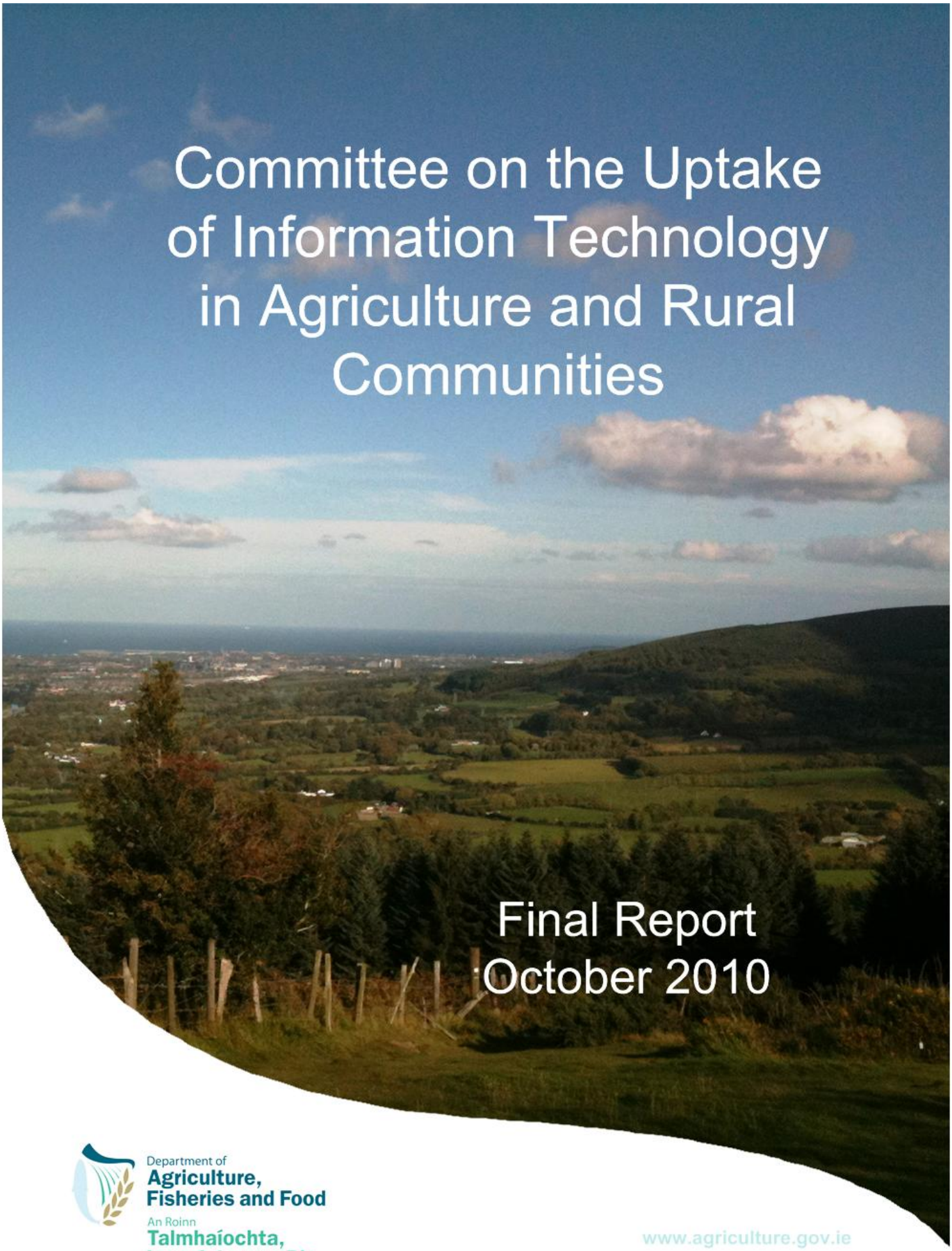
Committee on the Uptake of Information Technology in Agriculture and Rural Communities



Final Report
October 2010

Department of
Agriculture,
Fisheries and Food
An Roinn
Talmhaíochta,
Iascaigh agus Bia

www.agriculture.gov.ie

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Executive Summary

The ongoing advances being made in Information and Communications Technology (ICT) mean that technologies are being utilised more in improving communication and providing access to information. Increasingly, people who use these technologies can participate more fully in society than those that do not. Rural dwellers and farmers in particular are known to be a group of people who are late adopters of certain technologies. In May 2007 the Minister for Agriculture, Fisheries and Food appointed a committee to examine ways for increasing the uptake of knowledge society technologies in agriculture. The committee was set up with a view to getting guidance and advice on the relevant areas surrounding ICT usage in farming and rural families in Ireland.

This report is the final report of the committee and follows on from the Interim report which was produced following the initial round of discussions and deliberations of the committee.

The overall objective of the committee was to examine ways to accelerate the adoption of ICT by the farming sector and rural families. The terms of reference, which can be found in section 1.2, require the committee to identify the obstacles to the uptake of ICT within this sector of the community and also to identify opportunities to promote awareness of the benefits of technology use. The committee was comprised of representatives from organisations that provide services or education to those linked to a farming or rural interest. The committee's members are listed in Section 1.

The committee examined the environment in general and looked at the various sectors where ICT is being used and also under utilised. A significant block of work by the committee involved identifying and examining the barriers that prevented the uptake of ICT (see Section 3). It appeared that a major barrier, for many, was the ready availability of inexpensive broadband in rural Ireland. The rollout of the National Broadband Scheme has made significant inroads to remove this primary barrier to the uptake of ICT within rural Ireland.

There were a number of opportunities identified by the committee in relation to mechanisms, supports and educational initiatives that could contribute to increasing the uptake of ICT in these areas. These are summarised in Section 4. Education and training in the use of the Internet and ICT in general are actions that undeniably increase uptake of ICT and any initiatives that facilitate this are to be welcomed and encouraged by the committee.

Section 6 of this report lists actions taken by the Department of Agriculture, Fisheries and Food (hereafter referred to as the Department) as a direct result of the recommendations and opportunities identified and examined by the committee during its lifetime. In summary the Department in conjunction with the committee has:

- Provided a focused promotional campaign on the benefits of using ICT.
- Encouraged other Agri-organisations to promote the use of ICT at every opportunity.
- Produced and supplied video and presentation material to the committees' partners on the benefits and range of facilities that can be accessed using ICT.
- Carried out research in the areas of adoption of technology.
- Made Nitrates information held by the Department readily accessible to farmers.
- Encouraged the Agriculture Industry to improve its communications with farmers.
- Liaised with Department of Communications, Energy and Natural Resources with regard to the roll out of broadband and the provision of cover to the whole country.
- Examined and implemented, where possible, the use of electronic communication channels as a substitute for paper communications.
- Explored the feasibility of providing message box facilities to its customers.

Research into the barriers and reasons that influence uptake was conducted in the early part of 2010. This research is summarised in Section 5 and includes an explanation of the factors that most influence the uptake of ICT within the farming community. The most significant factor identified was the belief of farmers that they have sufficient knowledge and resources to use ICT. The best initiative to equip farmers and rural dwellers in this regard is education. Education should be context specific and cover items and issues of topical use for farmers and rural dwellers. Section 5 also highlights the other factors that are preventing the uptake of ICT among farming and rural families. It also lists some observations and recommendations in relation to research that may assist in the development of mechanisms to counter or reduce the impact of these factors.

Several further items were examined and considered by the committee but not all could be fully actioned or completed during the committee's term. The committee recommends…

- That the organisations mentioned in the data exchange analysis, carried out by the committee, take note of the contents and endeavour to establish as many means of transferring data by electronic methods as is possible.
- The promotion of projects that might assist in increasing rural ICT uptake as part the LEADER programme, which provides funding for local initiatives. An example of one type of initiative is an e-Tutor scheme to assist first time users of ICT.
- That universities and colleges with third level agricultural courses should, as part of their courses, seek a means of providing students with an awareness of ICT products and services available to assist in farm management.
- The establishment of a scheme of awards, to groups and individuals who use ICT to promote community websites, and also to farmers who demonstrate the most innovative use of ICT.
- That the Department provide facilities in the regional offices to demonstrate the Departments online facilities and assist farmers in signing up for agfood.ie.

While the committee is pleased with the outcomes and progress made by it, the members are fully aware of the limitations that are placed on development and promotion of future schemes and services due to the downturn in the economic climate. This may hinder the promotion of the uptake but it is expected that with increased relevant services being made available by all sectors that farmers and rural dwellers will endeavour to embrace ICT in the future.

Section 1: Membership, mandate and objectives

The Committee on the Uptake of Information Technology in Agriculture (CUITA) and in Rural Communities was established by the then Minister for Agriculture, Fisheries and Food, Ms. Mary Coughlan, T.D., in March 2007. The membership of the Committee was:

Chairman

Philip O'Reilly, Assistant Secretary, Department of Agriculture, Fisheries and Food

Members

Mary Buckley, Irish Creamery Milk Suppliers Organisation (ICMSA)
Karina Cassidy, Food and Drinks Industry Ireland (FDII)
Ray Doyle, Irish Co-operative Organisation Society (ICOS)
Mark Gibson, Teagasc
John Graham, Macra na Feírme[a]
Mick Harkin, Irish Society for Information Technology in Agriculture (ISITA)
Barry Lynch, Irish Farm Computers[b]
Pat Moynan, Assistant Principal, Department of Community, Equality and Gaeltacht Affairs[c]
Edmund Phelan, Irish Cattle & Sheep Farmers Association (ICSA)
Dr. Dermot Ruane, University College Dublin (UCD)
Pat Smith, Irish Farmers Association (IFA)[d]
Aidan O'Brien (Secretary), Assistant Principal, Department of Agriculture, Fisheries and Food

a) Derry Dillon, Macra na Feírme joined the committee as a replacement for Mr. Graham
b) Alice O'Donoghue joined the committee as replacement for Mr. Lynch
c) Noreen Finnegan joined the committee as a replacement for Mr. Moynan
d) John Graham joined the committee as a replacement for Mr. Smith

The committee wishes to acknowledge the research work carried out by Dr. Regina Connolly, Dublin City University and Ms. Valerie Woods, Administrative Officer, Department of Agriculture, Fisheries and Food.

The committee met on 10 occasions. This final report follows on from the interim report (Committee on the Uptake of Information Technology in Agriculture and Rural Communities Interim Report) which

was presented to the Minister for Agriculture, Fisheries and Food, Mr. Brendan Smith, T.D., in December 2008 and was published on the Departments website in January 2009[1].

1.1 Context of the mandate of the committee

The committee was charged with looking at ways to accelerate the adoption of ICT within the farming sector so as to ensure that the sector is placed into a strong position to reap all of the efficiency gains available from information society technologies. Using ICT will provide access to all of the available information sources to allow people to make the best decisions for their business, and to promote the participation of Irish farm families and rural families in the knowledge society so as to maximise their well-being.

Internationally, rural dwellers and in particular farmers are known to be among the 'late adopters' of information society technologies and the adoption of these technologies among Irish farmers and farm families is lower than it should be for a developed country within the EU. Farmers and rural dwellers require particular encouragement to prevent this sector of the community falling behind in technology terms from the rest of society. In this regard there is a risk of an occurrence of a rural/urban digital divide.

At the time that the committee was established, and given the limited availability of broadband access in rural areas, it was considered a reasonable possibility that the rural population in Ireland would in general suffer from this potential digital divide. As at October 2010 about 10% of Irish farmers use farm management software packages to assist them in the management of their farms. This is believed to be below the level of the leading EU countries, and the use of such software, in Ireland, has reached a plateau. Access to and use of the Internet by Irish farmers is also believed to be lower than many EU countries.

Knowledge society technologies allow people to fully participate in society in this, the digital age, where creation and distribution of information is a key economic and social activity. These technologies include computer and communications technologies, such as Internet access, short message service (SMS) and wireless application protocol (WAP).

A key objective identified in Agri-Vision 2015 is the development of a more competitive agricultural sector. To achieve the efficiencies necessary, it is now more important than ever that farmers use all available tools and technologies at their disposal. ICT is an important tool in the efficient management of modern farming, providing opportunities for access to essential current information

[1] Interim Report available at http://www.agriculture.gov.ie/press/pressreleases/2009/january/title,16447,en.html

as well as for trading activities, and it is also important to ensure that farming families participate fully in the knowledge society. Broadband is considered to be a significant catalyst in the increased usage of ICT.

While there is a range of software and services, some very sophisticated, that can greatly improve the productivity and decision-making in agriculture, it is recognised that the first essential step is to get farmers using ICT, even if it is only basic ICT. After this initial step farmers can build upon their experience and knowledge and increase the range of facilities that they use. For this reason the focus on initial uptake is critical and this principle underpins the terms of reference of the committee.

While the Department has continued to add to the significant electronic services that it provides, such services alone will not generate the necessary increase in uptake that is desired.

1.2 Objectives

The Committee, which reported to the Minister, was tasked with:

- Identifying the obstacles to uptake of knowledge society technologies, by farmers and farm families.
- Proposing initiatives to accelerate the adoption and usage of ICT to world-class standards in the Irish farming sector.
- Identifying opportunities to promote awareness of the opportunities for technology use, and skills acquisition by the farmers and farm families.
- Identifying synergies among all of the parties in the sector, and promote their exploitation.
- Driving knowledge, scholarship and research activity within ICT for the agricultural industry.
- Providing guidance and advice to the Minister on the relevant areas related to ICT in farming.

A significant number of issues were examined to address the terms of reference of the committee and in particular it was recognised early on that a block of research work would be required to definitively identify the most significant barriers to the uptake of ICT, and that this could take considerable time to carry out. Therefore, initial goals and objectives were set and these were addressed in the Interim Report.

1.2.1 Interim Objectives

While there was no particular timeframe imposed on the work of the committee, the committee itself imposed deadlines and interim objectives to provide a focus to the work concerned. The following were the list of initial objectives:

1. To carry out an initial identification of obstacles that prevented the use and/or uptake of knowledge society technologies based on the knowledge and experience of the committee members.
2. To identify openings to promote awareness of the opportunities for technology use, and skills acquisition by the farmers and farm families.
3. To identify areas that required further research.
4. To produce an interim report by February 2008.

The first deadlines surrounded the discussion and identification of items from the list above and then on the creation of the interim report which was ready in December 2008. The committee set further deadlines as the work progressed. The most significant of these were to carry out research, in early 2010, into the adoption and use of technology by farmers, and to complete the work of the committee by September 2010 by producing this final report.

1.2.2 Long Term Objectives

The long-term objective of the group was the production of recommendations to the Minister in relation to the areas outlined in the Terms of Reference. The committee has produced this final report setting out these recommendations and includes the results of initial research conducted in the areas of concern.

Section 2: Environment

There have been significant changes to the pattern of rural life over the last 30-40 years. The view of the committee is that the rural population can now be considered to be predominantly non-farming. This change in pattern brings certain lifestyle expectations in the areas of leisure time, travel, sports, health and fitness, education and information. It is clear from developments in other societies that the Internet is a key facilitator enabling delivery of societal expectations in rural communities in the 21st Century

The situation has improved greatly since 2007 with the number of subscribers to the Internet in Ireland rising to 1.61 million as at March 2010 (see Figure 1). This total represented an increase of 10.2% on the March 2009 figure and a 46.8% increase since the committee commenced its work. Just as important is the growth in broadband and its increased availability around the country due in part to the National Broadband Scheme.

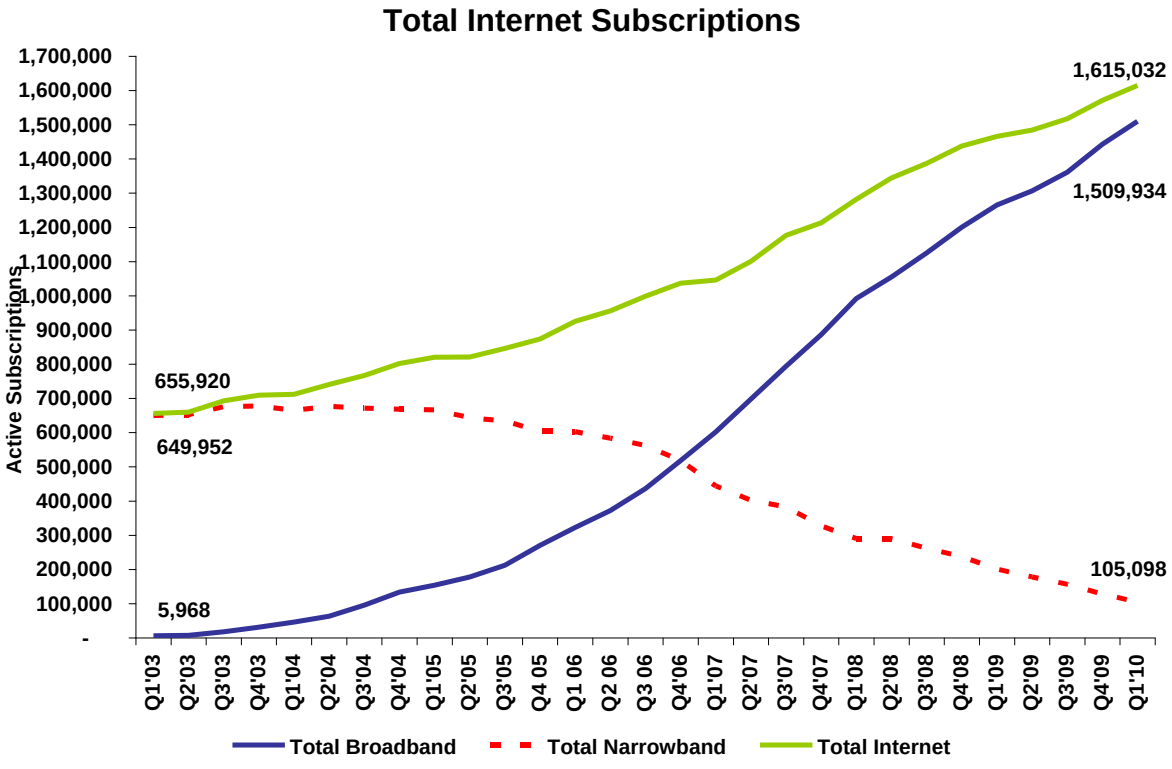


Figure 1 Total Internet Subscriptions[2]

As a subgroup of rural dwellers, farmers are not yet using information technology (IT) in a significant manner on the farm. While the number of farmers using ICT is quite low, farmers are using other

[2] Source: ComReg Q1 2010 Quarterly Key Data Questionnaire; http://www.comreg.ie/_fileupload/publications/ComReg1043.pdf

technologies such as the mobile phone. The farmers who are using ICT are either using their own personal computer with farm management software and/or the Departments online services provided via www.AgFood.ie. There are also a number of online services provided by the farming representative bodies and organisations such as Teagasc, who provide valuable assistance and calculators for farm specific tasks. Farmers may also use services of IFAC accountants to assist with the running of their businesses, which may also bring them into contact with IT. In addition, it is known that some number of farm families also access non-rural services such as airline and holiday sites for travel and other purposes

2.1 General

Many technical advances have been made in recent years in relation to the types of computer devices and systems available to the average user. Advances in technologies and convergence of communications and computing have resulted in a fundamental transformation in the capability of personal computers. The use of technology has permeated broader aspects of lifestyle and is no longer used solely as a business tool but as a lifestyle tool also.

2.1.1 Technologies in current use

The use of mobile phone technologies (e.g. SMS) is most significant in the European Union (EU) and Ireland in particular is a high user of SMS. The pervasiveness of mobile technology in the rural context presents particular opportunities due to the take up of these devices and their ability to operate in the more remote areas. While the use of SMS had initially been considered to be a 'youth thing', the large usage of this technology across all of our population has, in its own way, been responsible for encouraging people unwittingly into the use of IT. There were over 10 billion SMS messages sent in Ireland in 2009, a 180% increase compared to 3.6 billion in 2004. If the total number of messages was averaged over all subscriptions that would average at 193 messages per subscriber for Q4 2009 compared to 183 per subscriber for the same period in 2008[3].

Informed users now expect to be able to access the Internet at all times whether it is in the home or on the road. To date, farmers who are using the Internet are in the main using it to search for information. They are not necessarily using it to conduct their business yet, but they treat it as an informal decision support system in that they are gathering facts about prices, trends, weather, etc. This type of information helps farmers significantly in allowing them to make decisions on tasks and issues presenting themselves on the farming front, where this is indicated.

[3] Source ComReg http://www.comreg.ie/_fileupload/publications/Comreg1019.pdf

According to a CSO survey[4], the ten most popular activities that the general population used the Internet for were:

- Sending & receiving emails.
- Finding information about goods & services.
- Travel & accommodation services.
- Internet banking.
- Looking for information about training, education and course offers.
- Obtaining information from public authority websites.
- Consulting the internet with the purpose of learning.
- Downloading Official Forms.
- Seeking health information.
- Submitting completed Official Forms.

This is consistent with research by ComReg[5] where it was noted that people were using the Internet principally for emailing, finding information, and simple transactions/exchanges with banks and public bodies.

With the introduction of personal computers (PC's) into schools in the late 1980's a significant number of people who have attended school since that time have had exposure to PC's and their use. Figures supplied by D/AFF show a large proportion (87%) of the Department's customers (see Table 1), do not fall into the 20 - 40 age range (i.e. left school in last 20 years), and consequently may have had no exposure to PC use at all. Table 1 also provides a comprehensive breakdown of the customers of the Department and an analysis of the numbers of Department customers who are

Table 1 - Age comparison D/AFF customers against AgFood online users

Age group	All D/AFF customers		+/- On Feb 2008 figure	Customers registered to use AgFood Services		As proportion of all D/AFF customers	+/- On Feb 2008 figure	Customers registered with Agents for online services	As proportion of all D/AFF customers	+/- On Feb 2008 figure
	No.	%[a)]	%	No.	%[b)]	%	%	No.	%	%
Over 60	68,885	**42**	**+6**	8,381	**25**	**5.10**	**+2.6**	20,068	**12.30**	**+9.1**
50-60	40,027	**24**	**-1**	8,795	**26**	**5.40**	**+2.3**	13,939	**8.50**	**+6.4**
40-50	34,207	**21**	**-2**	9,658	**29**	**5.90**	**+2.2**	13,281	**8.10**	**+6.2**
30-40	17,191	**11**	**-2**	5,877	**17**	**3.60**	**+1.1**	7,533	**4.60**	**+3.6**
20-30	2,879	**2**	**-1**	998	**3**	**0.60**	**+0.1**	1,338	**0.80**	**+0.6**
20 and younger	26	**0**	**N/C***	7	**0**	**0**	**N/C**	15	**0.00**	**N/C**
No DOB[c)]	36,006							263		
Sub-total	**199,224**		**-3.3%**							
Total *	**163,215**		**Up 0.7%**	**33,716**		**20.6%**	**Up 68%**	**56,437**	**34.3%**	**Up 400%**

a) *% of all D/AFF customers*
b) % of all customers registered for AgFood services
c) Companies are not included in totals and % calculations
**N/C = No Change*

[4] *Source: CSO Information Society and Telecommunications –2008, CSO* http://www.cso.ie/releasespublications/documents/information_tech/2008/ictireland2008.pdf
[5] *Source: Trend Survey Series – Wave3, 2005, ComReg 05/86b, 2005*

using IT as part of the Departments online services or who have engaged with an agent who can interact on their behalf using ICT as a means for submitting forms and applications online.

2.1.2 Technologies on the way

It is not easy to predict what technologies will come on stream in the near or distant future. The committee did not attempt to investigate what applications, facilities or technologies are in development, due to come on stream or are new to the market. However, the committee believed that there will certainly be new technologies and applications that will arise which will assist or may even revolutionise how ICT is valued and which may provide great benefits to farmers and rural dwellers.

The difficulty in predicting such developments can be seen in the following examples which illustrate how predictions may turn out. In 1947 for example, experts predicted helicopter/gyro copter in every garage, men on mars, a permanent moon base and nuclear powered aircraft and trains. Since 1947 we have had men on the moon, a true worldwide economy, robots replacing people in manufacturing and a move towards electrically powered cars. But in IT predictions have not always been very accurate.

- Thomas Watson, Chair IBM, 1943 stated that "*I think there is a world market for maybe five computers*".
- Bill Gates (1981) opined that "*640K ought to be enough for anybody*".
- Ken Olson, President, Chairman and Founder of Digital Equipment Corp., (1977) "*There is no reason anyone would want a computer in their home*".

In 2005, future trends were predicting increased use of Radio Frequency Identification Chips (RFID), expanded use of robotics, everything to everything wireless connectivity, remote imagery available to all. These technologies are becoming more pervasive in our society and we encounter these on a day-to-day basis. RFID's are used in packaging, farm tractors can operate in a hands free mode and we can see our properties via satellite imagery using products like 'Goggle Earth', 'Microsoft Virtual Earth', etc. There is no doubt that these and other new initiative technologies will be soon at the forefront of business and home life in the future. In order to be able to embrace these new technologies rural dwellers and farmers must become familiar with and utilise what is currently 'on offer' now.

2.2 Sectoral

The availability of off-farm employment opportunities, especially in recent years, together with changes in agricultural practices have led to a rise in the number of farmers combining their farming activities with outside employment. This means that there is now a pattern developing whereby the majority of intensive farming production is now being carried out by a smaller number of full time farmers.

Just fewer than 70% of all farms were part-time in 2009[6]. In approximately 49% of all full-time farms, either the farmer and/or spouse were also working in off farm employment; this has risen from 38% since 2005. In these circumstances, it is probably safe to say that for many of these farmers there may be a scarcity of time available to them to work on their farms, especially in livestock enterprises. The use of ICT in these cases could significantly improve their ability to be better informed for making key decisions and being better able to manage their farms. Part-time farmers are more likely to own a PC than their full time colleagues[7]. About 15% of farmers in 2004 used their PC for farming purposes.

In section 2.2 of the Interim Report it was stated that "the Irish agriculture sector lags behind the US, UK and France" in terms of computer ownership and usage for farm business purposes. Irish farmers did not compare well with other developed countries in terms of their computer usage for farm business. Figure 2 shows a comparison of computer ownership, internet access and computer usage for Ireland the US and the UK from statistics gathered in 2008 and 09 [6, 8, 9].

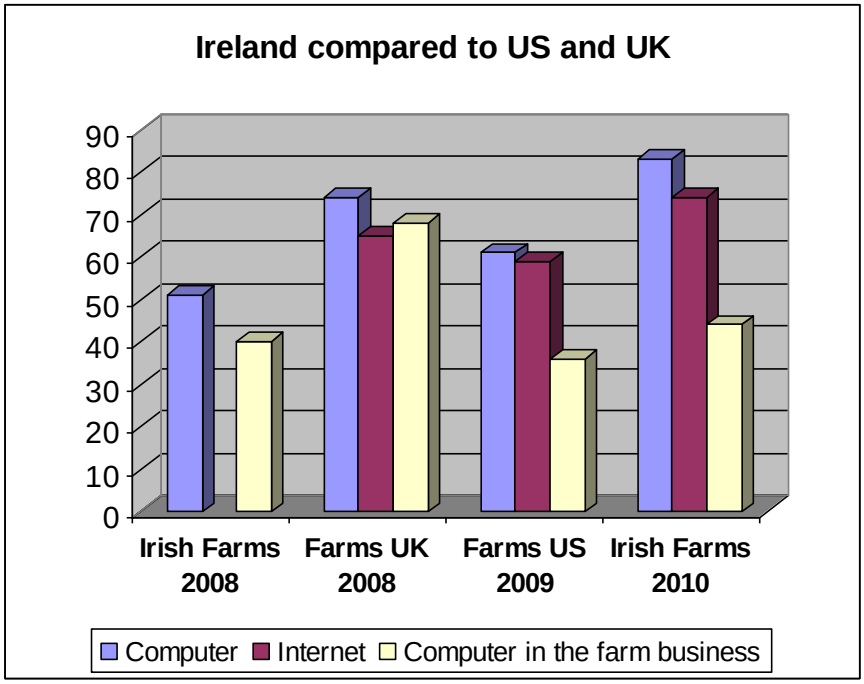


Figure 2 Ireland compared to US and UK in computer usage

In the 2008/09 computer usage comparison, Ireland did indeed lag behind the other countries. In the United States, NASS[8] figures from 2009 show 64% of farms had access to a computer, 59% had Internet access and 36% of farms used the computer for farm business. Meanwhile in the UK the Department of Environment, Food and Rural Affairs (D/EFRA) Farm Practices Survey[9] in 2008

[6] *From National Farm Survey 2009, Teagasc May 2010 http://www.agresearch.teagasc.ie/rerc/farm_surveys.asp*
[7] *Development of Information and Communication Technologies: The Impact at Farmer Level, T.G. Kelly (Teagasc Program Manager) et. al. www.EFITA.net - efita_article_20070331125915*
[8] *National Agriculture Statistics Service, USDA available at http://usda.mannlib.cornell.edu/usda/current/FarmComp/FarmComp-08-14-2009.pdf*
[9] *Dept. of Environment, Food and Rural Affairs, Farm Practices Survey 2008 available at http://www.defra.gov.uk/evidence/statistics/foodfarm/enviro/farmpractice/documents/FPS2008.pdf*

shows 74% of farms with access to a computer, 65% with Internet access but with 68% of farmers using the computer for farm business.

The research carried out for the committee in early 2010 shows great promise with figures showing that approximately 96% of farmers have access to a PC either through a part-time workplace, family friend, library or other source and with 83% owning their own computer. In contrast to the 2004 figure of 15%, the 2010 research found that 44% of farmers who now use a PC use it for home/farm accounts or for running farm management software. This is still behind the UK 2008 figure but has moved ahead of the US figures. It is difficult to make an exact comparison to these older figures as the situation may have changed in the US and UK since then and also the countries and farming structures are different. In addition the exact methods used to gather the data may differ however, the Irish figures do provide some encouragement to the committee.

In Ireland, the use of farm management software is not confined to those farmers with large farm holdings. One might have expected that the larger farming operations would have a greater uptake of ICT use but in fact the usage of products is spread evenly across farms of all sizes. This suggests that some large farms not using ICT might be 'too busy' or not see the benefit of using IT. At the same time farmers, with small farms, will use technologies where they find a benefit. The committee noted with interest the responses to the DEFRA survey in which farmers listed the factors which they felt would encourage more use of computers for farm business. The top four were,

a) Improved computer skills.
b) More time.
c) More confidence in security.
d) Improved knowledge of benefits.

When the committee started its work, Ireland's farmers had a relatively small uptake of the Department's online electronic services. Within the EU and using Single Payment Scheme (SPS) as a reference, Ireland, Scotland, Netherlands and Sweden had widely varying uptake in receipt of SPS claims by electronic means. Figures for 2006 are shown in Table 2 below. In 2006 Ireland only had 5.6% of its SPS claims registered by on-line means, this was a lot less than the 23% of farmers who had signed up for electronic services in the Department and were capable of making these claims electronically via an agent or independently

Table 2 - Single Payment Scheme on-line claims comparison across EU 2006[10]

Country	Number of SPS Claims	% Claims Received Online	Of which x% were submitted by		Note
			Agents	Farmers	
Ireland [a), b)]	133,000	5.6%	57%	43%	
Scotland	22,000	7.6%	25%	75%	Budget 1999-05 4m
Netherlands	85,000	24%	n/a	n/a	Target 70% by 2011 About 90% of farmers have Internet access
Sweden	83,000	55%	49%	51%	Development costs 4m

a) 24% of Irish customers had ability to submit online via agent or self
b) 45% of Irish customers had access to Internet
n/a= figures not available

Netherlands provided a briefing at the 32nd Panta Rhei (October 2007) conference in which they outlined their approach to increasing the utilisation of their electronic services. The Dutch assumed initially that once services were available their customers, they concluded, would avail of them. This however, was not their experience, and the Department of Agriculture in Ireland has had a similar experience. The Dutch took a different strategy and used an 'Outside In' rather than an 'Inside Out' approach. In other words feedback was firstly obtained from their customers versus pushing out services without first engaging with their customer base. Dutch Farmers were convened into customer panels and asked about their experiences and what services they would wish for to make their work more efficient and productive. This approach resulted in a greater uptake of services in The Netherlands and the services were tailored to the farmers' needs rather than what the authorities perceived they required.

Table 3 - Online SPS application trend - Holland v Ireland

Country	Total SPS Claims	% Claims Received Online	Of which x% were submitted by		Year
			Agents	Farmers	
Ireland	133,000*	**33%**	88%	12%	**2010**
	133,025	**26%**	85%	15%	**2009**
	133,786	**15%**	78%	22%	**2008**
Netherlands	56,000	**85%**	37%	63%	**2010**
	63,000	**70%**	29%	71%	**2009**
	63,000	**40%**	26%	74%	**2008**

* estimated

[10] *Source: XXXII nd Panta Rhei Conference*

In Ireland, the number of SPS claims received online has much improved (see Table 3[11]) with circa 33% of claims having been received online in 2010 (of the online claims - 12% were submitted by individual farmers and 88% by an authorised agent). It is interesting to note that the Netherlands, which has a very large uptake of online applications, has a trend emerging that shows that agents are increasingly being used by farmers to submit their forms rather than submitting online themselves. This trend seems to be showing in Ireland also however it is more likely due as a result of consultation with, and concentrated efforts by, agents to improve the uptake of transmission online for 2010. Additionally individual submission may have dropped because a significant number of farmers had to submit maps in 2010 and would have chosen paper over electronic route.

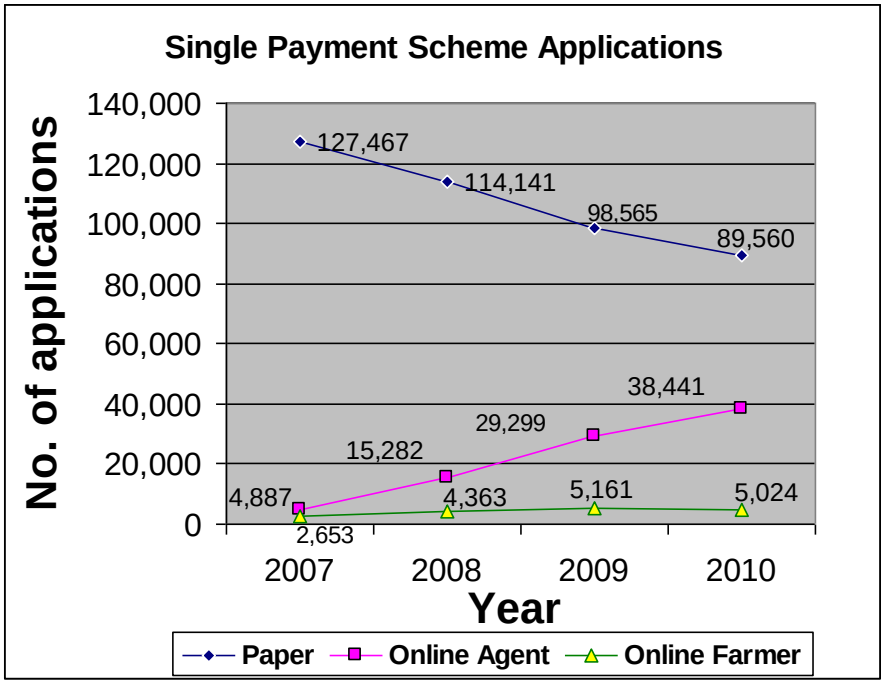


Figure 3 Comparing SPS Online and Paper Applications

Figure 3 shows the number of Single Payment Scheme applications received in Ireland over the years 2007 to 2010[12]. This graph shows that there was a major reduction in the number of paper forms received by the Department (35,000) over the last three years. The percentage of applications made online (by farmer or agent) has increased from 5.65% in 2007 to approximately 33% in 2010 (note the figures for paper forms are estimated for 2010). The continued message by the Department is to encourage people to submit online due to the reduced number of errors resulting from online applications. In 2010 this has proven to be accurate, as figures to date show that about 20,000 (or 22%) of paper application forms have had errors on them.

Similarly, Figure 4 shows the increase in use of online methods to register calf births, from just 3% of all animals being registered online by farmers using a farm software package or www.AgFood.ie in

[11] *Source: Department of Agriculture, Fisheries and Food, Single Payment Scheme division*
[12] *Figures at June 2010 (Source: Department or Agriculture, Fisheries and Food)*

2002 to 23% in 2009. The Year to date figures at the end August 2010 suggests this has increased further to 26%[13].

A further example is the Department's online forestry application (IFORIS iNet). The system was placed into production in February 2009 and facilitates the online submission of pre-approval applications by Registered Foresters. The usage uptake of this system has increased steadily since 2009 with 64% of all pre-approval applications now received online. The expectation is that this level will rise to 80% by end of 2010.

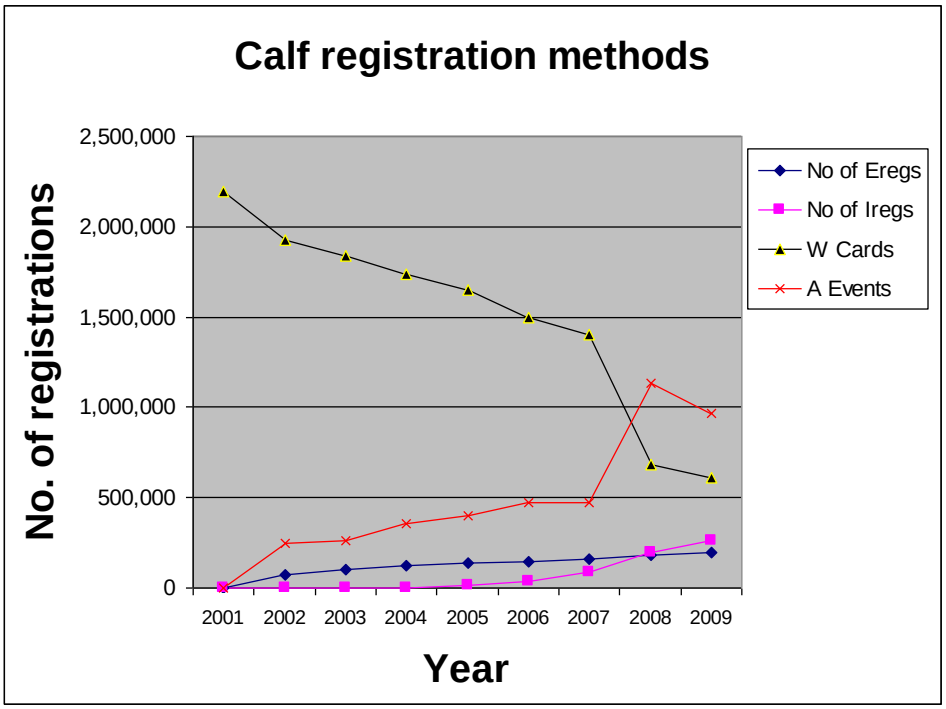


Figure 4 Online Calf Birth Registrations

E-Regs = registrations made electronically by farmers using farm management software
I-Regs = registrations made by farmers using the AgFood.ie facilities
WCard = White Cards supplied with animal tags are posted by farmers to the registration agency
AEvents = Animal Events paper based registration through ICBF

While the data above would provide a source of encouragement to the Department, in relation to an increase in uptake, there still however appears to be a digital divide occurring across sectors of Agriculture with regard to access to and use of information, and also even in productivity and management of enterprises. Table 4[14] shows the adoption of PC use and uptake for business use for the farm, comparing figures for 2004 and 2008. The figures show that Dairy and Tillage Farmers were more likely to have access to a PC and engage with ICT as a communication tool and for supporting their farms more so when compared to Cattle Farmers. While the Dairy sector may be more intensive and have larger enterprises these figures demonstrate that there is still a requirement to close the divide between the farming sectors.

[13] *Source: Department of Agriculture, Fisheries and Food, NBAS Division*
[14] *Source: Teagasc – National Farm Survey 2004 and 2008*

Table 4 - PC ownership and use

Farming Category	Access to a PC		Used for farming purposes	
	2004	2008	2004	2008
Dairy Farmers	54%	65%	26%	35%
Tillage Farmers	55%	68%	23%	31%
Cattle Farmers	33%	44%	9%	15%

The results of this study show computer adoption at 51% in all Irish farm households in 2008 with mostly medium and large size enterprises being more likely to have a PC; however the increase in computer access since 2004 was greatest among small-scale farmers.[15]

As outlined earlier there is a growing population who are now leaving school who will have good exposure to new technologies and ICT in general. These people will/should be able to realise the benefits available from ICT and be in a better position to utilise the technologies. At the same time there is a growing population of older farmers and these farmers will not or are less likely to adopt ICT readily unless clear benefits can be demonstrated.

At this point in time the agricultural sector does not have a large number of ICT service offerings with just a handful of Irish companies providing farm management software packages to the farming community. In addition, the Irish Cattle Breeders Federation (ICBF) and Teagasc also provide specific services to farmers who can use technology to assist them in their business. The Department has its own on-line services, www.AgFood.ie, which farmers may use to view and record their own information. As far as the committee is aware there are no major additional new developments coming on stream at the moment which could create a significant shift for the farmer towards using ICT. However, this is a dynamic sector and new developments can be expected in future years.

The committee felt that when there will be a reasonable critical mass of users, then a service would be provided, however, the reality appears to be that users want the service to be in place first. The low-cost airlines phenomenon is often cited as an example where on-line facilities were provided and taken up by large numbers of users. The initiative by these airlines to streamline their ticket sales operations resulted in all ticket sales being moved to on-line purchase only. Once customers realised that using the Internet was the only way to reserve a ticket, and the benefits were obvious, all prospective passengers have found ways to access the technology to book a ticket, whether it was by investing in a PC, learning how to use the Internet or getting assistance from an experienced user. People did not ask for this change, however in practice, when it became the only method to

[15] *Source: Trends in ICT Adoption on Irish Farms, Murphy, D. et al, Teagasc*

reserve flights it was quickly adopted when benefits were significant. This type of initiative provided a catalyst to other airlines and now practically all airlines offer online ticketing. A similar type of catalyst may need to be examined with obvious benefits, if an increase in the use of ICT on farms is to be realised.

2.3 Security

The committee believes that **data security** is a particularly important issue and is one of the factors discouraging the uptake of knowledge society technologies. The committee feels that there are people who are less technically comfortable with the maintenance of their computer and are either not aware of the dangers or are not capable of protecting their computer adequately. Many users also have real fears in relation to loss of service, loss of data and access to information. The survey of technology adoption (see Section 5) indicates that trust is an issue and that it is linked to the level of exposure any individual has to any technology and their level of education in that technology. As outlined in Section 3 of this report, education and training initiatives will be very important to address this concern.

Data security is the means of ensuring that data is kept safe from corruption and that access to it is suitably controlled. While data security helps to ensure privacy, it also helps in protecting personal data. In Ireland the Data Protection Acts 1988 and 2003 are used to ensure that personal data and information is kept accurate, is only made available to those that should have it and is only used for specified purposes. This is particularly important to ensure individuals are treated fairly, for example for credit checking purposes. The Data Protection Act states that only individuals and companies with legitimate and lawful reasons can process personal information and this information cannot be shared.

Data privacy refers to the evolving relationship between technology and the legal right to, or public expectation of privacy in the collection and sharing of data. Privacy concerns exist wherever uniquely identifiable data relating to a person or persons are collected and stored, in digital form or otherwise. Improper or non-existent disclosure control can be the root cause for privacy issues. The most common sources of data privacy issues are:

- Health information.
- Criminal justice.
- Financial information.
- Location information.
- In some cases even ethnic or gender information.

Data corruption refers to errors in computer data that occur either during transmission or retrieval, which result in unintended changes being introduced into the original data. Computer storage and transmission systems use a number of measures to provide data integrity and lack of errors.

Data loss during storage has two broad causes: hardware or software failure. Problems such as computer component failure and general wear and tear of media (e.g. hard drives) fall into the former category, while software failure typically occurs due to ‘bugs’ in code. There is also the threat of malicious software being inadvertently introduced onto ones computer and the dangers that may impose. Keeping the computer anti-virus software up to date can help prevent this type of loss of data. A further cause of concern, which has been highlighted in a number of high profile cases in recent times, is the loss of data stored on laptop computers and in transferring data between organisations.

Section 3: Barriers

This section lists some of the barriers to the uptake of ICT, however this list cannot be considered to be absolute. The consensus among the committee is that age, broadband availability, education and knowledge, and fear of technology are the main obstacles in preventing the uptake of ICT within the rural and agriculture community. The committee's view is that this area needs further investigation and research. This should allow further definitive opportunities to promote awareness of the advantages for technology use.

These main barriers were considered and further details is provided in the following sections, but overall, it was felt that "time" and "interest" are the two issues that will always need to be considered and addressed. "Lack of interest" is ever present. If you have someone that dislikes or is deficient in their paperwork, how do you convince them about ICT? "Lack of Time" is an often-quoted reason why people fail to use ICT, even after attempting to do so. People often fail to get over the learning curve and give up on it before they start realising the benefits. Therefore, benefits or value of the use of ICT must be promoted at all opportunities by all interested parties.

3.1 Age

The question of age profile of Irish farmers was initially thought by the committee to be a major barrier however it would appear not to be a significant barrier to the uptake of certain aspects of ICT. Earlier in the report Table 1 supplied a breakdown of the age profiles of all the agricultural customers of the Department and compared them against those customers who have registered to use the Department's www.AgFood.ie on-line service.

Table 5[16] shows an updated position regarding the age profiles of customers of the Department. As evident from the table the number of farmers in the over age 60 category has increased to 42% of all customers up from 36% in just two years. Significantly the number of customers who have registered themselves with an agent for the purposes of submitting their SPS application electronically has increased to 34.3% of all farming customers of the Department. This shows that uptake of ICT has increased albeit in the case of agents, it's by proxy.

Almost a third of farmers in the over 60 age group have the ability to avail of online services either themselves or via an agent. This large figure (almost 15% of all the Departments customers) would seem to offer some encouragement that the older population are embracing ICT and this figure is higher than might have been expected. However this figure may hide an underlying reason for the increase in ICT uptake.

[16] *Figures at June 2010 (Source: Department of Agriculture, Fisheries and Food)*

Table 5 - Age trend of customers over 60 years of age

Age group	All D/AFF customers		Increase or Decrease on Feb 2008
	No.	%	+/-
Over 60	68,885	**42%**	**+6%**
50-60	40,027	**24%**	**-1%**
40-50	34,207	**21%**	**-2%**
30-40	17,191	**11%**	**-2%**
20-30	2,879	**2%**	**-1%**
20 and younger	26	**0%**	**N/C**
No DOB available (companies etc. not included in % calculation)	36,009		
Totals	**199,224**		

The experienced committee members believe that a proportion of the farmers in this age group, rely on their son/daughter, relative, friend or agent to use the computer for their interactions with online services. A more detailed breakdown of the over-60's age group at June 2010 is supplied in Table 6[17]. This shows that just over 21% of the Departments customers are in the 60-70 age groups. It is not known how many of these over 60's in general are retired from mainstream farming or are still working either full or part-time.

Table 6 - Breakdown of customers over 60 years of age

Years of age	All D/AFF customers		Customers who can avail of online services either themselves or via agents		As proportion of all D/AFF customers
	No.	%[a)]	No.	%[b)]	%
Over 90	1750	**1.1**	282	**1.2**	**0.2**
80-90	9,907	**6.1**	1,894	**7.8**	**1.2**
70-80	21,591	**13.2**	7,218	**29.9**	**4.4**
60-70	35,637	**21.8**	14,744	**61.1**	**9.0**
	68,885	**42.2%**	24,138		**14.8%**

a) *Customers in this age group expressed as a % of All D/AFF customers (163,215)*
b) *% in this age group - of all the over 60's registered for online services*

3.2 Broadband

There are many services available on the Internet that would be of interest to farmers and rural dwellers. In order to best use these services and fully avail of the features the users must have a broadband connection to the Internet.

[17] *Figures at June 2010 (Source: Department of Agriculture, Fisheries and Food)*

The committee considered two main issues over the course of their meetings and initially formed the opinion that these two significant factors had a bearing on the uptake of ICT;

(i) Broadband availability.

(ii) Cost.

In early 2008 an unpublished study carried out by the IFA had shown that 68% of their respondents could not get connected to broadband in their area. Of the people who did have broadband availability in their area, three quarters of these had subscribed to broadband. 20% of those subscribers indicated that it was mainly family/domestic use that was driving their PC use. Interestingly a quarter of all respondents to the survey felt that broadband was not relevant to them.

3.2.1 Factors determining take up of broadband

The Department of Communications, Marine and Natural Resources (D/CMNR) in January 2006[18] identified the main factors that determine the take-up of broadband services in any market. These are:

a) The price of the service.

b) The quality of the service from the customers' perspective.

c) The potential size of the market. (e.g. the number of potential customers)

d) The stage of the development of the market.

3.2.2 Why people had not connected to Broadband

A survey of businesses using either ISDN (Integrated Services Digital Network) or Dial-up Internet connection, carried out by the Commission for Communications Regulation (ComReg)[19] between November 2006 and January 2007 gives reasons as to why the businesses had not, at that time, switched to broadband (see Table 7).

Table 7 - Main Reasons for Businesses using an ISDN or Dial-up Internet Connection

	H2'05	H2'06
Broadband is currently not available to our business	47%	47%
It is the most suitable package for my needs	10%	21%
The Internet is not an important tool for our business	16%	14%
It is the most cost effective way of accessing the Internet	8%	10%
I have not considered moving to a broadband service	7%	3%
I am not sure about the options for a broadband service	5%	5%
These services are compatible with technology used for our business	1%	5%
Other	5%	6%
Don't Know	8%	3%

Note: Figures may add up to over 100% as multiple responses were allowed

[18] *Source: Broadband Demand: A Review of Demand in the Irish Broadband Market. D/CMNR January 2006*

[19] *Source: ComReg document no 07/23 May 2007*

Among business users connected to the Internet (non broadband), their primary reason for not using broadband was its **lack of availability.** This figure (47%) remained unchanged between the second half of 2005 (H2'05) and H2'06[20]. On the other hand one in five (21%) businesses in the survey claimed that they still used a narrowband (e.g. dial up) connection, as they believed this to be the most suitable package for their needs. The ComReg study concludes that there were a certain proportion of companies who genuinely felt that they did not need a broadband connection, or else were **unaware of the benefits of broadband**. This perception is reiterated by one in seven (14%) businesses that claimed that they used narrowband rather than broadband, as the Internet was "not an important tool for their business".

3.2.3 Price of broadband

It has been suggested that the price of broadband is a significant factor determining the level of ICT take-up. Tests on the correlation between broadband penetration and prices confirm that prices are significant determinants of broadband take-up in the 0.5 – 2 Mbps (megabit per second) range of services[21]. As referred previously, a ComReg survey indicated that 15% of respondents who would not get broadband access at home do so because it was too expensive[22]. The same sample indicated that 32% 'would not use the internet enough' and 21% have sufficient Internet access, as reasons for not getting broadband at home. This would suggest that a significant proportion of respondents had no need for broadband access and were unlikely even to have considered the price of broadband access.

The same ComReg survey identified the three top reasons for subscribing to broadband (as distinct from narrowband access) as:

- High download speeds.
- Always-on access.
- The flat fee.

Price relative to perceived usefulness remains a particularly important factor for residential and Small & Medium Enterprise (SME) consumers who do not have substantial exposure to broadband, and thus cannot see 'what all the fuss is about'.

3.2.4 Implications of not availing of broadband

The committee considered the impact on farmers and rural dwellers of the availability of broadband and issues relating to this topic.

The most significant risk was that a digital divide would occur. The term digital divide refers to the gap between those people with effective access to digital and information technology, and those without access to it. It includes the imbalances in physical access to technology, as well as the imbalances in resources and skills needed to effectively participate as a digital citizen. In other words, it's the unequal access by some members of society to information and communications

[20] *This was from a smaller base in 2006, as fewer SME's connected via a narrowband connection compared to 2005.*
[21] *Connecting Europe at High Speed: National Broadband Strategies, European Commission, 2004*
[22] *Trend Survey Series – Wave3, 2005, ComReg 05/86b, 2005*

technology. Groups often discussed in the context of a digital divide include socioeconomic (rich/poor), racial (white/minority), or geographical (urban/rural).

3.2.5 Availability of broadband

Other issues considered were those around making broadband available in areas that are geographically remote and that do not currently have any broadband service and the need for public funding to accomplish this. The committee strongly felt that there is a need to ensure that when these more remote areas are provided with broadband services that they were affordable and that no discrimination, in effect, was made because of their remote location. The committee acknowledged the roll out of the National Broadband Scheme (NBS) project being undertaken by the Department of Communications, Energy and Natural Resources (D/CENR) which occurred during the lifetime of the committee. The NBS was established in December 2008 to address this gap in services. This scheme is summarised in Appendix 1.

According to the OECD at April 2009 (see Figure 5), 90% of the Irish population was in an area covered by broadband availability and with almost 20 broadband subscriptions per 100 inhabitants (i.e. 20% penetration) Ireland had made a good increase on the 12.5% a broadband subscription at December 2006. The remaining 10% is roughly the area that is covered by the NBS.

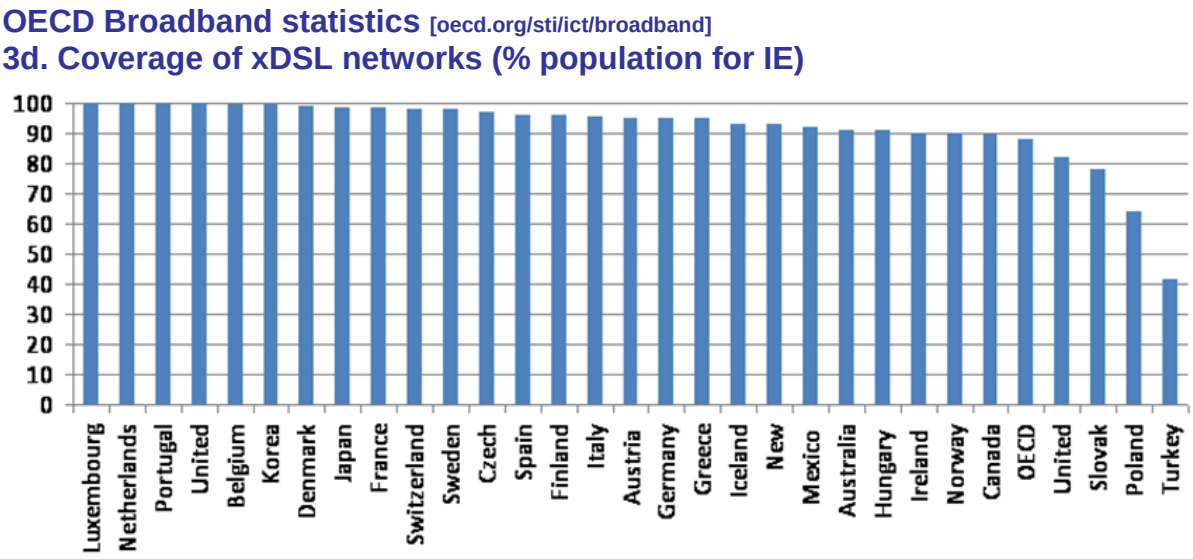


Figure 5 OECD Broadband penetration

Note: Coverage data are measured using different indicators and have different reference dates and thus may not be fully comparable. Further details on the indicators used may be found in the report DSTI/ICCP/CISP(2009)3/FINAL, 'Indicators of broadband coverage').

The availability of broadband has now become a real prospect for most of the population with the expected completion of the network roll out element of the National Broadband Scheme due in October 2010. The D/CENR has mapped the coverage provided by the NBS and has identified that on completion only 1,200 premises will not have broadband coverage. The Department liaised with

the D/CENR and represented the views of the Minister and committee regarding any residue of premises left without broadband coverage. On foot of this the D/CENR approached the European Commission and now has a new scheme, the Rural Broadband Scheme (RBS) which is expected to commence in 2011 to address this residue.

3.3 Education and knowledge

As outlined earlier there are a significant number of farmers who have not had exposure to PC use either at school or in their normal working lives. Whether a PC is available or not, many people may not be aware of the utilities, benefits and specific applications that they could use to assist them in their home and business lives. To increase the uptake of ICT it would appear that education in the use of PC is a major contributing factor that needs addressing.

Notwithstanding this, the leading factor which influences farmers adoption of technology, as per the research on Technology Adoption carried out for the committee is farmers' self-evaluation as to whether they have the adequate knowledge and resources to use the technology. It is reasonable to assume that once a farmer or rural dweller takes that initial step towards learning how to use available technology that they will go on to use it for accessing information to their benefit.

3.4 Fear of technology

The committee felt that there is certainly, for some people, a genuine fear of taking up new technologies. These principal fears can be summarised by the following list:

a) Fear of loss of information.
b) Lack of confidence in themselves and belief in their own abilities.
c) Fear of the complexity of tools.
d) Fear of looking foolish in front of their peers.
e) Fear of the learning curve.
f) Fear that it will consume time, not save time.

These fears may prevent farmers and rural dwellers from getting involved in training initiatives from the outset and they may contribute to the slow uptake of knowledge society technologies. It is imperative that a 'safe' and appropriate training environment be provided to novice computer/technology users, particularly if they are in the older age groups.

There is much public discussion and at times 'hype' in relation to keeping information safe and secure. The advent of computer viruses and worms, and the surrounding publication of potential dangers of attack by these and other means, help to increase the fear of technology in the

uninformed user. It is important that wherever training in PC use is being conducted that good practices with regard to securing the PC, protecting and backing up of its data should be included.

Any training conducted, even with small numbers of farmers or rural dwellers should result in an increase in uptake as more and more people discover that there is nothing to be feared from ICT. An essential element of any ICT training should be that it is context specific, and covers topics that are of use for rural dwellers and farmers.

The experience of one farm management software provider was that there are three types of computer user availing of these services:

1. The 'enthusiastic' users, who catch on quickly to the use of technology and the advantages that this type of software presents to themselves.
2. The 'flyer' type users, who will be good at using the package straight away.
3. The 'challenging case' users, who have to deal with a steep learning curve and require a lot of help and support from the company with the initial use of the software and after.

The Department has provided an online training environment to individuals and groups providing training to farmers and it is anticipated that this service will be expanded. The training carried out has often resulted in farmers signing up for access to online services and in general has provided an insight to the Internet and the types of services and facilities available to them.

Section 4: Sectoral Opportunities

The committee has identified a number of opportunities that it considers will help increase the uptake of ICT. The opportunities can be broadly categorised under the following headings:

1. Increased range of relevant services.
2. Synergies between all actors.
3. Education and information.
4. Cost of hardware.
5. Broadband.
6. Incentives.

4.1 Increased range of relevant services

With an increase in the number of services provided on the Internet there is an increased incentive for people to use ICT, not just for their farming business, but also for other services. In the future and because of the services being provided, it is expected that broadband delivered services will become a part of peoples' everyday lives, in the same manner that TV's, DVD players and mobile phones are used. Broadband technologies/applications are now emerging that will make broadband a future necessity, for example:

- Voice & video telephony at greatly reduced costs.
- Expanded range of online entertainment offerings.
- Convenient, tailored education and training.
- Telemedicine, such as remote monitoring and check-ups from home.
- Remote home security monitoring while people are at work or away.
- Enhanced communications for people with disabilities (e.g. impaired hearing).

The committee feels that the farming/rural community would be quick to adopt technologies where they know they would be beneficial and deliver value to them. The perceived relevance of anything being introduced is a major factor in whether it will or will not be adopted. An opportunity may be presented therefore in 'selling, marketing and promoting' the benefits of ICT wherever possible.

With the abundance of information available on the Internet, farmers like other users often experience "information overload", which can prevent them from focusing on what is relevant and useful. The idea of having a "one-stop shop" portal or service where all relevant information could be accessed was considered by the committee. A "one-stop portal" service may provide opportunities to encourage the use of IT. A portal could, for example, provide access to information on such topics as:

- Education – use of IT, farm tips, local information on Internet etc.

- Information like news updates, provided by the Department and other organisations.
- Access to vendors, to facilitate farm inputs trading, Business-to-Farmer (B2F).

Farm-to-farm sales/trading, such as allowing for the placement of products to be sold online, for example with eBay, and/or a designated site selling primarily advertising and selling agricultural goods, could also be launched in the future. However while such portals attracted users to grouped relevant services in earlier years (e.g. Government services), the major advances and improvements in search engines such as, Google and Yahoo and others has meant that increasingly many bypass such portals in favour of using a non specific search engine and choosing their own "favourite" sites.

A venture such as the 'one stop shop' portal would need further research on its potential use and efficacy, as similar powerful search engines available on the Internet can allow access to similar information but not all in the one designated place.

In order to get people using the Internet and ICT the committee felt that the provision of community portals or websites could provide useful information on local events which community members may have an interest in for example, local news, social activity groups, GAA club news, local lotto results, etc. This forum could serve as an easy introduction to websites and use of a personal computer to the committee's target population. This could help to de-mystify ICT and provide a stimulus to use other applications and on-line services.

However there is a necessity for someone in the community to be a 'local champion' of any such venture. This champion must fulfil several roles and get involved in the promotion of the website/portal and encourage users to keep information up to date etc. Infrastructure for this type of initiative could also be an issue and some form of technologist is probably required initially for set up and possibly for editorial maintenance of any site. The single most important factor would be to obtain and keep up to date relevant information for these sites.

The committee also considered the use of the Internet for trading hubs and using these hubs to facilitate trade between:

B2F – Business-to-Farmer,
V2F – Vendor-to-Farmer and
F2F – Farmer-to-Farmer services.

The committee considered the merits of having a Pilot County in which a focus would be made to provide training and publicity (e.g. with message like "Save 2 hours a week with IT") and push to see the impact in comparison to a neighbouring county. A potential message may read "If you are not using IT, you are not at the races". Other suitable messages along the same theme may be created by consulting the relevant marketing/communications specialists.

There is a need to provide encouragement on the merits of keeping on top of paperwork, be it farm management, small business or home management. However, it should be noted that if this is not currently being done in a paper-based system, an ICT system will not create any immediate benefit to the user. The Department's customers frequently carry out their paperwork at the end of a 12-hour working day, which is not ideal. If administration work is always last thing to get done, it is likely to be first task to be dropped off the list of jobs to do. There is a need to encourage office work to be part of the daily workload. In this regard, mobile computing can present an opportunity to farmers who may be able to record information in the course of the working day and then download or use this data later.

4.2 Synergies between all actors

Both Government and non-government agencies are now providing and allowing users/customers to access data via their websites. . This makes it easier for people to find information relating to their claims, tax relief, planning applications etc. There is an abundance of facts and figures waiting to be readily accessed.

There may be opportunities in the area of sharing data within the private sector e.g. between the Agri-industry and their own customers. Trading online and interactions between farmers and marts/factories/suppliers etc. are all areas where an examination of the potential benefits of sharing data should be made. This is supported by Irish Research[23]. Once benefits are identified, the potential could be realised to increase the number of relevant services available to farmers and rural dwellers. This increase of services would have the effect of making ICT use more relevant and increase the uptake as a result. Trading opportunities may offer an important potential for farmers

The committee identified and mapped all data flows in the agrifood industry. These are shown at Appendix 2. This data map could form the basis to identify opportunities, for those within the industry, to progress this collaboration.

4.3 Education and information

There is an opportunity for localised and focused training and education schemes that can empower people with the knowledge to be able to use a personal computer to access the Internet and their information.

An unpublished study carried out by the IFA, in 2008, showed that most respondents felt they would benefit from training in the use of the Internet and how to use email. An example of where such training proved to be a modest success was with an initiative involving Teagasc, under the LEADER programme in South Kerry, providing agri IT training. A safe training environment for learning was

[23] *Paul Brandon, et. al. E-business developments in the Irish agribusiness industry, EFITA 2003*

provided and served to de-mystify the technology and provided training at a relevant pace. In addition Teagasc (then in partnership with local Vocational Educational Committees (VEC)), launched an "Internet training for farmers" initiative in autumn 2007. Trainers from Teagasc use their own and VEC computer labs in each of their regions to conduct training in specific computer applications like the Internet, email, and schemes and services. A syllabus is available that can be used by trainers and is used as a template for standardised training around the country. As outlined in 3.4 the Department has provided access to Teagasc to a User Training version of the Animal Identification and Movement (AIM) system, thus allowing Teagasc advisors to demonstrate to their farming clients how to access on-line AIM information held by the Department.

Reports of some community based training initiatives in the UK for the commonly-named "silver surfers" (internet users over 60 years of age) proved that there needed to be a local champion/driver if these initiatives were to succeed. This champion was less of a requirement where a formal programme of training was in place. The UK has also been cognisant for some time of the occurrence of a growing urban-rural digital divide and a number of initiatives have been undertaken on a wider basis to address this. One such initiative is the provision of shared or communal Internet facilities within public places – such as village halls, pubs, Internet cafés or other community resource centres (for example, associated with healthcare provision, job search, training etc.).

A further example, closer to home, is the Virginia Active Retirement group where PCs in the Virginia Agricultural Show offices were made available to the public. Some of the group received training by way of night classes and then helped to instruct their fellow members in the use of email and the Internet. The scheme went very well and older people came in, received training, and used broadband, email, etc. The limiting factor at the time (in 2008), as far the group were concerned, was the availability of broadband once you went a few miles out of town. Notwithstanding that, the committee recognised this as an excellent example of a community project that introduced ICT to a large number of people in a local rural area.

It is important to remember that the farming community is just part of a wider community as a whole and that services provided for a wider community could be an incentive to draw in the farming community.

The committee also recognised that the annual National Ploughing Championship provided a unique opportunity to advertise what is available and where it would be available.

A further opportunity may be utilised in the Department's Regional Offices with the implementation of an "Ask and Assist" programme, whereby farmers could avail of a demonstration of the Departments online services by a Department official and receive assistance in signing up for agfood.ie.

There is also a need to have training materials created and focused on the farm/agricultural perspective and the relevance of the material is also important. Teagasc, for example, have

produced a series of workbooks with funding assistance from the National Development Plan, 2007-2013. In particular, an "Internet Training for Farmers" manual has been developed to accompany a course of the same name.

The committee also considered and recommend that the more advanced software such as farm management packages should be demonstrated as part of all third level agriculture training by Teagasc, universities and other third level institutions.

4.4 Cost of hardware

The committee formed the opinion that there is now, no significant barrier surrounding the cost of hardware. There may be an opportunity to educate farmers and rural dwellers on the best type of specification of a computer for use in their business or home and a suggested price point.

4.5 Broadband

The uptake of broadband continues to increase around the country. Figure 6[24] below shows figures from the OECD demonstrating that the penetration of broadband in Ireland has increased over the last five years. This increase coupled with the roll out of the National Broadband Scheme signals

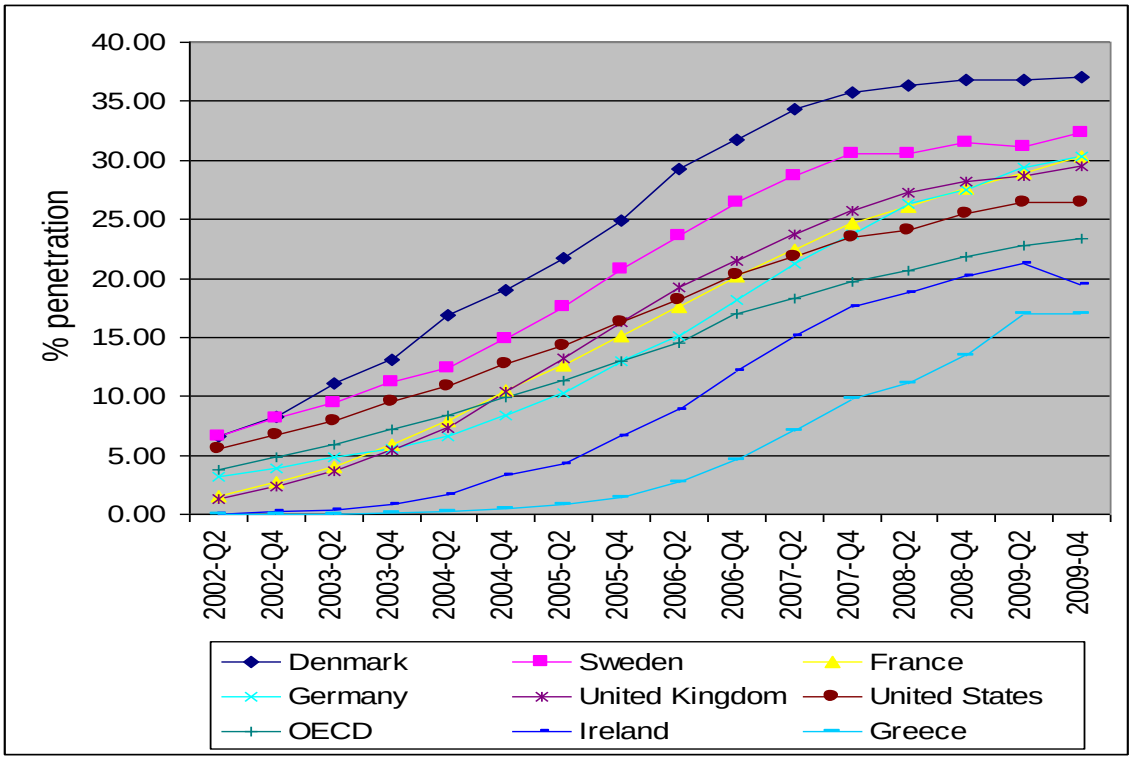


Figure 6 OECD historic broadband penetration rates

[24] Source OECD [www.oecd.org/sti/ict/broadband] 1g. OECD historical broadband penetration rates

that there should be some optimism in relation to broadband availability/usage and that this could be a foundation upon which to build the work of increasing the uptake of ICT, particularly in rural areas.

According to ComReg[25] the total Internet and broadband subscriptions at the end of March 2010 had increased again on the previous quarter to 1.6m and 1.5m respectively. Narrowband subscriptions at one hundred and five thousand continued to fall (-17.7%) as broadband subscriptions (fixed and mobile) increased by 4.5%. The fixed broadband penetration rate reached 22.4% in that quarter while the total broadband per capita penetration rate (including mobile broadband) reached 33.9%. These figures show that the uptake of broadband continues to increase.
As the overall broadband customer base increases it appears likely that users of broadband will be less focused on the aspects of the speed of the connection and more on the usefulness of the Internet or its applications. In drawing an analogy between broadband and mobile phone uptake, there is no single 'killer application' of broadband whereas mobile phone penetration provided 'mobile contact ability' when mobiles were launched. This lack of a killer application will not hinder the usefulness of the Internet as the large list of up and coming services outlined in section 4.1 shows.

In the mind of the consumer, **price** and **usefulness** are inextricably linked as perceived value for money. The Irish consumer will pay for something if they believe it's worth it and they receive value. Currently, it would appear that customers believe that broadband services do not represent good value for money. In other words, broadband is too expensive for what a consumer perceives can be done with it. This is in spite of the potential savings that can be made in terms of telecom costs and subsequent savings on on-line transactions (e.g. airline tickets).

The Consumer ICT Survey market research commissioned by ComReg in July 2010[26] showed that people are likely to switch Internet Service Provider (ISP) based on cost. Looking at those who switched in the last 12 months over 50% switched on cost based factors - 28% of these switchers did so because they found a better priced package which included broadband and a further 27% of people switched based on cheaper ISP alone. However further studies carried out in March 2010 by ComReg[27] in the Small and Medium Enterprises sector (SME) found that reliability of service was the most important factor for business with 56% of respondents choosing this option in a poll. Only 5% deemed cost as the most important aspect of business broadband service but 70% of respondents indicated that they would switch ISP if they could make a 10% savings on their broadband bill.

[25] Source: ComReg PR170610
[26] Source: ComReg, ComReg_1062r
[27] Source ComReg ComReg1033

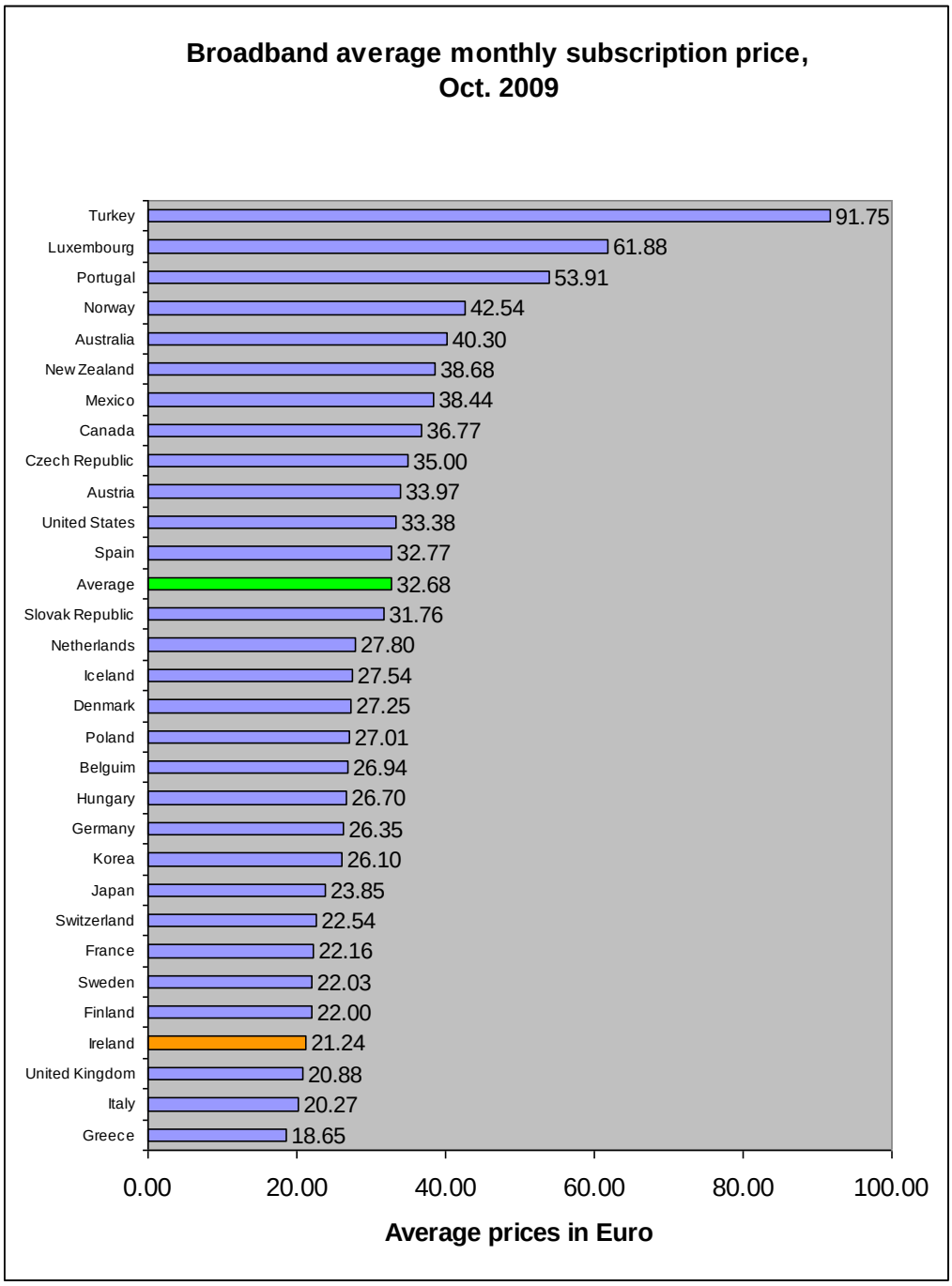


Figure 7 Broadband Average Monthly Subscription Price

In addition, October 2009 figures from the OECD indicate that the average cost of broadband in Ireland is low compared to other countries (see Figure 7[28]). Irelands average subscription rate was €21.24 (Note: figures converted from USD from original using conversion rate of $1=€1.4753 which applied on 30/10/2009). This price is not much more than our neighbours in the UK and is significantly less than other countries such as the Netherlands, who both have a high uptake of broadband and ICT. The pricing of broadband, in conjunction to its increased availability, has helped to increase of the uptake of broadband subscriptions in Ireland.

[28] Source OECD [www.oecd.org/sti/ict/broadband] Chart 4e

4.6 Incentives

As alluded to earlier, it was felt that uptake of IT was generally positive within the dairy sector (see Section 2) because, at the more commercial end of farming, computers greatly assisted in reducing the administration burden and paperwork. The direct benefits of using IT in this type of agriculture business were more apparent and useful to the daily running of this business. Reducing paperwork is a prime example of an incentive for farmers to use IT. There are opportunities for agricultural business to interact more closely with its customers.

The committee considered the merits of grants-in-aid scheme for assistance in the purchase of computers, hardware, software and broadband setup. It was the committee's view that the Farm Improvement Scheme (FIS) could be tailored to facilitate such a grant. The group felt that any such grant would require that some demonstrable benefit would accrue to the Department in return for such a grant. A clear and realistic benefit to the Department for example would be that all grant recipients would undertake to submit claims on-line e.g. register calf births on-line and that availability of any grant aid would have to be conditional on a switch to online interaction. Given that FIS in no longer currently available the committee asks if this could be tabled for consideration in any future iterations of FIS. This too would require further research and is obviously constrained by ever tightening budgets in the present difficult economic climate.

The committee identified a potential in the provision of new services in the area of farm-to-farm trade and that these could provide benefit to farmers. Merchants have a lot of costs to bear in running a business not least being the cost of bad debt. Provision of on-line trading would help to reduce costs for merchants and farmers and increase use of technologies by farmers.

A competition for local Community Websites, to run in the same manner as the 'Tidy Towns' competition, was also considered. This type of competition could provide an incentive to stimulate communities to create and maintain local websites and harness the community spirit so evident in sports clubs and tidy towns committees. This would have the added benefit that content would be particularly relevant to local users and would create a reason for current non-users of ICT to think about getting on-line.

A further suggestion which was considered was the creation of an annual award to be made to a farmer who has availed of the most innovative use of ICT on the farm.

There was some strong feeling from the representative bodies that electronic records should count for something and that those interacting electronically should receive incentives or be rewarded in some way. The committee considered whether incentives could be offered by the Department for completing forms on-line (e.g. Department could make a priority payment or else allow for later date of submission of claims) similar to those offered by Revenue On-line Service (ROS) who allow an

extended deadline for their on-line users? In the UK registrations on-line for pedigree Holsteins get 50p rebate/discount

The Department was aware of the committee's views regarding rewards and took these views into account as part of the Animal Welfare Registration and Breeding Scheme for Suckler Herds (AWRBS) where €2.00 extra incentive was paid for animals that qualified for the scheme and that were registered online in 2008 (€1.00 per tag in 2009) . At the end of 2009 there were 54,389 herds that had registered for the scheme and 5,496 of these had signed up to register animals online. With over 300,000 tags registered online and attracting total payments of over €450,000 the incentive option has proved that it does work. The committee was pleased to recognise this new development, not alone for the benefit to the farmers but also in relation to the increase in uptake of the numbers using online services.

Any further developments of this would need further and detailed examination by the Department and would need to be cognisant of possible legislation changes while at the same time ensuring that no discrimination is introduced into any business process. In relation to any EU funded schemes the EU prohibits any discrimination between online and off-line customers. The cost of any incentive needs to be considered in terms of the present economic downturn.

Section 5: Research

The interim report recommended that research in the area of fear of technology and barriers to the use of ICT in a changing technological environment be carried out. This type of research, it was felt, would be of benefit for the Final Report of the committee and in particular to help provide guidance on measures that would increase uptake of ICT and also to lay down a basis for future research in the realm of adoption, barriers to uptake, etc. An approach was made to the committee by Dr. Regina Connolly, Senior Lecturer in Management Information Systems (MIS) at Dublin City University's (DCU) Business School, with a view to carrying out some research in the area of adoption and usage of technology by farmers. The committee met with Dr. Connolly and agreed to her research proposal. Dr. Connolly generously agreed to carry out this research for the Department while on sabbatical from DCU.

In December 2009, surveys were issued to a stratified sample of 1,200 farmers. The survey was accompanied by a letter from the Minister for Agriculture, Fisheries and Food to emphasise how important the survey was to the work of the committee. DCU also hosted the survey on their servers and made it available to the online community. Dr. Connolly was assisted by Ms. Valerie Woods of D/AFF.

The research examined the technology adoption and usage by farmers in Ireland. The report of the survey has now been completed and is available to be viewed online at http://www.agriculture.gov.ie/media/migration/publications/2010/TAF_Report.doc. The report consists of five main sections. The first describes the response rates obtained from the postal sample while section II provides a descriptive picture of the characteristics of the respondents. Section III of the study examined a number of key factors to test the degree to which these factors influence farmers' intentions to adopt and use farming software and websites. The results obtained from the qualitative section of the research are outlined in Section IV of the study. This qualitative research consisted of 1:1 and focus group interviews with farmers and farming bodies. Finally, Section V of the report provides a basic outline of the technology readiness of the farmers examined in this study.

In analysing the responses to the survey, a psychometrically validated model was applied and the results were rigorously examined. Tests of the internal reliability of each of the survey constructs were conducted as was factor analysis, correlation techniques, partial correlation tests, analysis of variance and regression analysis. Each of these helped to clarify and verify all elements of the study.

5.1 Summary/Highlights of Research

The third section of the research report, as previously stated, examined the influence of a number of key factors on farmers' intentions to adopt and use farming software and websites. This was the most significant area of the study. The key independent variables under consideration were Performance Expectancy, Effort Expectancy, Social Influence and Facilitating Conditions. Variables including Anxiety, Self-efficacy, and Experience were also included.

Performance Expectancy is defined as the degree to which a farmer believes that using farming software or websites will help him or her to attain gains in farming performance**. Effort Expectancy** is defined as the degree of ease associated with use of the system. **Social influence** is defined as the degree to which a farmer perceives that people who are important to them believe he or she should use the new system. **Facilitating Conditions** relate to the degree to which farmers believe that they have the knowledge and resources necessary to use the farming software and websites.

All of the variables were examined in relation to their influence on the dependent variable, which is Behavioural Intention to adopt and use farming software and websites.

In summary, the results indicate the following:

1. **Facilitating conditions** is the factor that **most influences** Irish farmers' intentions to use farm software and websites.

2. **Age and gender** have a slightly stronger influence on farmers' intentions to use farming software and websites than does their experience of using these technologies.

3. The degree to which farmers believe that using farming software and websites will help him or her to attain gains in farming performance **(Performance Expectancy)** and the degree of ease associated with use of the system **(Effort Expectanc**y) also influence farmers in their intention to use farming software and websites, but to a far lesser degree than does their belief that they have adequate knowledge and the necessary resources to do so.

4. **Social influence**: For farmers, their intention to use farming software and websites is more strongly influenced by those people who are important to them than by the support or helpfulness provided by neighbouring farmers. The influence of people who are important to them exerts the same bearing on farmers' intentions to use farming software and websites, as does their perception of their own competency to use that software.

The main factors which have been found to have an impact on technology adoption decisions in this sector are:

- Educational Level is the main factor which has shown to have an impact.
- Facilitating Conditions.
- Perceived usefulness of technology (Performance Expectancy).
- Influence of Family (neighbouring colleagues are found not to be influencers).

Some other interesting facts arising out of the questionnaire include:

Other employment: The majority (52%) of the respondents were employed in a sector other than farming. The employment type varied considerably, with 17% describing their employment as 'other' and 12% self-employed.

PC Use: 17% of respondents indicated that they did not own a PC however, 67% of this small group had access to a PC at work. Therefore overall, 96% of respondents either owned or had direct access to a PC.

Internet Access: Nearly half of the sample had Internet access from home, with only one fifth having access from both home and work, but over one quarter of the sample did not have any Internet access at all. Of the respondents who had Internet access, nearly two thirds of the sample had broadband internet connection.

Use of AgFood.ie: Nearly one third of the respondents were not registered to use to AgFood.ie. Of the remaining 68%, who do use AgFood.ie, an equal amount use these services to register calves, to view herd information and to view Single Farm Payments.

Reasons for use of farm software or websites: The majority of the sample (44%) use farm software or websites for the purpose of animal husbandry/ recording and electronic herd registration. Farm planning/budgeting, farm monitoring and control and milk production tracking were cited as reasons in equal frequency of usage.

Recommendations arising

1. Devise measures to increase the quality of facilitating conditions.
2. Targeted training interventions.
3. Continued emphasis on benefits of ICT usage and user friendliness.
4. Further exploration of social influence factors and agency role vis a vis adoption of web based technologies for farming to enable further targeted interventions.

5.2 Future research

The committee, during its deliberations, identified a number of areas that would benefit from further research. While neither the committee nor the Department have a desire to define what should and should not merit research in an Irish context there are topics that the committee would like to see further explored due to their relevance to the items covered in this report.

The area of technology adoption and usage is a significant area that needs further and ongoing research. It is important that a monitor is kept on how Ireland is progressing and how it compares to other countries. The committee is aware of a number of ongoing and current projects that are addressing this area and includes a long term project being undertaken by Teagasc and also work being undertaken by several students working on their doctoral theses.

The use of focus groups and education is another area that could benefit from research. There is a possibility of funding being available under the Rural Development Programme to set up education projects that would see farmers and rural dwellers being taught about PC usage, the Internet and email. Researching the effectiveness of using focus groups and combining with education projects would warrant consideration as to whether this is an effective means of increasing the uptake of ICT in general.

Similarly, as a variant of the education theme, the setting up of a pilot e-Tutor scheme and evaluating its effectiveness is another area that could be researched. This type of scheme could also be in line to receive funding from the RDP.

A further area of research would be in the area of studying the potential effectiveness of an Internet one-stop-portal to information at either local or national level. There are difficulties to overcome in the portal idea: who controls it, who provides content, who edits, who determines policy, who funds it, etc. While the setting up of a portal is a more involved and detailed project, it would be worth exploring the potential benefits of the portal concept.

While the research carried out on behalf of the committee has identified the barriers that are most significant in the uptake of ICT in the farming environment there is an opportunity now to carry out further research to determine how these particular barriers have occurred and how they may be overcome or mitigated.

Section 6: Recommendations, actions and findings

There were many ideas and recommendations presented in the interim report and have since been developed further by the committee. A number of these recommendations have already received some consideration/action on the part of the Department. The full list of recommendations being put forward by the committee is listed in the following subsections and any progress/results are outlined where relevant.

6.1 Focused Promotion

The committee believed there was a value in the Department running a focused promotional campaign in a chosen area, both from the perspective of the uptake of ICT and also as a valuable measure of the effectiveness of such promotional activities.

As a result, a campaign involving promotions and demonstrations outlining the benefits of ICT use in general and of services available to farmers and rural dwellers was carried out in March 2008 in the Wexford area. The Department, in tandem with the AgFood.ie helpdesk area, organised to publicise its online services and provide backup to people wishing to register for online services. The campaign involved a tailored postal campaign, an open night, local radio and press advertisements (a sample of poster is included in Appendix 3), and having a mobile multi media van situated at a mart in which people could view the online services available to them. The campaign ran over four weeks and farmers were encouraged to contact their local DVO (Enniscorthy) for help with registering or to view the services available.

Over the course of the campaign 157 customers from Wexford registered for online services. This increase in registration represented 4% of all potential customers in Wexford, compared to the national average increase, at the time, which was 1%. Wexford had 22.5% of its customers registered at the end of the campaign. This placed Wexford in a relatively favourable position in terms of the percentage of customers registered for AgFood.ie – (Leitrim was lowest with 9.5% and Waterford highest with 26%). The up to date figures for Wexford (at Oct. 2010) reveal that there are now 51% of the potential customers registered for online services and a further 11% who have authorised an agent to act online on their behalf. The committee was pleased to note that the figures in Wexford have continued to increase and compare with Waterford which is now at 59% for D/AFF online services with further 10% with agents.

While these initial trials did result in a small increase in the uptake of online services, the Department felt this success was limited relative to the costs involved. It was considered too costly to sustain a campaign in further counties or nationally. However, one of the lessons learned was that the radio advertisements were the most effective part of the campaign.

6.2 Promoting use of ICT

Many of the organisations represented on the committee are well placed to provide a communication channel to the target groups of potential adopters of ICT. The committee asks the Minister to urge these organisations to avail of opportunities to promote the uptake of ICT in rural areas through their various fora. Opportunities for promotion through joint programmes of these organisations along with farm management software providers should be exploited also in the future.

6.3 Presentation and Video

In support of the interim recommendations relating to promotion of ICT by all organisations the Department produced a DVD to help encourage the use of ICT, the Internet and the Departments online services. The DVD was ready for circulation in May 2009 and was circulated to the farming organisations. The video contains eight chapters covering topics such as an introduction to the Internet and the typical services available; how to register for AgFood.ie; privacy and use of personal information; etc. The cost of the DVD production was €34,000 and included the supply of 10,000 copies. Segments of the video are now available on the D/AFF website and have been screened at the National Ploughing Championships in 2009 and 2010. A detailed list of the chapters and links to the online videos are available in Appendix 4.

6.4 Research

In the Interim report the Committee recommended that a research resource be recruited or assigned from existing resources to assist in the work of the Committee. Dr. Regina Connolly, DCU, generously offered to carry out a significant batch of research on behalf of the committee. An Administrative Officer from the Department who was conducting research for the purpose of obtaining a Masters Degree assisted in the research effort. A summary of the report of this research carried out with Dr. Connolly is set out in Section 5 of this report.

6.5 Nitrates information

The interim report highlighted the importance of Nitrates information and to making it available online. This request was considered early in the committee proceedings in 2007. The Department provided the necessary computer facilities and the relevant data was made available as part of www.AgFood.ie in April 2008.

6.6 Agri-Industry

The Committee holds the view that the Agri-Industry could continue to improve mechanisms for engaging with their customers by provision of online services. These services could be used for

conducting transactions and accepting customers' feedback e.g. grading information, kill out weights, etc. The Committee recommends that the Department urge the industry where possible to adopt electronic communication channels for interacting with their customers.

6.7 Broadband

The interim report, in mid 2008, stated the following in relation to broadband in Ireland;

> "*Since lack of affordable broadband has been identified as a major obstacle, the committee recommends that the Minister urge the Minister for Communications, Energy and Natural Resources to accelerate the rollout of affordable broadband to rural areas.*"

The situation has now moved on a pace and broadband is now much more widely available. In addition the prospect of the Rural Broadband Initiative, to be tendered for in 2010, will result in a project that will fill any remaining gaps in coverage. The Department liaised with D/CENR about the rural broad band coverage and the prospects of the NBS. The agreement to run a new Rural Broadband Scheme to redress the residue left by the NBS was welcomed by the committee.

The onus should now switch back to the Department and the agri-industry to encourage farmers and rural dwellers to participate in using ICT and to avail of broadband. The opportunities now presented are outlined in Section 4.

6.8 Communication channels

The Committee believed it was timely for the Department to exploit the technical abilities that it has developed in recent years and to communicate using these technical alternative channels. In particular, the committee asked that consideration be given to the use of emails and text messaging as an acceptable alternative to written communication, where the customer chooses this as an option. Such emails should have a well-defined Subject Line description to avoid confusion between this correspondence and 'junk mail'.

A number of Departmental applications already have email facilities built into them so that emails can be generated either automatically as part of a business process or manually by a user of the system. There are at least 10 'Departmental computer applications that can issue emails to customers containing documents such as herd profiles, purchase order approvals, payment slips, sales invoices, etc.

A further step towards expanding the use of email as a means of communication was implemented in July 2010 with the provision of a service to allow herd owners to use the Departments database as their online herd register and to eliminate the requirement for manual herd registration. By September 2010, 2,600 customers had registered for the service. As part of the registration, customers are asked if they wish to avail of email correspondence and to supply their email address.

The Department needs customer permission to switchover to e-mail and a number of mechanisms are currently being explored.

It is also expected that the Department's Single-Sign-On security system will look at the possibility of allowing customers to self-serve their own accounts with regard to password resetting by using email as a means to inform users of new passwords.

Email was examined as a mechanism of sending the Annual Payment Statements instead of issuing them by post. One of the considerations that prevented this was that email was not considered as the most suitable means to send sensitive data. Additionally there are presently only about 8% of customers registered with the Department who have email addresses (almost 16,000). The administrative effort to gather and maintain these addresses and to get customers to either opt in or out to receive communications of this manner would be quite large.

Consequently while email usage is fairly widespread in Ireland there continues to be potential to increase this usage in the future. The Department are actively looking at all opportunities for using email as a means of communication where it has been considered as being a suitable medium for the message/correspondence type.

The new Customer Snapshot Application was developed in the Department and its use at first points of contact with customers will underpin and support staff in the collection of email addresses.

6.9 Message Box

In conjunction with 5.8 above the committee recommended that the Department, in consultation with other Departments, explore the feasibility of providing a Department hosted 'message box' for each customer. This message box would retain a copy of correspondence, issued by the relevant Department, to the customer. There would be significant advantages for the Department's customers in the use of such a facility as it would be possible for a subscriber to avoid 'Spam' and 'junk mail'. The Revenue Online Service (ROS) was cited as an example of what would be desired.

The Department gave some consideration to the provision of such a service and in particular examined the ROS and PAYE Anytime facilities. Such a facility would involve the creation of a bespoke application to handle these types of messages. The ROS inbox application is not email, it is a java based application which mimics some of the features of web mail but does not give the customer actual email functionality. Users can opt to have documents issued by paper or electronically and they will be posted to this inbox when the electronic option is chosen. In addition an email will issue to user to advise to check their ROS inbox. It uses Revenue's own user authentication application. There is presently no requirement from any business area or ICT application in the Department for such a service and the building of such an application would have cost implications which might not be appropriate given the current economic environment.

In light of current economic climate regarding costs and value for money, the Department of Finance have indicated that these types of projects should not be initiated by an individual Department without approval. This is particularly important if there is a potential of a shared service providing the necessary facilities. While this does not prevent the Department making a case for such a project, it would have a stronger case if other Departments, Offices or Agencies had similar requirements for such a facility.

6.10 Data exchange standards

The Department commenced an exercise to look at the relevant data flows between different organisations and individuals, to document these, and where possible set standards with regard to the data being passed. The terms of reference were as follows:

1. Get any outstanding feedback so that all data flows are identified
2. Establish the following information in relation to each flow:
    - Volume of transactions
    - Current Electronic Exchanges
    - Existing Data Standard (such as and registered EDIFACT or XML)
    - Is there a De Facto Irish Standard
    - Opportunity for Standardisation
    - Value of information (for re-use)
    - Likelihood of uptake
    - Priority (based on combination of volume, value and likelihood)
3. Identify those willing to engage in standardisation effort and/or participate in a pilot (for priority exchanges)

The first part of the exercise to determine the flow of data has been completed and the current known position is as shown in Appendix 2. The next steps are to look at volumes, value, priorities, etc. The committee recommends that the organisations mentioned in this analysis would take note of the contents and endeavour to establish as many means of transferring data by electronic methods as is possible and suitable. The parties should establish standards for the format and file types to be used.

6.11 LEADER programme

The Committee recommended that the attention of the Local Action Groups (LAGs) involved in the delivery of LEADER-type actions be drawn to the opportunities for funding under the new Rural Development Programme. The Rural Development Programme (RDP) 2007-2013 places a specific emphasis on building the capacity of rural dwellers particularly in the context of the use of technology. Under the Programme eligible initiatives include the development of training facilities in

rural areas and facilitation of distant learning through the use of new technologies. The Programme also supports the building of capacity of rural dwellers to utilise ICT including internet to access e-services and other public/commercial electronic applications.

There are 36 LAG's contracted, on behalf of the Department of Community, Equality and Gaeltacht Affairs (D/CEGA), to deliver the RDP throughout the country and these groups are the principal decision-makers in relation to the allocation of project funding. Such decisions are made in the context of the individual group's local development strategy and in line with the Department's operating rules and EU regulations.

Given the bottom up nature of the RDP there is currently no structure in place that facilitates the operation of a national scheme of ICT training for farmers, farm families and other rural dwellers. Local groups wishing to facilitate such a training scheme should be advised to contact their local LAG. Contact details for all LAG's can be found on D/CEGA's website at www.pobail.ie.

One such example that was considered by the committee and might benefit from such funding is the idea of providing an e-Tutor mentoring scheme. Such a scheme would see e-Tutors engaged to encourage and support customers in the use of Internet, email, maintaining anti-virus software, etc. in their early days of ICT usage.

6.12 Education - open days in colleges

A recent survey of farmers in Macra showed that quite a number were unaware, for example, of the services being offered by the Department. Similarly many young farmers may not be aware of the range of farm management packages available or the functionality that they provide.

The committee recommends that all universities and colleges with third level agricultural courses should, as part of their courses, seek a means of providing students with such an awareness of these ICT products and services available to assist in farm management. This could be achieved by the inclusion of a specific course module or by facilitating some form of open day for the vendors of products and providers of services. The farm software industry and the colleges should discuss this matter further to determine what mechanisms would be most feasible for all involved.

It is believed that such initiatives would serve to increase the knowledge of younger farmers and help to increase the uptake of ICT in general in farming and rural communities.

6.13 Awards for those using ICT

The committee considered ways to provide recognition for those communities and individuals who made the best use of ICT – something along the line of the 'Tidy Towns'. This would not alone

recognise the effort and achievement, but would have the additional benefit of providing a further means of promoting the uptake of ICT.

Two suggestions are recommended, the first being a competitive annual award for the best community website, and the second being an award for an individual farmer who has availed of the most innovate use of ICT on the farm.

6.14 Department's Local Offices

The committee is aware of developments in the reorganisation of the Department's local office infrastructure over the last year. The committee feels that there may be an opportunity to take advantage of the reorganisation and for Department staff to be able to assist and demonstrate, to farmers, the Department's online services. The committee recommends that the Department give consideration to a programme whereby Department staff could offer farmers visiting regional offices a demonstration of the Departments online services and assist them in signing up for agfood.ie.

Section 7: Glossary

Glossary of terminology and acronyms used in the report

ADSL	Asymmetric Digital Subscriber Line, is a form of DSL, a data communications technology that enables faster data transmission over copper telephone lines than a conventional voiceband modem can provide
AgFood.ie	Department of Agriculture, Fisheries and Food on-line services website
Agri-Vision 2015	Action Plan setting out details of specific actions to be taken by the agriculture and food industries to achieve a vibrant future for the industry
AIM	Animal Identification and Movement system
AWRBS	Animal Welfare Registration and Breeding Scheme for Suckler Herds
B2F	Business-to-farmer
Broadband	Broadband, in telecommunications is a term that refers to a signaling method that includes or handles a relatively wide range of frequencies, and especially pertains to an internet connection with a much larger capacity than dial-up or ISDN.
CAP	Common Agricultural Policy
ComReg	Commission for Communications Regulation
CSO	Central Statistics Office
D/AFF	Department of Agriculture, Fisheries and Food
D/CENR	Department of Communications Energy and Natural Resources, formerly D/CMNR
D/CMNR	Department of Communications, Marine and Natural Resources, now called D/CENR
D/CEGA	Department of Community, Equality and Gaeltacht Affairs
Dependency culture	A type of society which relies upon, and often expects, state benefits and other support to maintain it
DSL	Digital Subscriber Line
DSL	Digital Subscribe Loop or Line, is a family of technologies that provide data transmission over the wires of a local telephone network.
DVD	Digital Versatile Disc
DVO	District Veterinary Office
EFITA	European Federation for Information Technology in Agriculture
EU	European Union
F2F	Farmer-to-farmer
FDII	Food and Drink Industry Ireland
GAA	Gaelic Athletic Association
Google™ Earth	Google™ Earth is computer software that combines the power of Google™ Search with satellite imagery, maps and terrain to allow viewing of the world's geographic information
IBEC	Irish Business and Employers Confederation
ICBF	Irish Cattle Breeders Federation
ICMSA	Irish Creamery Milk Suppliers Association
ICOS	Irish Co-operative Organisation Society
ICSA	Irish Cattle and Sheep farmers Association
ICT	Information and Communications Technologies
IFA	Irish Farmers Association
Internet	Worldwide, publicly accessible series of interconnected computer networks

ISDN	Integrated Services Digital Network is a telephone network system, designed to allow transmission of voice and data over ordinary telephone copper wires.
ISITA	Irish Society for Information technology in Agriculture
IT	Information Technology
Knowledge Society	Is a society where human activities become ddependant on a huge volume of knowledge and information
LEADER	Is the EU Community Initiative for Rural Development that provides approved Local Action Groups with public funding (EU and National) to implement multi-sectoral business plans for the development of their own areas.
MACRA	Macra na Feírme – voluntary organisation for young people
Mbps	Megabit per second or 1,000,000 bits per second
OECD	Organisation for Economic Co-operation and Development
PC	Personal computer
RFID	Radio Frequency Identification chips
ROS	Revenue Online Service
SME	Small and Medium Enterprise
SMS	Short Message Service
SPS	Single Payment Scheme
Teagasc	Irish Agriculture and Food Development Authority
Trojan Horse	Is a piece of software which appears to perform a certain action but in fact performs another. This action may or may not be actually malicious, but Trojan horses are notorious today for their use in the installation of programs providing access to your PC without your knowledge.
UCD	University College Dublin
UK	United Kingdom
V2F	Vendor-to-farmer
VEC	Vocational Educational Committee
Virus	A computer virus is a computer program that can copy itself and infect a computer without permission or knowledge of the user.
WAP	Wireless Application Protocol
Worm	A computer worm is a self-replicating computer program that uses a network to send copies of itself to other computers, often without any user intervention. Unlike a virus, it does not need to attach itself to an existing program.

Appendix 1 – National Broadband Scheme

Summary of National Broadband Scheme[29]

Introduction

In 2 May 2007 the Department of Communications Energy and Natural Resources (D/CENR) announced the commencement of the procurement process for the National Broadband Scheme (NBS).

The objective of the NBS is to encourage and secure the provision of broadband services to certain target areas in Ireland in which broadband services are not currently available and are unlikely to be available in the near future. It is envisaged that the NBS will lead to a broadband product being available to fixed locations in these areas, which is affordable, sustainable and scaleable. It is intended that the broadband service delivered under the NBS will be broadly comparable to the products enjoyed in the majority of currently served areas, now and in the future.

Broadband Coverage

In order to assess the extent of broadband coverage, the D/CENR contacted known service providers and sought details as to their current and future purported broadband coverage. Based on information provided by such providers an indicative broadband coverage map was published on the D/CENR's website in early May.

An updated indicative coverage map has been published on the D/CENR's website at: www.dcenr.ie/communications (and is included in this Appendix for reference only). The map denotes the following defined coverage areas:

> "**Red areas**" are currently served by broadband service providers.
>
> "**Blue areas**" are currently without broadband coverage, but service providers have indicated that they plan to provide broadband services in these regions in the future.
>
> "**Green areas**" identify remaining areas where no service is currently provided and is unlikely to be provided in the future.

National Broadband Scheme Coverage

In ensuring the provision of broadband services for consumers and businesses through the NBS, the D/CENR wishes, insofar as is possible, to minimise potential distortions in competition. The focus of the NBS is, therefore, on areas that are unlikely to have broadband services available within a reasonable timeframe.

The D/CENR intends that 'green areas' will fall within the scope of the NBS.

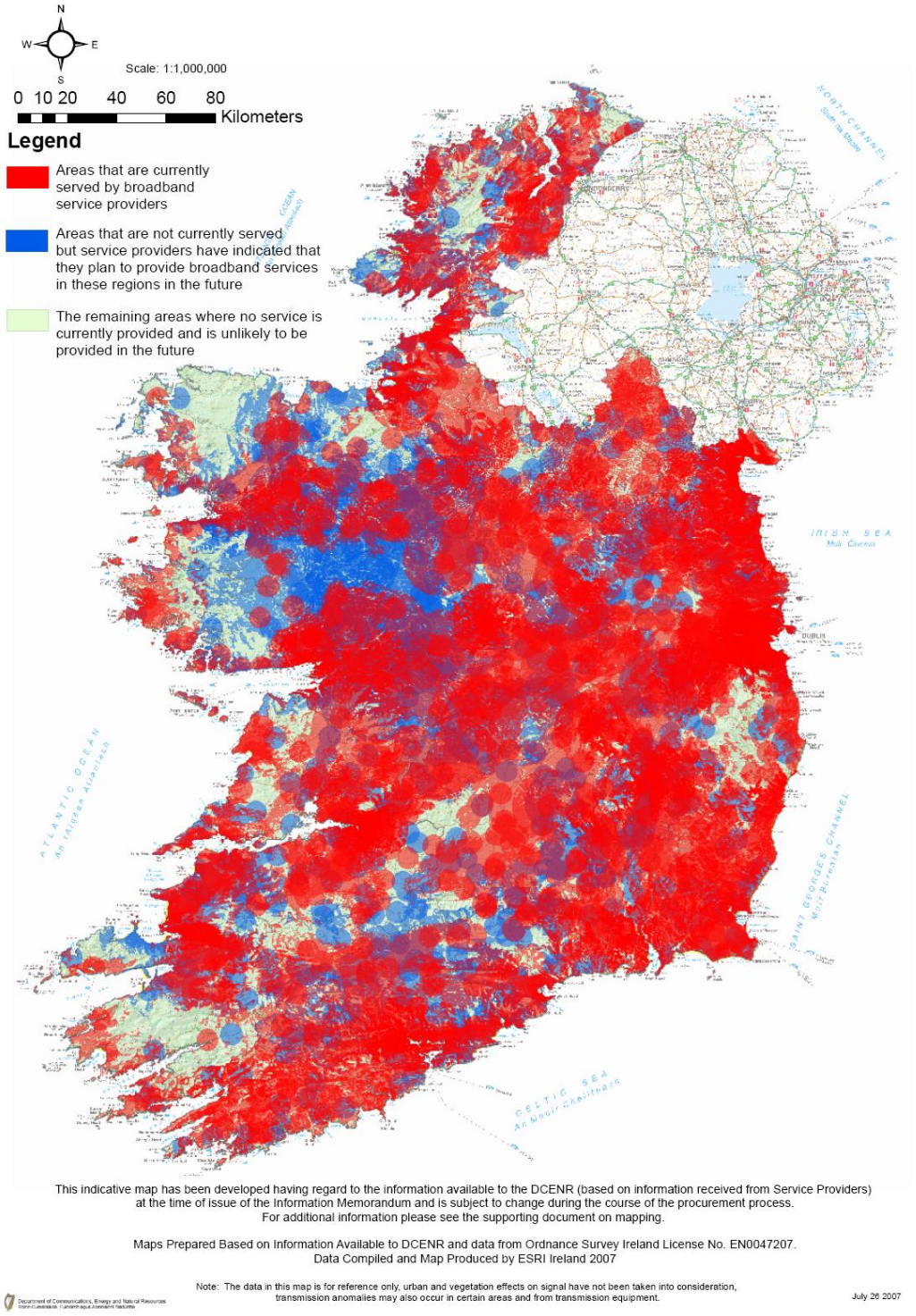
Consumers/businesses in the blue (and green) areas have, to date, been denied access to broadband services since they first became generally available approximately 5 years ago. The D/CENR considers that it is no longer justifiable for this broadband deficit to continue, particularly from social inclusion and economic competitiveness perspectives. The D/CENR considers that it should exclude blue areas from the scheme at this point in time. It intends that services providers will be given a reasonable timeframe to roll out broadband services to these blue areas, after which any unserved areas at that time will be facilitated by the NBS.

The blue areas will, therefore, be included in the scope of the NBS from the outset and the NBS procurement process will seek to address these areas. However, the provision of broadband to the

[29] *National Broadband Scheme: Approach to NBS broadband mapping and coverage August 2007, D/CENR*

blue areas via the NBS contract will not take place until the beginning of Q3 2008. Up to the end of Q2 2008, where the D/CENR is presented with clear evidence that a 'live service' is being provided to users in blue areas, the service provider's particular service footprint will be removed from the NBS coverage requirements.

Wireless and DSL Broadband Coverage 2007



Source D/CENR July 2007

Update on NBS progress

Following the conclusion of a competitive tendering process, the contract to implement and operate the National Broadband Scheme (NBS) was entered into with "3" (a Hutchison Whampoa company trading as 3) on 23 December 2008.

The NBS aims to deliver broadband to certain target areas in Ireland in which broadband services were deemed to be insufficient. Under the contract, 3 are required to provide services to all premises in the NBS area who seek a service. In order to facilitate competition in the area, 3 are also required to provide wholesale access to any other authorised operator who wishes to serve premises in the NBS area.

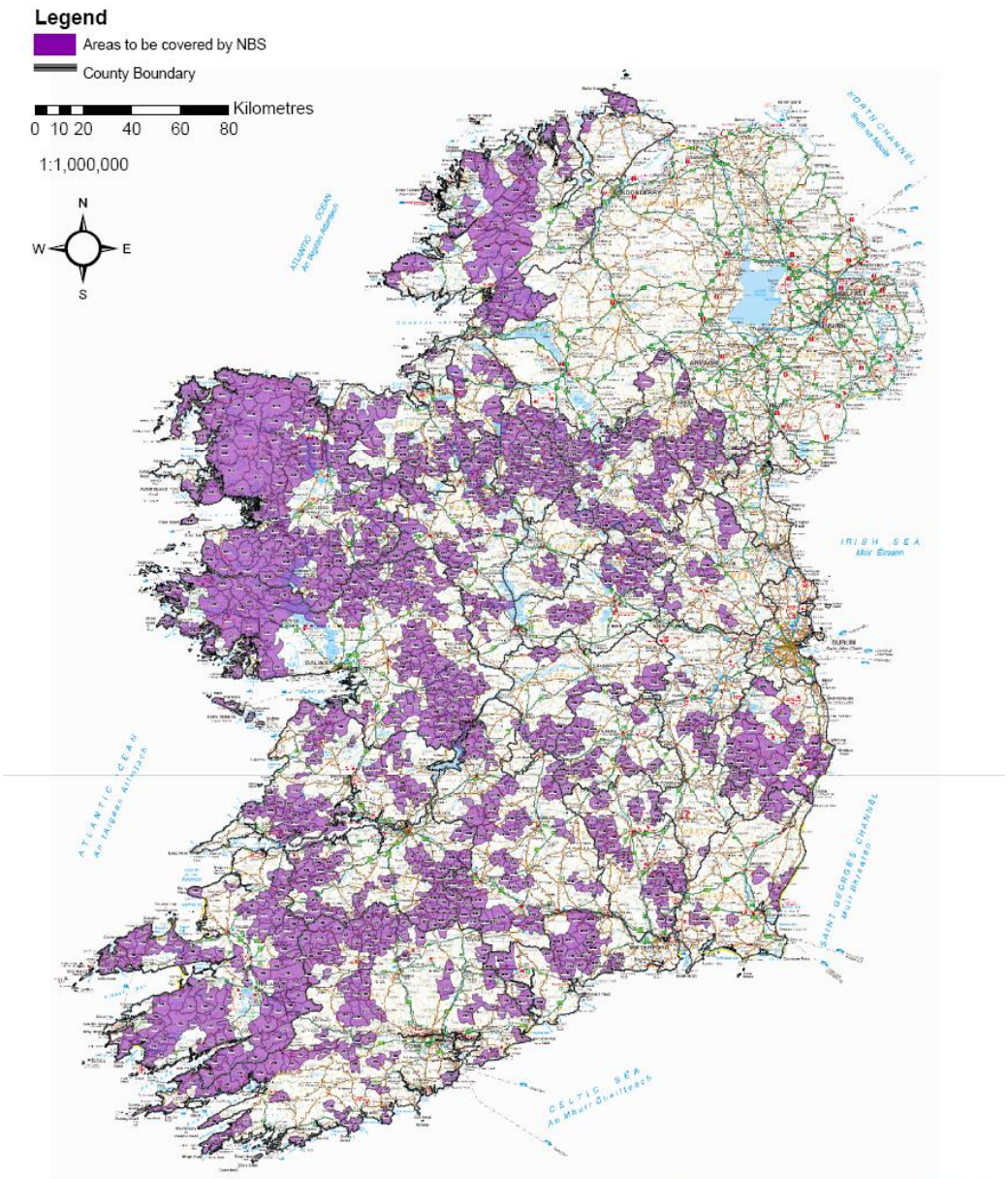
Under the terms of the NBS contract, 3 is required to have provided coverage in all 1,028 Electoral Divisions (ED) by end of October 2010. A map showing the areas to be covered is available from D/CENR website and is shown below for reference.

The original date for this was September 2010, but following a request by 3, under the Force Majeure provisions of the NBS contract, the Minister granted a 4 week extension to the September 2010 date due to the time lost in the network roll-out during the severe winter weather experienced in December 2009 and January 2010.

Individual County maps, together with the list of Electoral Divisions (ED's) in each County to be addressed by the NBS, are available to view at:
http://www.dcenr.gov.ie/Communications/Communications+Development/National+Broadband+Scheme/National+Broadband+Scheme.htm

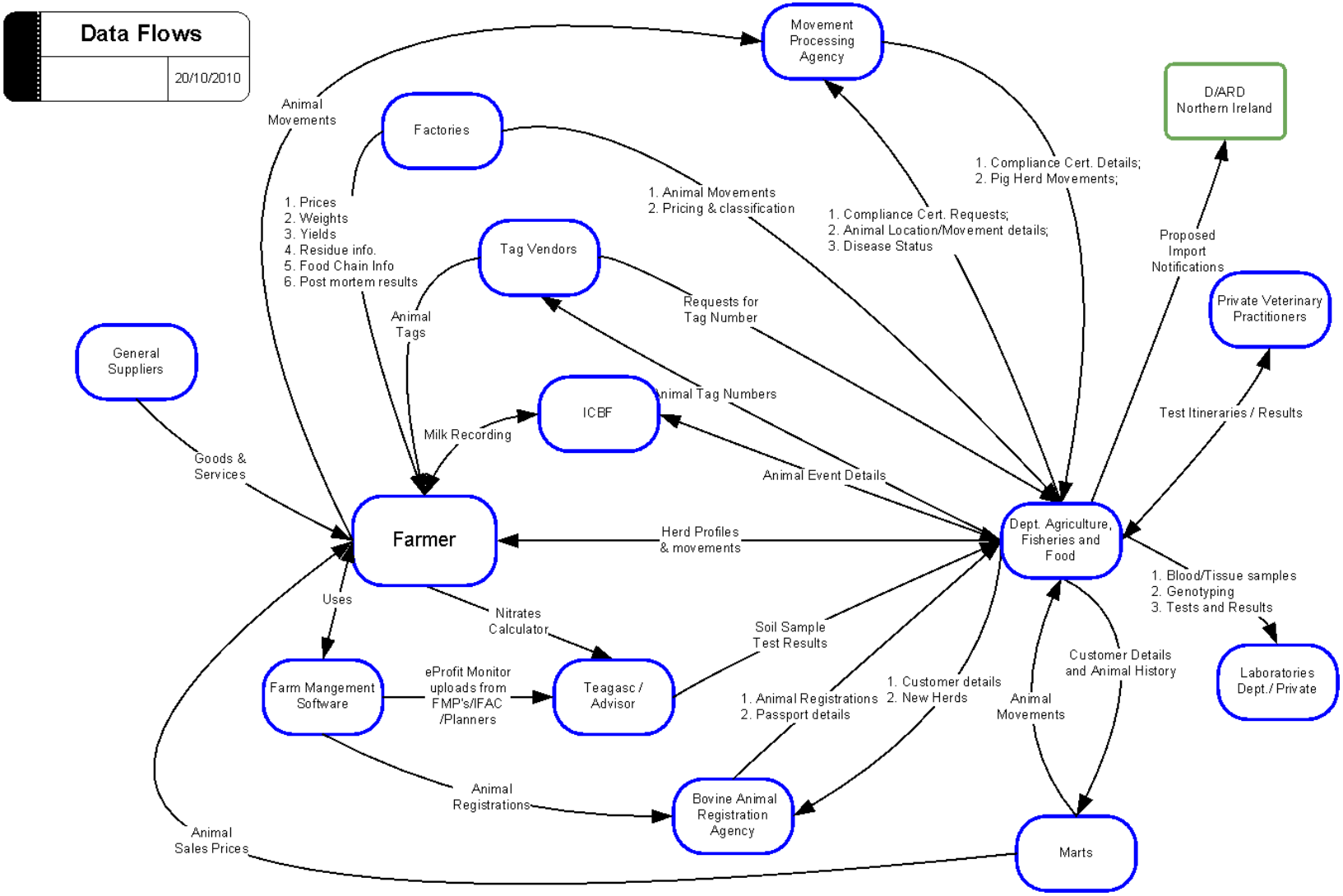
It is expected that D/CENR will before end 2010 be tendering for a further scheme entitled Rural Broadband Scheme which will endeavour to put in place a service for those people not covered be existing services due to remoteness, distance from exchanges, etc. The new scheme will be the final link to ensure that broadband coverage extends to the full population.

Electoral Divisions to be covered by the NBS



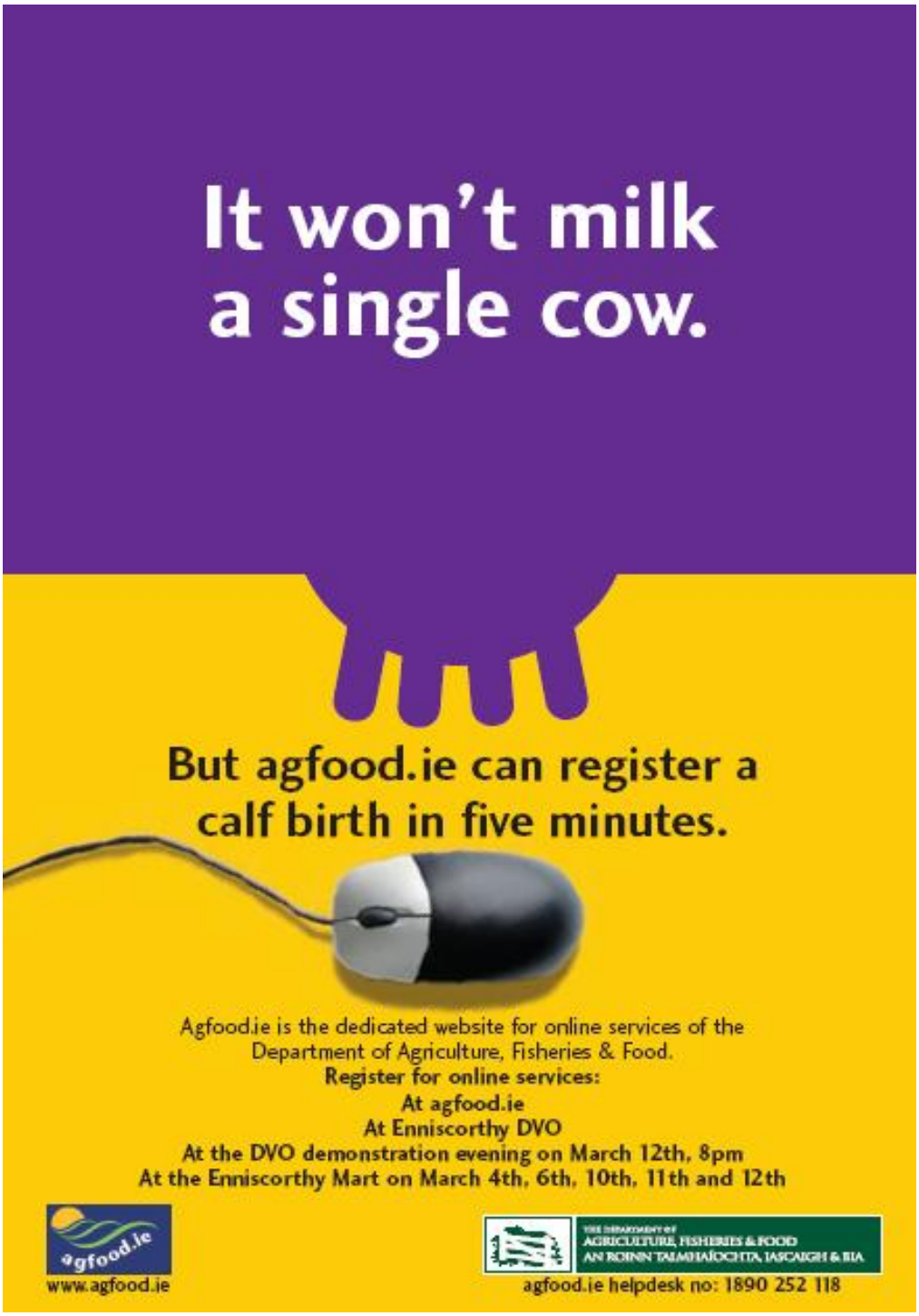
Source: D/CENR at 09-2010
http://www.dcenr.gov.ie/Communications/Communications+Development/National+Broadband+Scheme/National+Broadband+Scheme.htm

Appendix 2 – Data Flows



Appendix 3 – Promotional Campaign Poster

Sample of PR material produced for Wexford Promotional Campaign in March 2008

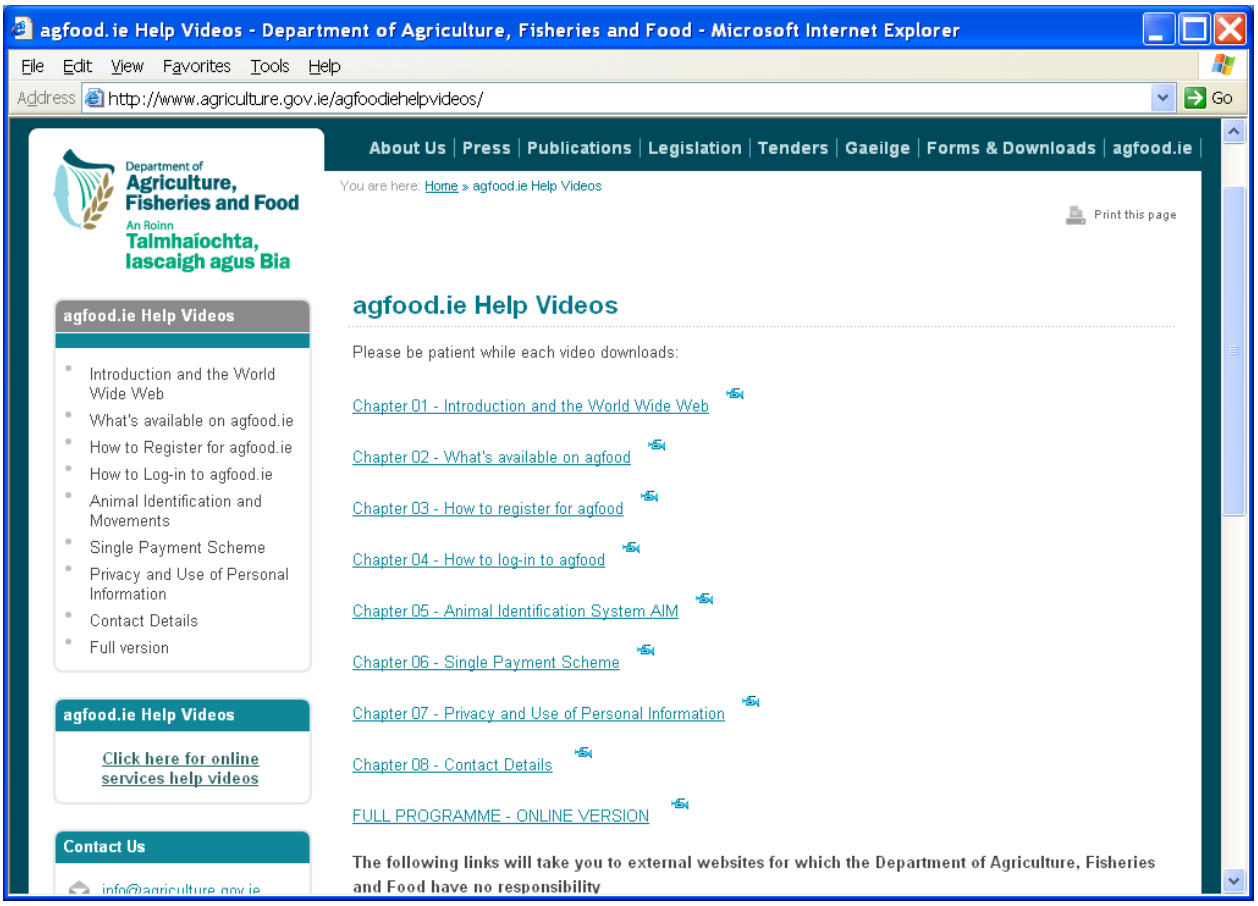


Appendix 4 – Promotional Video

The agfood.ie Help Videos can be found at the following address:

http://www.agriculture.gov.ie/agfoodiehelpvideos/

They can be accessed from the home page of the Departments website or from the agfood.ie home page



Chapter	Link
Ch1	http://www.agriculture.gov.ie/agfoodiehelpvideos/introductionandtheworldwideweb/
Ch2	http://www.agriculture.gov.ie/agfoodiehelpvideos/whatsavailableonagfoodie/
Ch3	http://www.agriculture.gov.ie/agfoodiehelpvideos/howtoregisterforagfoodie/
Ch4	http://www.agriculture.gov.ie/agfoodiehelpvideos/howtolog-intoagfoodie/
Ch5	http://www.agriculture.gov.ie/agfoodiehelpvideos/animalidentificationandmovements/
Ch6	http://www.agriculture.gov.ie/agfoodiehelpvideos/singlepaymentscheme/
Ch7	http://www.agriculture.gov.ie/agfoodiehelpvideos/privacyanduseofpersonalinformation/
Ch8	http://www.agriculture.gov.ie/agfoodiehelpvideos/contactdetails/
Full video	http://www.agriculture.gov.ie/agfoodiehelpvideos/fullversion/