.

It should be noted that although redistribution and economic growth is not included as main functions of the regulatory state, these objectives are addressed indirectly. The philosophy is that correction of market failures is a better way to foster economic growth than governmental initiatives such as facilitation of investments in ICT infrastructures.

An important argument against public investments in any sector is that according to neoclassical theory public investments will crowd out private investments, as they raise the national rate of capital accumulation above the level chosen by private investors and individuals may accordingly

adjust their intertemporal allocation of resources until the level of investments fit their preferences. Still, public investments may have a positive impact, if they increase productivity of other investments. An increase in return on investments will stimulate private investments even if investors' intertemporal preferences remain the same (Aschauer, 1989). Public investments in infrastructures can therefore be justified in areas, where the levels of private investments are considered inadequate.

An important difference between the different regimes can be seen in the role of the regulatory agency. Governance in the regulatory state to a large extent delegated to an agency, which although it is a governmental institution, is empowered by a high degree of independence. Furthermore governance is rule based and the level of discretion is minimized, as this is seen as a key to reduce transaction costs and to foster private investments in public utilities (Levy & Spiller, 1994), (Spiller & Tommasi, 2008).

According to Majone (1997), European countries were forced to change their mode of governance in direction of a regulatory mode of governance in response to the challenges created by increasing international competition and deepening economic integration within the EU in the late 1970s. This included privatization of public enterprises including public utilities, liberalization of markets, and regulatory reforms. Historically, public ownership has been the main mode of regulation in Europe (Majone, 1997). With privatization, new modes of governance had to be developed. Especially within the area of public utilities, privatization had to be accompanied by regulatory reform.

Majone (1997) observed a European trend towards the regulatory mode of governance. However, it seems that at least with regard to ICT the developmental governance mode has gained importance. One reason is that the regulatory instruments used - or at least the manner in which they have been used - according to some scholars (e.g. Melody, 2013), have proven to be insufficient to facilitate the development of broadband infrastructures at an adequate speed, and many countries are searching for alternative policy instruments (Falch, 2008). According to (Galperin, Mariscal & Vicens, 2013) a similar trend can be observed in Latin America.

The concept of the developmental state is applied in a recent study on European broadband strategies (Lemstra & Melody, 2014). In this study, the US is seen as a good example of a regulatory state, while South Korea applies the developmental model. Between these two extremes we find most of the EU countries. UK is leaning towards the regulatory model, while France is more oriented towards the developmental model. However, even in the US, a number of developmental initiatives have been taken (Falch and Henten, 2010).

The revival of the developmental mode of governance within the ICT area is related to ICT convergence and the growing importance of access to ICT services. The revival does not imply a return to Keynesian inspired policies practiced in the post-war period. Developmental initiatives must conform to a liberal market environment, and private enterprises are involved whenever it is possible, e.g. with the establishment of public private partnerships.

Table 1: Comparing developmental, positive and regulatory modes of governance

	<i>Developmental state</i>	<i>Positive state</i>	<i>Regulatory state</i>
<i>Main functions</i>	<ul style="list-style-type: none"> • <i>High economic growth,</i> • <i>Social welfare</i> 	<ul style="list-style-type: none"> • <i>Redistribution</i> • <i>macroeconomic stabilization</i> 	<ul style="list-style-type: none"> • <i>Correcting market failures</i>
<i>Instruments</i>	<ul style="list-style-type: none"> • <i>Guide posting, market-conforming methods of state intervention</i> • <i>Financing and tax incentives</i> • <i>Public Private Partnerships</i> 	<ul style="list-style-type: none"> • <i>Taxing</i> • <i>Borrowing</i> • <i>Public spending</i> 	<ul style="list-style-type: none"> • <i>Rule making</i>
<i>Main arena of political conflict</i>		<ul style="list-style-type: none"> • <i>Budgetary allocations</i> 	<ul style="list-style-type: none"> • <i>Review and control of rulemaking</i>
<i>Institutions</i>	<ul style="list-style-type: none"> • <i>Parliament</i> • <i>Ministerial departments</i> • <i>Publicly owned corporations</i> • <i>Local governments</i> 	<ul style="list-style-type: none"> • <i>Parliament</i> • <i>Ministerial departments</i> • <i>Publicly owned corporations</i> • <i>Welfare services</i> 	<ul style="list-style-type: none"> • <i>Parliamentary committees</i> • <i>Independent agencies and agencies</i> • <i>Tribunals</i>
<i>Key actors</i>	<ul style="list-style-type: none"> • <i>Political parties</i> • <i>Civil Servants</i> • <i>Corporate Groups</i> 	<ul style="list-style-type: none"> • <i>Political parties</i> • <i>Civil Servants</i> • <i>Corporate Groups</i> 	<ul style="list-style-type: none"> • <i>Single issue movements</i> • <i>Regulators</i> • <i>Experts</i> • <i>Judges</i>
<i>Policy style</i>	<ul style="list-style-type: none"> • <i>Discretionary</i> 	<ul style="list-style-type: none"> • <i>Discretionary</i> 	<ul style="list-style-type: none"> • <i>Rule-bound</i> • <i>Legalistic</i>
<i>Policy culture</i>	<ul style="list-style-type: none"> • <i>Corporatist</i> 	<ul style="list-style-type: none"> • <i>Corporatist</i> 	<ul style="list-style-type: none"> • <i>Pluralist</i>
<i>Political accountability</i>	<ul style="list-style-type: none"> • <i>Direct</i> 	<ul style="list-style-type: none"> • <i>Direct</i> 	<ul style="list-style-type: none"> • <i>Indirect</i>

Adapted from Majone (1997) with inspiration from Johnson (1982)

3. ICTs as enabling technologies

Telecommunications has since its inception, to an increasing degree, become one of the basic technological infrastructures of society. In that sense, it has ‘always’ been an important enabler for other societal sectors and functions. However, with the growing convergence of telecommunications and IT since the 1960s, ICTs have increasingly developed into being central communicational foundations for almost all other sectors and functions of society – not only as ‘elements’ or ‘infrastructures’ but the central change drivers for other sectors and functions. This is what was termed a new ‘technological paradigm’ by Giovanni Dosi (1982) in cooperation with Christopher Freeman (1982).

For 30+ years we have, according to the conception of Dosi (1982), been living in an era with ICTs as the basic technologies in the dominant technological paradigm. However, the major focus has not

from the beginning been on the sectors and societal functions using ICTs. This indeed applies to telecommunications, while discussions around IT including IT research have been much more pre-occupied with the use of IT in organizations. A whole research tradition has been built up around studying the adoption, implementation, and use of IT in organizations, namely Information Systems (IS) research. However, if one looks at the research and general public interest in the telecom area, most attention has been on the sector itself. Technological research on telecommunications has been concerned with increasing speed and reliability of telecom networks and services, and social science research on telecommunications has mainly been interested in the economics of telecom networks and services and regulation. The difference in attention between the telecom area and the IT area can, for instance, be illustrated by the differences in focus between the early EU research programs: RACE in the telecom area and ESPRIT in the IT area. RACE focused on the technological development of telecommunications, while ESPRIT was primarily concerned with the implementation and use of IT.

This, however, has changed. Not in the sense that the dominant focus in the ICT part of the new European Horizon 2020 research framework program has shifted away from technology developments. But the use part of 'the equation' plays a far greater role today. The enabling role of ICTs has come more to the fore. This could be interpreted in light of how Carlota Perez has extended the conceptual framework of technological paradigms (Perez, 2010). She has put forward the idea that when a technological paradigm matures, focus will shift from the technological basis itself to all the applications of the basic technologies and the social implications thereof. This has been seen in connection with previous technological paradigms and can also be seen with the present ICT based technological paradigm.

While such an abstract notion is helpful for conceptualizing the ongoing changes, the more specific developments also need to be discussed. With the increasing convergence of telecommunications and IT, telecommunications 'creeps' into the inside of companies and organizations. While telecommunications in the business market formerly was a set of technologies used primarily for external communications between different organizations, telecommunications now plays a crucial role internally in organizations with the converging information and communication technologies. Internet, which is the result of the convergence of IT and telecommunications, exemplifies this. Nowadays, Internet plays a central role in the organization and conduct of all businesses and other societal entities externally as well as internally.

One of the many implications is that different sectors and organizations will require an increasing influence on their communication infrastructures. Whereas formerly, they would leave it to the telecom providers to organize their external communications, there is a trend towards an increasing demand for taking part in and influencing the communication infrastructures. With the central role of ICTs in all business processes, the organization of the ICT infrastructures acquires a strategic position.

These developments constitute the background for the conception of ICTs as central enabling technologies. 'Enabling' may not be the most fortunate expression, as it assigns ICT to a second

order position. Nevertheless, the discussion around ICTs as enabling technologies intends to shed light on the central role of ICTs in all social processes. The implications in terms of regulations of telecommunications could be that the regulation of the telecom area needs to be further integrated into a broader set of regulations. This could call for a change in the organization of the regulation of telecommunications away from a stand-alone regulatory position towards a greater integration into a more generalized regulatory environment. This is, for instance, the claim that the former telecom regulator in Denmark, Jørgen Abild Andersen, has made (CMI conference 2013).

It could, on the other hand, be claimed that right from the start of the new telecom policies which were developed at the beginning of the 1990s, there was a strong focus on the broader societal potentials of the use of ICTs. At the EU level, the Delors plan (European Communities, 1993) dealt with these potentials, which since have been the focus of attention in numerous eEurope plans with Digital Agenda for Europe as the latest and present one.

The knowledge concerning the enabling character of ICTs has thus been present all the while. However, the demand for a new telecom specific policy and regulation was so pressing at that point in time that telecom policies and regulation had to have their own platform in terms of policies, regulation, and organizational structure. However, now that the telecom policies and regulation that were put in place in the late 1980 and the 1990s have been in force for some 20 years, the specific telecom policies and regulation do not have as prominent a position as before and can, to a greater extent, be subsumed under the more general ICT policies. This is, at least, how the argument for abolishing a stand-alone telecom regulatory institution could be formulated. And, it could even be strengthened by claiming that a stand-alone regulatory institution could be counter-productive under the present circumstances (Jørgen Abild Andersen at the CMI conference 2013).

In the EU context, the term Key Enabling Technologies (KETs) is used for technologies like nanotechnology, micro- and nanoelectronics including semiconductors, advanced materials, biotechnology and photonics (European Commission, 2012). These are considered the building block for the present and future technology developments. As can be seen, some of the KETs are important elements in telecommunications. But there is a conceptual difference between the use of the concept of key enabling technologies and what has been termed enabling technologies in this paper. In the framework used in this paper, the term enabling technologies is seen in connection with the conception that ICTs constitute the central technologies in the present dominant ICT technological paradigm. KET is a broader term relating to different prominent industrial areas and focusing on a broader set of technologies.

4. The European Telecom/ICT Sector Reform

The concepts of regulatory and developmental states were developed in order to characterize national policies. The same concepts can be used to analyse EU policies. However it should be noted that EU is not a nation and that the policy tools available in this context are slightly different from those to be applied at the national level. Certain policy areas are outside the direct control of

the EU governmental institutions. These include key issues such as stabilisation policies based on public spending and taxation. On the other hand the EU system can develop guidelines and they can also co-ordinate and harmonize policies carried out at the national and regional levels. Therefore it can be argued that the arm's length governance carried out at the EU level is more powerful than governance carried out at the national level, although it is the national governments who are responsible for the actual implementation.

As noted in the previous section, the European ICT policy is considered to be on "a middle course" between regulation and governmental interventions (Huigen & Cave, 2008). In Asia, Japan, South Korea, and Singapore have all intervened directly in the market by providing financial incentives for investments in broadband. Similar policies are adopted in Australia, while United States for long have had a strong focus on providing platform competition through regulation.

The European Commission has defined the overall agenda for the ICT policy. But, as it follows from (Lemstra & Melody, 2014), there are important variations in national strategies adopted by the EU member states. For instance Sweden has for many years applied a developmental strategy providing state aid to infrastructure development, while UK has retained a regulatory approach.

Usually the European telecom/ICT sector reform is associated with the process initiated by the publication of the Green paper in 1987 and leading to a fully liberalized telecom market in 1998. However, the EU initiatives in this area have followed at least three different tracks. The first track started well before 1987 and focused on the telecom manufacturing industry and included funding of precompetitive research and standardization. The second track focused on reforming the telecom service industry, while the third track started around 2000 and has a broader perspective, as it includes the entire ICT ecosystem.

The objective of the regulatory track was to create a fully liberalized European telecom market with real competition. William Melody has identified three different phases in the realisation of this vision (Melody, 2013):

1. The establishment phase (1987-1998)

In this phase the legal framework for a competitive telecom market were created and the national regulators established created. The focus in this phase was on the reforming the national monopolies. The most important service was voice telephony.

The regulatory framework was designed to stimulate competition in the market for broadband services as well as in other telecom services. In particular, a demand for unbundling of the local loop has stimulated competition in DSL services. However, there was no demand for separation of different kinds of networks and in several member states the incumbent operator owned telecom as well as cable networks, and this limited facility-based competition in those countries.

2. The implementation phase (1998-2009)

In this phase the liberalization was extended to cover the new member states in Eastern Europe. Along with the ongoing convergence process more attention was paid to new services and networks. In addition there was a gradual shift in the focus from service based to infrastructure based competition.

3. Maturity phase

In the maturity phase the focus has been on consolidation and investments than on competition. A key issue has in this context been how to expand coverage of high speed networks. This has led to more focus on the entire ICT ecosystem, and more developmental initiatives as those taken in the third track.

The rationale for increased focus on investments rather than on competition has been a sluggish development in telecom investments since year 2000. It can however be argued that the main reason for this is that ICT equipment becomes cheaper and cheaper, and that the ICT investment ratio is under estimated. The development in the mobile sector illustrates this very well, as the sector has experienced a decline in revenues, while the range of services has been expanded and the traffic has continued to grow at high rates.

Another argument is that the regulatory reform was initiated in a period, where competition on the existing well established copper infrastructure was needed. Today a key issue is to make a new (fibre based) infrastructure available by stimulating network investments. So far the regulatory remedies applied in European regulation has not been successful in encouraging this type of investments.

The EU policy initiatives on the ICT ecosystem in the third track include a number consecutive plans and programmes starting with the e-Europe in year 2000, i2010 in 2005 and the latest Digital Agenda from 2010 and onwards. In all these programmes both usage and availability of Internet and broadband services play a key role. The remedies include ICT/telecom sector reforms as well as a broad range of initiatives stimulating supply and demand. A large number of these involve different types of PPP. A part of the EU structural funds are being used for this purpose.

The eEurope programme was initiated in 2000 as a Commission initiative for the special European Council of Lisbon (CEC, 2000). The programme has later been followed with the eEurope 2005 programme (CEC, 2002) and i2010 (CEC, 2005). The eEurope plan 2000–2002 had three overall objectives: Cheaper, faster and more secure Internet, investment in people and skills and greater use of the Internet. In the eEurope 2005 plan, these aims were replaced with modern on-line public services, dynamic e-business environment, widespread availability of broadband access, and secure information infrastructure (CEC, 2003). Both plans included actions stimulating network as well as content development.

This dual perspective of service and infrastructure development is most clearly formulated in the 2005 plan, where the mutual dependence between network development and content development is recognised and public action was recommended to correct this market failure: 'Funding more advanced multimedia services depends on the availability of broadband for these services to run on,

while funding broadband infrastructure depends on the availability of new services to use it. Action is, therefore, needed to stimulate services and infrastructure to create the dynamic where one side develops from the growth of the other (CEC, 2003, p. 14).

This is the typical market failure argument used for implementing a developmental industrial policy: In order to achieve the most favourable development, it is necessary to help the market to take the right decisions.

Both plans included a large number of actions points, but none or very few of these points included initiatives that would be termed as industrial policy in the supply oriented traditional sense. However, they included the development of a wide range of public sector applications such as e-learning and e-health and the provision of broadband access to public institutions. In this way, the public sector can stimulate broadband development by increasing the demand for network access directly as well as by the provision of content stimulating demand for broadband access in the private sector. eEurope also included a large number of initiatives involving the private sector. These initiatives included support to R&D in telecom networks as well as applications like e-business. The objective of many of these initiatives was to develop pilots, which could inspire other parts of the private sector. Finally, the plans included a continuation of the telecom reform process and measures for improvement of legislation in order to facilitate e-business.

Although the 2005 plan stated the importance of the supply side, the only really new initiative, in addition to a continuation of the telecom reform process, was a suggestion to finance network development in less favoured regions, e.g. by the use of structural funds. This initiative was maybe the one most in line with a developmental oriented policy.

The i2010 programme continued the previous approach but shifts priorities slightly. i2010 is composed of three “i”s: information space, which is basically an adaptation of the regulatory framework, innovation and investment in ICT research, and inclusion, which includes e-government and e-health. In other words, i2010 was essentially a re-branding of unchanged policy.

The current programme Digital Agenda for Europe, which is part of the Europe 2020 initiative provides support to research and includes other developmental initiatives supporting both service and infrastructure development. Financial support is provided via the “Connecting Europe Facility”. This facility has a budget of 1.14 Billion Euro. The focus is on service development, as only 170 million goes to broadband, while the remaining 970 million is devoted to development of digital service infrastructures – especially cross-border services. However, the performance indicators defined for the Digital Agenda programme are dominated by targets on broadband access and Internet usage.

The Digital Agenda is supported by “An Investment Plan for Europe” (EC, 2014). The ambition of this plan is to mobilize at least EURO 315 billion in additional public and private investments in three years. A new European Fund for Strategic Investments will be created in collaboration with the European investment bank. This fund will be used to boost private investments in energy, transport, telecommunications, and other sectors of strategic importance.

The background for this initiative is not rooted in specific investment needs for instance in communications infrastructure. The point of the departure is a drop in investments of 15% following the financial crisis in 2007. The targets set by the plan are not specific in terms of broadband coverage, energy efficiency or similar. The targets are purely financial. This indicates that the main objective of the plan rather is macroeconomic stabilisation than fulfilment of an urgent investment need. The programme may indeed contribute to the Digital Agenda targets for Europe 2020, but it is not its primary objective.

Conclusion

Within the area of ICT, EU policies have included regulatory as well as developmental initiatives. The EU initiatives have followed at least three different tracks. The first track initiated by the EU Commission focused on the telecom manufacturing industry and included funding of precompetitive research and standardization. Even though these activities carefully were defined in a way so market distortions were to be avoided, the first track is clearly in line with the developmental mode of governance. The second track focuses on the liberalization of the telecom service industry and was introduced with the Green Paper in 1987 (CEC, 1987). The aim was to stimulate growth and competition on a common European wide telecom market, and the instruments were privatization, liberalization, and regulation.

Although the telecom reform has been followed by an impressive market growth, it has turned out that the regulatory mode of governance has its limitations. William Melody (2013) talks about 'the failure of the liberalization policies' and discusses suggested alternative policy frameworks including public investments as the driver for broadband network development. The third track can be seen as such an alternative policy framework. It has attracted growing attention within the past decade and has a broader perspective than the two other tracks, as it embraces the entire ICT ecosystem and includes a number of developmental initiatives stimulating the use of ICT applications such as e-government and e-health.

During the process of creation of the EU internal market, it has been important to remove all barriers for international trade between member states. This included national subsidies as well as other measures favouring domestic industries. On the other hand, it has been important to ensure development of the European industry in competition with USA and East Asia.

A number of East Asian countries have for many years been ahead of Europe, both with regard to coverage of ICT infrastructures and with regard to development and use of advanced applications. They have achieved this by a deliberate developmental strategy. USA has been lagging behind parts of Europe, but during the past few years they have experienced a high growth in broadband facilities. This is not the result of a developmental policy, but a regulation aiming at establishment of multi-platform competition. Triple play, Netflix and the i-phone revolution have all contributed to this.

European policy has been somewhere in the middle, but it has been less successful than the strategies applied in USA and in East Asia. The series of regulatory packages has proved insufficient to stimulate investments, and since the financial crisis, the EU has put more emphasis on developmental policies. The question is whether this strategy can be implemented with the same level of success as in East Asia. Europe still applies a more mixed strategy with wide variations from country to country. On the other hand, adoption of the American strategy might be even less feasible.

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