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The Case for a Latvian Version of the Obama Broadband Package

A BICEPS and SSE Riga Report*

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Executive Summary

The paper investigates whether the evidence suggests that a broadband package on the lines of the Obama package in the US or the Digital Britain initiative in the UK could be an appropriate instrument in recession-hit Latvia. The idea would be to use the opportunity of the recession to create a 21st century digital infrastructure which would boost productivity and growth. Using the three pronged framework of infrastructure, readiness and use developed by Fornefeld, Delaunay and Elixmann (2008) it is shown that Latvia lags behind most of the EU in most broadband indicators. Latvia also lags in productivity with both manufacturing and services managing only 50% of the productivity level of the EU-27. A broadband development programme offers a horizontal level policy option to boost productivity, thereby avoiding the pitfall of trying to prioritize individual sectors. However, a programme is needed as well as a managing institution and most importantly funding. Perhaps the re-constituted eSecretariat now located at the Ministry of Regional Development and Local authority Affairs could serve as a managing institution. As for funding, perhaps the 4% allocated to the information society in the 2007-2013 structural funds programming period could be used or even increased. Also, Latvia is finally getting in place the legislation for public private partnership and digital development represent a potentially attractive area for such project.

1. Introduction

Latvia is effectively in what can be called 'economic freefall': GDP in the first quarter of 2009 fell by 18% year on year and the Bank of Latvia now expects a GDP decline of 16.5% for the year as a whole, all forecasters expect GDP decline to continue in 2010, the latest monthly unemployment rate is 16.1% (up from about 6% a year ago) and rising. What should be done? At one level it is clear that macroeconomic recovery must await recovery in Europe and the world, though Latvian pain could be eased by an adjustment of its overvalued currency. Such adjustment will surely come but this is not the place for that discussion. Rather, here the issue is what to do in order to ensure that Latvia can take maximum advantage of the recovery when it does come – as it surely will[3].

Everyone agrees that the medium and long term answer is to create a higher productivity economy. But how to achieve this? Here in Latvia, there is a tendency to think in terms of identifying and supporting priority sectors. Often it is argued that so-called 'high value-added' sectors should be prioritized, and there is the implicit belief that if only such sectors could be expanded this would result in a 'high value-added' economy. This kind of reasoning involves a number of fallacies. Firstly, there is the lack of precise meaning of the concept of a 'high value-added' sector or activity [4]. Secondly, even if a activity has been correctly identified as desirable from a socio/economic point of view how should it be supported – just throwing money at it may simply waste the money. Thirdly, within the economics profession, it has long been recognised that a policy aimed at 'picking winners' is an inferior form of industrial policy, and indeed this is entrenched in EU state aids legislation which in most circumstances prohibits aid programmes aimed at specific sectors. So, the task is to identify actions that operate in a horizontal way to boost productivity. Recent developments in both the US and in other European countries

[3] Schumpeter whose analysis of business cycles is rightly celebrated, though not always acted on, once said "every boom is followed by depression and every depression by a boom".

[4] The term 'high value-added' is typically used without any thought given to what it really means. In order to compare value added across economic activities one needs a denominator ie value added *per something*. Thus it might be 'value-added per worker'. Once this is done it is clear that high value-added per worker must depend on the amount of capital per worker employed in the activity and is in no way an indicator of the social or economic merit of particular activities. Paul Krugman's example of potato crisps as one of the highest value-added per worker activities in the US provides a neat *reductio ad absurdum* argument.

provide possible models for horizontal action that is intended to work through the promotion of a more comprehensive digital society..

In the US the Obama administration has come up with a crisis package that includes 37 billion USD on digital related infrastructure expenditures the aim of which is to boost productivity and jobs. Other countries, including the UK and France, seem likely also to take a similar route. The idea is to take the 'opportunity' that the recession gives to create a '21st century infrastructure'. It is argued eg in the report by Fornefeld, Delaunay and Elixmann (2008) (hereafter FDE) on behalf of the European Commission, that higher broadband penetration directly and indirectly spills over to the rest of the economy – broadband is a general-purpose technology with effects not just in the telecoms industry, but all over the economy, as it enables new business models, processes and services thereby creating jobs and GDP growth. The presence of spillovers, of course provides an argument for public intervention since market agents may not be able to fully internalise the beneficial spillover effects and hence the market may undersupply the infrastructure.

The aim of this paper is to examine the case for an equivalent of the Obama package for Latvia. The next section outlines a theoretical and empirical framework for addressing the economic impact of broadband. This is followed by a section that sets out the basic facts of broadband development in Latvia as compared with the rest of Europe as well as comparative productivity levels in selected sectors. The final section examines and discusses the kind of interventions that might work in the Latvian context.

2. The theoretical framework

The traditional approach to analyzing the impact of broadband represents a *provider oriented* focus and typically is based on market volumes and connectivity in the broadband telecommunications sector as measured by the development of the broadband infrastructure and the development of broadband penetration in households and enterprises. The FDE approach combines the traditional approach with a *user-oriented* component. This reflects the view that telecommunications services are a way to provide a wide range of value-added services over electronic networks. These services ease

communication between individuals, public services and companies. The most important economic impacts of broadband originate in these value-added services.

Analysis of the economic impact of broadband development at the enterprise level points to a set of interconnected factors that collectively determine impact. This is established in a lucid and comprehensive way by FDE, but is also the approach that underpins the analysis presented in *Digital Britain: Interim Report* (January 2009)

According to FDE the impact of broadband depends in a complex way on both infrastructure and what they call 'broadband readiness' where both infrastructure and readiness are complex phenomena that cannot simply be measured in a one-dimensional but instead need to be characterized by a series of individual indicators. Thus the 'level' of broadband infrastructure is a result of the development of a variety different technologies, each with its own characteristic and dimensions. FDE have constructed a composite broadband infrastructure measure that is based on 13 individual indicators. These are:

Available broadband infrastructure

- DSL coverage
- Cable modem coverage
- UMTS coverage

Existing network infrastructure

- Fixed-link telephone penetration
- Cable TV penetration
- Average population per telephone exchange

Demand-side aspects

- GDP per capita, purchasing power
- Fixed broadband penetration
- UMTS penetration

Other

- Intermodal competition (Herfindahl–Hirschman Index based on market shares of different technologies)
- Share of local-loop unbundling
- Incumbent's market share
- DSL coverage in rural areas

Similarly, for broadband readiness, FDE have constructed a composite indicator based on the following seven indicators:

Access to a personal computer

- Computer penetration in households

Technical competencies

- IT skills (high level, Eurostat definition)
- Human resources in science and technology
-

Early access points

- Broadband access in large enterprises
- Broadband access in schools

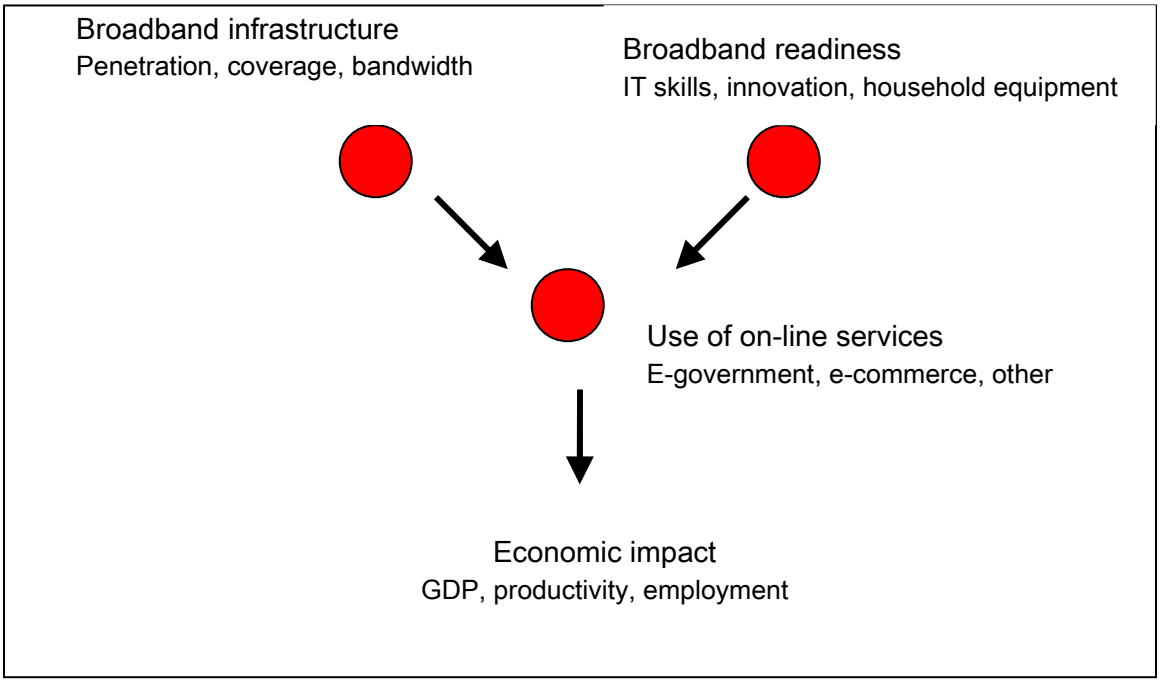
Innovation

- Research and development expenditure
- Innovation expenditure in SMBs

The availability of infrastructure together with readiness combine to determine the use of online services[5], and use in turn determines the economic impact, firstly in terms of impact at the micro or enterprise level. These theoretical relationships are schematically illustrated in Figure 1.

[5] FDE use 14 key indicators to define a composite use of online services indicator. These are listed in Annex 1.

Figure 1: Theorising the economic impact of broadband development



Source: Fornfeld, Delauny and Elixmanm (2008)

Empirical research by FDE suggests that in the EU the 66% of growth of the use of online services can be explained by the growth of broadband infrastructure while the growth of broadband readiness accounts for 34% of the growth of broadband use (see FDE p32).

3. The facts in a European context

3.1 Broadband development

How does the Latvian broadband situation measure up in a European context? FDE have used a form of statistical cluster analysis to group European countries according to broadband development using the three composite indicators. They have identified four groups:

- Advanced knowledge societies comprising Austria, Belgium, Denmark, Finland, Luxembourg, the Netherlands, and Sweden.

- Large industrial countries: France, Germany, Italy, Spain and the UK. These are countries which represent nearly three quarters of EU GDP but which have faced some difficulties in full developing broadband over all their territory.
- Quickly developing: Ireland, Czech Republic, Estonia, Hungary, Malta, Lithuania, Portugal and Slovenia. These are countries who are modernizing their economies and have reached levels of broadband development close to that of the large country group.
- Less developed broadband: Bulgaria, Greece, Cyprus, Latvia, Poland, Romania, and Slovakia. As the group name suggests these are countries who have been lagging the development of a knowledge economy based on broadband.

Thus unhappily, Latvia was located by FDE in the 'less developed' group. However, the FDE exercise was undertaken on 2006/7 data and in this area things can move fast. It is of interest therefore to see where Latvia is located in terms of the latest data which is for 2008. It has not been possible to construct the FDE indicators, so the following presents and discusses some selected individual infrastructure, readiness, and use indicators.

Table 1 illustrates the development of the broadband penetration rate since 2002.

Table 1: Broadband penetration rate: number of broadband access lines per 100 inhabitants

	2002	2003	2004	2005	2006	2007	2008
EU-27	:	:	:	:	:	18.2	21.7
Denmark	7.4	10.4	15.6	22.0	29.6	37.2	37.4
Estonia	:	:	7.6	11.1	16.6	20.0	23.6
Latvia	:	:	1.5	3.7	6.8	11.6	16.3
Lithuania	:	:	2.5	5.0	8.4	12.7	16.1
Slovakia	:	:	0.4	1.5	4.0	6.9	9.6
Finland	3.0	6.6	11.0	18.7	24.9	28.8	30.7
Sweden	4.6	8.6	12.1	17.1	22.9	28.3	32.5
United Kingdom	1.6	3.7	7.4	13.5	19.2	23.8	27.5

Source: Eurostat

It can be seen that Latvia has improved rapidly on this indicator and has in fact overtaken Lithuania, which was categorized by FDE as one of the 'quickly developing' group.

Latvia has also pulled away from Slovakia and most other members of the 'less developed' group (not shown in Table 1). So, arguably, on this indicator Latvia should be considered as belonging to the 'quickly developing' group but nevertheless remains well behind Estonia, not to mention the 'industrial' or 'advanced' country groups.

Tables 2 and 3 show the development of broadband connections in selected countries for households and businesses respectively.

Table 2: Development in % of households with a broadband connection.

Selected countries

	2003	2004	2005	2006	2007	2008
EU-27	:	15	23	30	42	49
Denmark	25	36	51	63	70	74
Estonia	:	20	30	37	48	54
Latvia	:	5	14	23	32	40
Lithuania	2	4	12	19	34	43
Finland	12	21	36	53	63	66
Sweden	:	:	40	51	67	71
United Kingdom	11	16	32	44	57	62
Iceland	:	45	63	72	76	83
United States	20		:	:	55	:

Source Eurostat

For households the situation has improved in Latvia quite strongly since 2006 but no more so than in the EU-27 as a whole, so Latvia's relative position remains much the same . In particular it remains below the EU-27 average and behind neighbouring Estonia and Lithuania. On the other hand, broadband connections among enterprises have improved only marginally since 2006 and remain behind both the EU-27 average and Estonia, but ahead of Lithuania and ahead of Poland and Romania.

Table 3: % of enterprises with a broadband connection selected countries

	2003	2004	2005	2006	2007	2008
EU-27	:	46	62	73	77	81
Denmark	69	80	82	83	80	80
Estonia	:	68	67	76	78	88
Latvia	:	45	48	59	57	62
Lithuania	:	50	57	57	53	56
Luxembourg	39	48	64	76	81	87
Poland	:	28	43	46	53	59
Romania	:	7	:	31	37	44
Finland	65	71	81	89	91	92
Sweden	62	:	83	89	87	89
United Kingdom	27	50	65	77	78	87
Iceland	20	:	:	95	:	99

Source: Eurostat

In terms of use the Latvian record is mixed. Thus table 4 shows that the number of people regularly using the internet in Latvia is about the same as the EU-27 average, but clearly less than in the 'advanced' countries. On the other hand, when it comes to specific uses eg internet purchases or orders, then Latvia is way behind the EU-27 (Tables 5 and 6)

Table 4: % of individuals regularly using the internet

	2003	2004	2005	2006	2007	2008
EU-27	:	36	43	45	51	56
Denmark	64	70	73	78	76	80
Estonia	:	45	54	56	59	62
Greece	14	17	18	23	28	33
Italy	25	26	28	31	34	37
Latvia	:	27	36	46	52	57
Lithuania	20	26	30	38	45	50
Romania	:	10	:	18	22	26
Finland	58	63	62	71	75	78
Sweden	69	75	76	80	75	83
United Kingdom	46	49	54	57	65	70
Iceland	75	77	81	84	86	88

Table 5: % of individuals who have purchased good/services over internet in previous three months

	2002	2003	2004	2005	2006	2007	2008
EU-27	:	:	15	18	20	23	24
Bulgaria	:	:	1	:	2	2	2
Denmark	24	16	22	26	31	43	47
Estonia	:	:	4	4	4	6	7
Latvia	:	:	2	3	5	6	10
Lithuania	:	1	1	1	2	4	4
Poland	:	:	3	5	9	11	12
Portugal	2	2	3	4	5	6	6
Romania	:	:	0	:	1	2	3
Slovakia	:	:	6	6	7	10	13
Finland	11	14	24	25	29	33	33
Sweden	24	21	30	36	39	39	38
United Kingdom	25	24	28	36	38	44	49
Iceland	:	20	25	28	31	32	32

Table 6: % of enterprises having received orders on-line in previous 12 months

	2003	2004	2005	2006	2007	2008
EU-27	:	13	12	14	15	16
Denmark	18	25	32	34	33	20
Estonia	:	8	8	14	7	11
Latvia	:	:	1	2	2	6
Lithuania	:	5	6	13	14	22
Portugal	3	6	9	7	9	19
Romania	:	:	:	2	3	3
Finland	18	17	17	14	15	:
Sweden	13	20	23	24	27	19
United Kingdom	18	29	25	30	29	32
Iceland	12	:	:	22	:	21
Norway	13	13	26	28	32	30

Source: Eurostat

At the regional level there exist disparities in internet access, but these are not severe. See Table 7.

Table 7: % of households with access to internet by regions of Latvia

	2004	2005	2006	2007	2008
LATVIA	14.7	30.5	42.2	50.5	52.8
Riga region	21.2	42.3	52.6	60.4	60.4
Pieriga region	10	30.4	47.5	59.5	57.8
Vidzeme region	18.8	26.7	37.4	...	43.6
Kurzeme region	13.4	23.8	41.6	48.1	52.8
Zemgale region	12.3	19.4	33.8	48.4	50.3
Latgale region	6	21.4	24.1	32.3	39.5

Source: CSB

3.2 Productivity

Latvia's GDP per capita at PPP exceeds only Poland, Romania and Bulgaria among EU-27 countries. Hence it obvious that in general productivity must be low. However, it is of interest to see how Latvia fares in some individual sectors. Figures 2 and 3 illustrate relative productivity levels in manufacturing and services as compared with the EU-27 average. Figures 4 and 5 illustrate relative productivity in real estate, renting and business activities and financial intermediation respectively. It is a dismal fact that in Latvia productivity in both manufacturing and services is about 50% of the EU average. Only in financial intermediation is the Latvian productivity level close to the EU average.

Figure 2: Labour productivity in manufacturing (2006), EU27 = 100

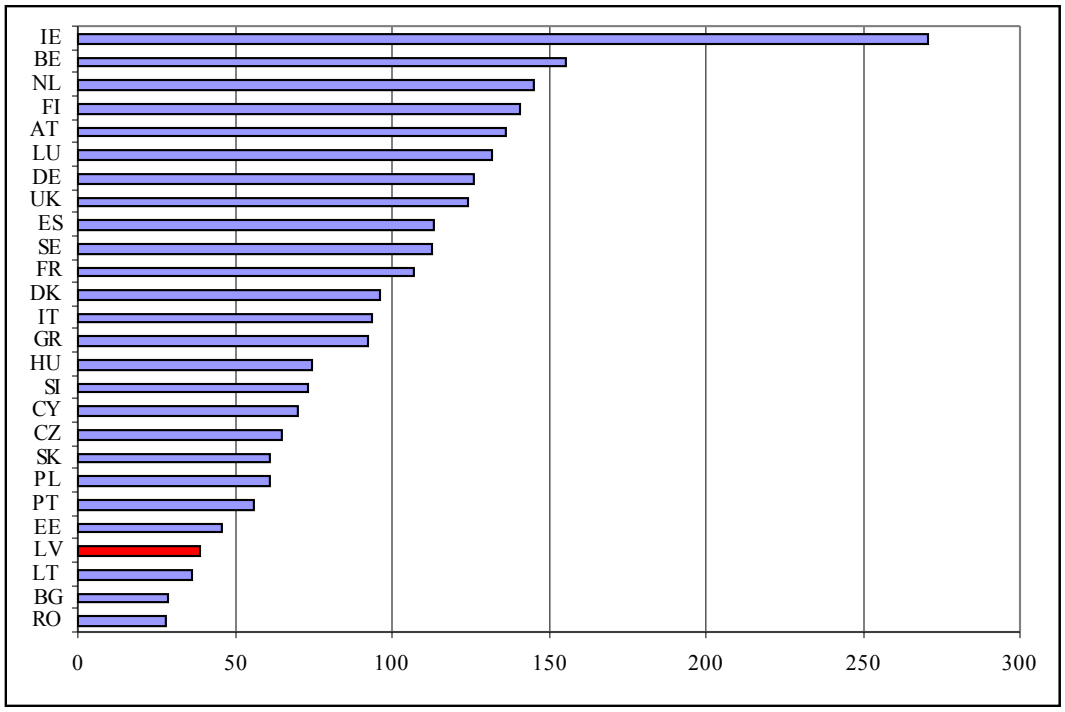


Figure 3: Labour productivity in services in 2007, % of EU-27 average

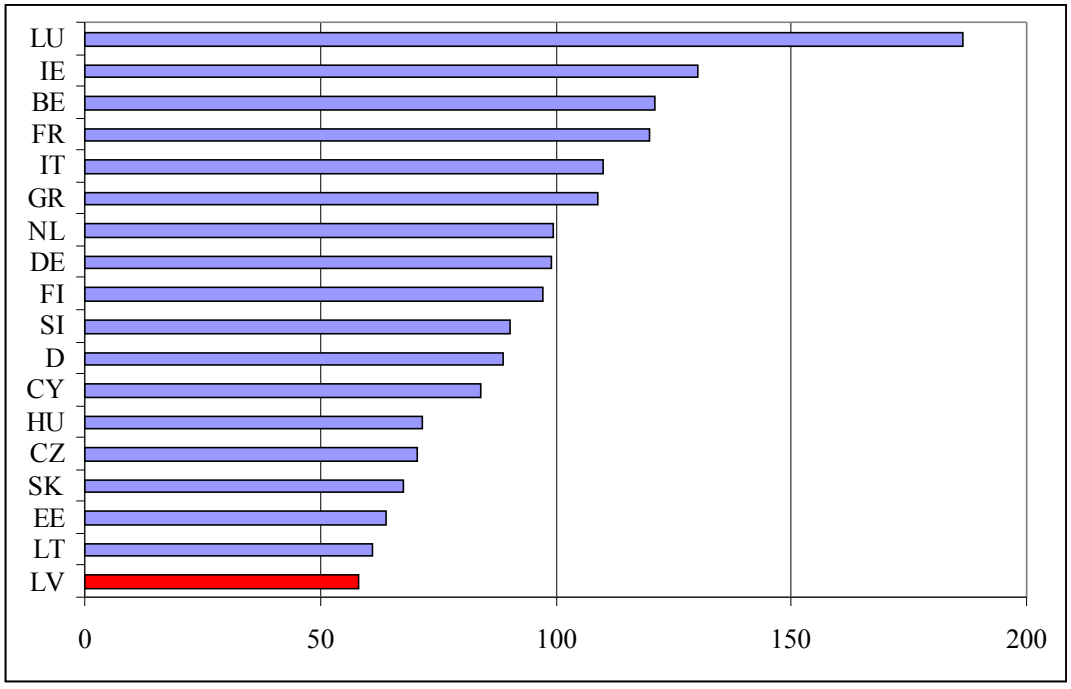


Figure 4: Labour productivity in real estate, renting and business activities in 2007, % of EU-27 average

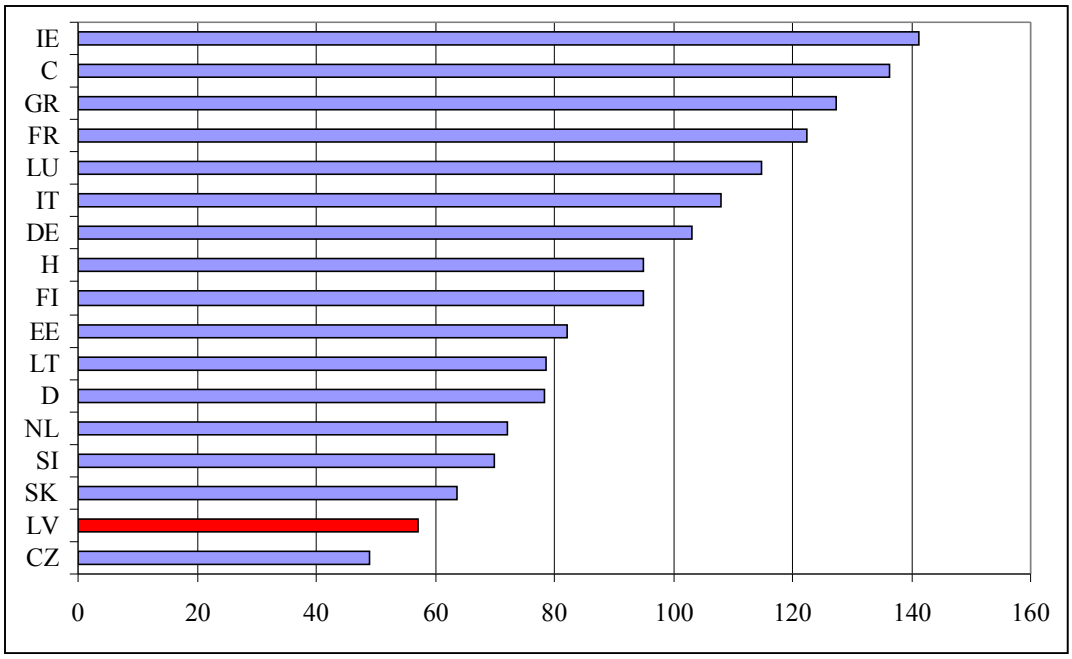
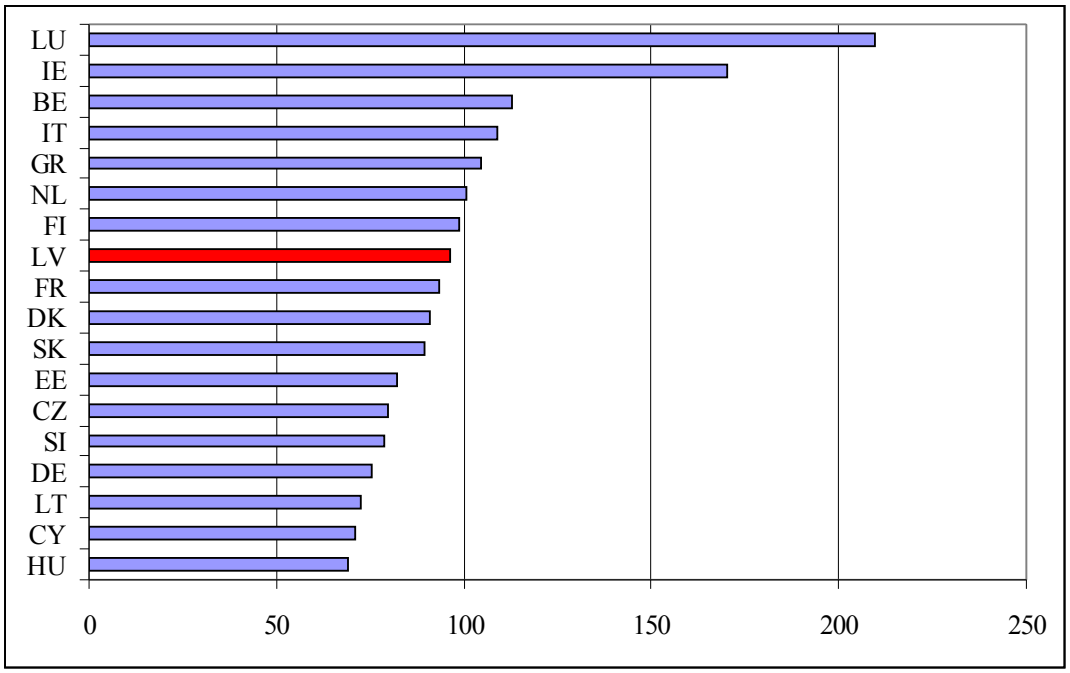


Figure 5: Labour productivity in financial intermediation sector in 2007, % of EU-27 average



4. What can be done?

The evidence suggests that Latvia has improved on many broadband indicators in recent years. However, with the exception of internet use at the individual level, Latvia lags behind the EU average on most indicators, sometimes, quite significantly eg as with the % of online orders received by enterprises. At the same time productivity remains low as compared with the rest of Europe – in both manufacturing and services as a whole productivity is at around 50% of the EU average. Only in financial intermediation does productivity come close to the EU-27 average level. It is very likely that this is because the newly developed Latvian banking system went more or less straight into the digital age thereby by passing the traditional systems.

The evidence suggests that a comprehensive digital development can boos productivity in many sectors. So what can or should be done in Latvia? One thing is clear – the positive spillover effects of broadband development means that leaving it simply to the market is unlikely to result in an optimal result. Some kind of co-ordination and/or support will be needed. For example, FDE report on two successful programmes aimed at the deployment of broadband. One is Broadband Cornwall in the UK (www.actnowcornwall.co.uk) and the other is Wireless Piemonte Regional broadband Network in Italy (www.wi-pie.eu).

In Cornwall, the programme approach combined infrastructure development with broadband awareness raising, and with concrete solutions for companies and also provided support for companies with financial incentives of up 40% of their IT investments. As a result broadband penetration among SMEs increased from less than 1% at the start of the programme to 47% four years later which in turn resulted in more than 10% productivity growth in the Cornwall business services sector. As we see from Figure 4 above productivity in the Latvian business services has much scope for improvement.

By contrast the WI-PIE programme aims to provide all public bodies in the Piedmont region with broadband access and to promote the use of broadband more generally in the region. The budget of the programme is 100 million euro with about two thirds devoted

to infrastructure has been funded by the ERDF. The programme is still ongoing especially in the area of developing broadband services.

A publicly promoted and co-ordinated programme would seem to be the answer also in Latvia. However, despite lip service to ICT development in say the Declaration of the current government[6], there is little evidence of concrete action. Moreover, as the FDE evidence suggest a successful programme of broadband development should combine infrastructure development with readiness development and possibly also support the development and adoption of services. In this context, there is a need for a coordinating institution, a role that could have been provided by the eSecretariat the creation of which in 2005 is regarded in Moore and Vanags (2007) as a progressive development in the context of promoting eServices in Latvia. However the secretariat and its Minister have been abolished in the recent government austerity drive. It remains to be seen whether the unit at the Ministry for Regional Development and Local Authority Affairs which from June 1st 2009 has taken over the functions of the eSecretariat will prove to be effective. In principle a location in that Ministry could prove to be beneficial

There is also the issue of how to fund a Latvian broadband development programme. An obvious first candidate is the structural funds and here it is disappointing to note that only 4% of the 2007-2013 funding is devoted to IT expenditures. Of course, it is likely that other expenditures in this area a re located under other headings. This re-emphasises the need for coordination. A possible solution to this may well be the long awaited public private partnership (PPP) model which may finally see the light of day in Latvia. This model is potentially rather attractive for current circumstances where the private sector undertakes expenditures today to finance infrastructure, readiness and services today in return for income in the future.

In short what is needed is a government initiative, on the lines of say the Digital Britain initiative in the UK, or the smaller Cornwall initiative, which investigates and plans for a

[6] Para 14.15 of the Government Declaration says: "We will foster the development of modern broadband internet connection infrastructure in the whole territory of the country"

comprehensive ie infrastructure, readiness and use, broadband development in Latvia. The aim should be to achieve more than the EU average, preferably to achieve levels comparable with the best in the EU.

The recession offers a good opportunity. Both human and physical resources are unemployed and hence can be deployed at a lower opportunity cost than in normal times.

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Annex 1: FDE composite use indicator

The following 14 indicators make up the FDE composite use of online services indicator:

Online services through a website (as measured by % of companies)

Companies using the internet for banking and financial services (as a customer)..
Companies using the internet for interaction with public authorities – for returning ..completed forms
Companies using online after-sales services..
Companies providing online after-sales services.

E-commerce (% companies)

Companies having placed more than 1% of their orders over the internet in the last ..calendar year
Companies having made more than 1% of their sales over the internet in the last ..calendar year
Companies purchasing over electronic networks..
Companies selling over electronic networks

Interconnected IT systems (% companies)

Companies having employees who connect to IT systems from remote locations ..through electronic networks
Companies having IT systems for orders and purchases which link to IT systems of ..suppliers or customers outside the enterprise group

Emerging internet technologies

Telephone, videoconferencing (% individuals)..
Web radio, web TV (% individuals)..
Chat, newsgroups, forums (% individuals)..
Companies having employees who connect to the company's IT system during ..business travel (% companies)