



Office of the Director of
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Regulation**

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to the

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and the MBA Association**

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A Vision of the Irish Telecoms Sector 2000+

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INTRODUCTION

Chairman, Ladies and Gentlemen; let me begin by thanking the IMCI and the MBA Association for this opportunity to speak to you this evening. The theme you have asked me to address - a vision of the Irish telecoms sector 2000+ - is both welcome and challenging. It is a *welcome* theme, because having put in place many of the essential components of telecoms regulation, my Office is increasingly looking to anticipate technological and market developments in order to future-proof our regulatory approach. At the same time, the theme is *challenging*, because trying to forecast sector trends is a hazardous occupation.

It is also timely given that over the past few weeks one could not open a newspaper or magazine without some commentator giving his or her view on what the future might hold. One can only hope we can do a little better however than the UK Postmaster General who, soon after the telephone was invented, questioned its usefulness as there was no shortage of messenger boys; or his American contemporary who disagreed, declaring that he could see the day when every *city* would have one. I hope too that we can avoid the mistake made in the 1950s by the head of a well-known computer company when he predicted that the world-wide market for mainframe computers would be about 30.

I as regulator must look to the future and prepare for it, just as business people and investors do. While they make specific decisions to invest in particular developments, I must ensure that any necessary regulatory framework is in place to enable them to do so. This is quite a challenge in the fast-moving information and communications sector, a sector characterised by unprecedented levels of technological innovation and market restructuring.

This evening, I shall be making some broad observations on where I believe the telecoms sector is likely to be heading during the first decade of this new millennium, linking this to work that we are doing in the ODTR. Before I do so however, it may be useful to first set out some background on my office.

Regulation and the role of the ODTR

So what is the role of my Office? In short, it is responsible for regulating the transmission of telecommunications whether by cable, telephone wire or radio, and whether those means are used for phones, radio messages, data, television or radio delivery. Regulation involves ensuring *access* by way of licensing - opening connection to eircom's network for example – putting pressure on *prices* by requiring appropriate charges for interconnection and price capping non-competitive retail services, and *quality* of service standards such as service level agreements.

My office has a number of key objectives:

- To facilitate consumers: we must provide the framework in which Irish consumers can get the best in services, in terms of price, quality and range of advanced services;
- To facilitate competition and achieve a level playing field: there must be equal opportunities for existing and new suppliers to compete in the telecoms marketplace;
- To provide clear and consistent rules: these are critical to facilitate investment and planning and to ensure that the rights and entitlements of all parties are protected.

So how are these objectives being achieved? On a very broad level my Office has established a liberalised regulatory regime, in which there are a few remaining gaps to fill to bring it to the leading edge in Europe, having started from a position where there were a few limited regulatory arrangements designed for limited use. The regime is designed to facilitate the development of a healthy, competitive environment to which investors may continue to be attracted, while at the same time ensuring appropriate protection for consumers. Filling out the gaps present formidable challenges and the needs of this dynamic industry change rapidly. The role of regulation in the Irish telecommunications market is and will continue to be an evolutionary one.

What have we done?

It may be useful to set developments in the future of the telecommunications sector against the enormous changes that have occurred, in particular over the last decade and more especially over the last two years within the telecoms market in Ireland.

A decade ago there was only one semi-state operator providing telecommunications services to the public in this country. In 1992, very limited competition was introduced to the market for the first time, which helped start the downward pressure on prices to end-users.

The next fundamental change to the telecoms sector was the initial strategic alliance for Telecom Eireann in 1996, followed, I am pleased to say, with the establishment of the ODTR in June 1997. In May of 1998 the Minister for Public Enterprise, Mary O'Rourke TD, announced that Ireland would be moving to a fully open telecoms market from 1 December 1999, a full 13 months ahead of the previously planned date.

This enormous challenge was met by my Office and the telecoms operators, and a regime was put in place more quickly than in any other European country. For the first time every user of telecommunications services in the country gained the opportunity to benefit from competition.

In my recent commentary on the first year of liberalisation I noted how the development of the market in Ireland was following the pattern experienced in other liberalised markets. The incumbent still controls around 94% of the overall market. This reflects very different levels of competition in different parts of the market. Competition is fierce especially in the long distance and international telephony market. The Internet market has seen some of the toughest battles with the introduction of new service providers and more variety in tariff structures. Voice traffic has grown by over 18% for the year. Charges for most services have fallen, most especially in the trunk and long-distance sectors. The mobile market has also experienced significant growth with both operators doubling their GSM customer base for the period.

Major Deliverables over the past Year

For December 1998, a bridgehead was established for operators to cross into the liberalised market. 1999 was devoted to expanding that bridge and developing a major highway for operators to compete more effectively. There were over 20 major new initiatives, from a new price cap for consumers to carrier pre-selection, to new more open licensing for cable and

MMDS operators. Others are currently being completed, such as new interconnection pricing for internet and other services and the initial review of prospects for unbundling the local loop. I will not keep you all night discussing these, but will refer you to our web-site for further detail.

Price Cap

Just before Christmas I set a new price cap on certain services provided by eircom. It is required to reduce its charges for the services covered by the price cap by 8 percent before inflation for the next three years. This measure should benefit all users but most especially residential consumers and small businesses that have benefited less from competition than major users.

Interconnection Charges

The ability of new entrants to interconnect to the network of an incumbent operator is fundamental to competition in the telecommunications industry. The charges paid for this facility are crucial for the development of sustainable competition, and they must be soundly derived from appropriately calculated costs.

eircom's Reference Interconnect Offer (RIO) sets out the schedule of services and the charges for these services it provides to other operators. Over the course of 1999, my Office undertook two major streams of work, building on that undertaken in the run-up to liberalisation.

The first concentrated on expanding the range of services covered by eircom's RIO. However, as you may be aware, eircom has initiated a legal challenge to my most recent Decision Notice on the range of RIO services which delays their introduction. Due to the legal challenge I cannot comment further on this issue at present.

The second aspect involves assessing eircom's legal requirement to ensure that the charges it applies to other operators for interconnecting with its network are cost-oriented, non-discriminatory and transparent. Initial rates were fixed in 1998 and we are now working with eircom on definitive rates for last year and revised interim rates for 2000. I intend to make my decision on eircom's rates known to the market very shortly.

Leased Lines

Other operators lease lines from eircom to provide service and to enhance the reach of their network. They are of fundamental importance in facilitating competition. It is crucial therefore, that competitors to eircom can access this facility at a fair and equitable price if they are to develop their operations in Ireland. We are reviewing eircom's costs for leased lines to verify the cost-oriented nature of their charges.

Carrier Pre-Selection

Since late 1998, Ireland has had carrier selection and access codes, enabling access to be established between consumers and new operators by way of dialling a code on a call by call basis, or by way of attaching a router to the customer's phone. From 1 January 2000, we have now introduced carrier pre-selection under which access is provided within the switches of the operators and so avoids the inconvenience of dialling codes and the expense and inconvenience of routers.

CPS is already working on a phased basis and several new entrants are already in operation. Others are expected to follow over the coming months, as CPS is very important in encouraging customers to accept services from new operators. Ireland has again achieved a record in getting CPS launched very quickly.

Number Portability

There are several aspects to number portability. For business, the ability to move from one operator to another, services on 'freephone' and 'low priced calls' numbers on 1800 and 1850 codes are the most important. If a company has invested in branding a service on one of these codes, it wants to take the number with it if it changes telephone operator. This service -non-geographic number portability - is now available from 1 January in Ireland. Geographic number portability - the ability to retain your 'ordinary' telephone numbers as you move from one operator to another - will be phased in from July to November this year.

WLL and ULL

Network access is vital for alternative operators, and both wireless in the local loop and local loop unbundling contribute in important ways to providing access. We are currently involved in the licensing process for 7 licenses to provide radio-based access for fixed line operators.

We have held a consultation and are reviewing responses on unbundling the local loop - enabling other operators to lease the access line to end-users - and expect to issue a report shortly.

Regulatory Accounting

Regulatory accounting is important for my Office which must have a clear understanding of eircom's pricing for its products, and the additional measure of publication helps give the market some confidence that cross-subsidisation from less to more competitive markets is not taking place. Following the ODTR Decision Notice, eircom published separated accounts last year. My Office has some issues in relation to these and is currently in discussions with eircom about this.

Operational issues

This type of initiative forms only part of the picture. The day-to-day difficulties encountered by operators in competing with the incumbent can also impact upon the roll-out of competition. We introduced formal dispute resolution procedures last year that are being used by operators to bring up and have such problems resolved.

Interconnect circuits and leased lines are of fundamental importance to new entrants. Delays in the provision of these services by eircom became a significant problem by the middle of 1999. My Office, in conjunction with eircom and the new operators, oversaw a programme of work by eircom which I am pleased to say has significantly addressed this particular issue in a few months.

This problem highlighted a deficiency namely the lack of service level agreements for the provision of such services. In October 1999, following an ODTR Decision, eircom introduced SLAs for certain services. SLAs are critical to ensuring that all end-users can have assurances on the level of service they receive. I also want to see a situation where SLAs become the norm for all operators.

FORCES SHAPING THE TELECOMS SECTOR

I will now turn to what the future might hold. What are the forces shaping the future, the forces that will combine in perhaps unpredictable ways to yield exciting new developments? *Technological innovation* is arguably the most complex of these, and I shall say more about it in a few moments.

Market behaviour is another powerful force. Defining, creating, developing and serving markets is traditionally what healthy companies are all about. Add to this today's emphasis on mergers, acquisition and alliance activities, some of which can be measured in multiples of Ireland's GDP, and we begin to appreciate what is at stake commercially and economically.

There are also powerful *policy and social* forces at work over and above economic forces. Let me spend a few moments examining these. Why is it that telecoms policy-making has become so prominent on the agendas of the European Union and governments almost all around the world? Fundamentally, it relates to the extended reach and impact that information and communication technologies have. For example, mobile telephony services have transformed business and personal continuity of contact, while new transaction services over the Internet offer enormous business opportunities and challenges, and convenience to people in their everyday lives. These services have major social and economic implications at the level of individuals.

As a member of the European Union, Ireland has participated in the creation of a liberalising framework that has resulted in very rapid change across Europe since the beginning of 1998. The Irish Government has embraced the potential the telecoms sector has to offer, from the decision to liberalise the market in 1998 to the initiatives to increase broadband connectivity such as the agreement with Global Crossing at national level to the provision of Internet facilities in schools at a more local level – these are all clear indicators of the importance that is attached to being at the forefront of technological and information society developments.

The range of *regulatory tools* - from criteria for licensing to the framework for establishing the reference interconnect offer of eircom, from numbering developments such as I spoke of earlier to handling the next generation of mobile technology - is devised for the whole of the EU and then transposed into Irish law by the Government here.

In introducing EU law in Ireland, the Government has the discretion to make some adaptations for the Irish situation. In particular it is responsible for setting the framework for the ODTR and its powers. The ODTR operates within this structure, devising the actual terms of licences, the reference interconnect offer, the means of implementing numbering. Our first concern is to ensure that consumers benefit, and I believe that this is best done within a simple, relatively light-handed regime. Our telecommunications licensing regime is the simplest possible with only two categories of licence, and our whole licence, at less than 40 pages, compares with licences as heavy as a telephone directory in some other countries. Where we have felt that there are significant consumer interests that need to be protected, for example in opening up the licensing regime for broadcasting to competition, and requiring specific performance from companies in terms of roll-out and consumer codes, we have done so regardless of the views of operators, who wanted a 'lighter regime'. Within the framework devised at EU and Government level, we have a significant impact on the shape of the regulatory framework in Ireland.

As an aside, I would just mention that the ODTR already participates in a number of European and international forums, such as the Independent Regulators Group. It is my intention that we will increase this aspect of our work in the coming years so that we have a stronger voice in shaping European and international regulatory agendas.

Those of you who have also followed the development of telecoms liberalisation over the last two decades, in countries such as the USA, will be well aware that lobbying and legal challenges are not new phenomena in telecoms. Events in the last year illustrate that Ireland's telecoms sector is not immune from legal forces. It would be naïve to imagine that lobbying and legal challenges will not continue to be influential, but *in the long run* they may be expected to be less influential than technological innovation and market forces.

These various forces, which are of course inter-related, are going to continue to shape the telecoms sector, and any vision – if it is to have credibility – must take them all into account.

TECHNOLOGICAL INNOVATION

Let me spend a few minutes on the subject of technological innovation and how it may impact on the shape of the telecoms sector. We have come a long way in the hundred years since Marconi set up his radio experiments on the West coast of Ireland and Cornwall – and managed to communicate with Newfoundland without the aid of the 200-mile-high masts that some of his contemporaries claimed would be necessary!

I wonder what these same sceptics would have made of the idea of communicating between continents through strands of glass fibre thinner than a human hair. Perhaps they would have regarded the prospect in much the same light as today's sceptics view broadband wireless devices integrated into our clothing, or radio implants automatically communicating our medical condition to doctors and hospitals.

Not only have our engineers built undersea fibre optic communications systems, but there is more to come, since we know that the ability to pack a million fibres into a one centimetre squared bundle has already been achieved practically. Indeed, theory suggests that a single fibre is capable of carrying about 9 million TV channels. Commercially, we will very soon have trunk networks in Europe capable of communicating at petabit rates – that is a million billion bits per second, the equivalent of about a quarter of a million 30-volume encyclopaedias per second. These are the kinds of development global operators who have indicated their willingness to link their high-speed, high capacity fibre optic networks with this country, will be bringing in future.

Many of you I am sure will be familiar with Moore's hypothesis which forecasts that computing processing power will double every 18 months. The equivalent communications hypothesis predicts that bandwidth or communications-carrying capacity of fibre will double every 12 months. Who knows how long these hypotheses will hold good, but what we can be sure of is

that incremental technological innovations – increasing speed and capacity, making devices smaller and cheaper, improving reliability, and so on – are going to continue.

Only a decade ago, pundits were speculating on whether there would be sufficient demand to justify installing what by today's standards were relatively low capacity undersea fibre optic cables. At the time, it was hard to imagine or justify where the demand would come from – but nobody would build bridges if they could justify them only by counting the number of swimmers. Happily, the telecom sector's leaders have had sufficient foresight to invest in new technologies, confident that markets will develop around them.

No telecoms vision nowadays should fail to mention the “next generation Internet”. According to one of the leading Internet commentators, “Next generation Internet isn't any single network, direction or development. Instead, Next Generation Internet is a continually unfolding vast array of developments. These are oriented around the trends of much faster backbones, faster access, more powerful and adaptive devices, very diverse access and use, self-configuring and adaptive networks...an emphasis on user facilitation, and an explosion in...electronic commerce and consumer services”. We can expect an array of intelligent web TVs, MP3 players, smartphones, game systems, biometric devices and a huge array of home, office and industrial devices. It is encouraging that MediaLab Europe is to be located here in Dublin, replicating the innovative and entrepreneurial environment of the MIT MediaLab, world-renowned for its leading edge work on multimedia, the Internet and e-commerce.

Some global Internet service providers are seeing tenfold annual increases in traffic. It is a daunting and exciting prospect. An indication of the developments we can expect have already been seen in the last year in this country with the launch of alternative methods of offering Internet services to end-users. The availability of WAP mobile handsets shows how quickly the Internet is pushing back innovation frontiers.

Technological innovation *is* going to continue, and markets *will* continue to develop around good innovations. The incremental innovations I have mentioned will continue, but there is more. Step-change or major breakthrough innovations such as the silicon chip or fibre optics will burst on the scene from time to time, and by their very nature will be extremely difficult to predict and almost impossible to control. Having the flexibility to respond to technological and

market changes is one of the reasons why I favour a light-touch approach to regulation, and why I have established a Market Development division within the ODTR devoted to ensuring that we are fully informed about future trends and constantly adapting our regime to allow for them.

MARKET DEVELOPMENTS

So what are the market developments that we can expect to see in the years to come? Let me pick out just a few.

i) Infrastructure:

There is a growing body of opinion that takes the view that whatever we already do or will do through fixed communication terminals, we will ultimately want to do with mobile terminals. Given that we are already using broadband services to communicate full motion, high resolution images combined with data and voice traffic – over the Internet for example – then migration to broadband mobile services, or the coming together of mobile services and the Internet, is going to be one of the most important – and arguably *the* most important market development for the sector in the coming decade.

If this view is correct, what does it mean in terms of the technologies? First, even by today's standards, we will be communicating increasingly large amounts of information. So we will need very high capacity backbone networks. It is probably safe to assume that soon we will want to communicate full motion video, audio and data without being tied to a desk. This means that our mobile "terminal devices" – whether they are hand-held, wearable or implanted - will have to be capable of supporting very high data rates. Without getting into the complexities of radio communication and spectrum, although major developments in the capacity and range of equipment using all parts of the spectrum may be expected, the fundamental inverse relationship between capacity and range in radio frequency use will continue. This means that the mobile terminals will have to operate at higher frequencies, well into the millimetric or gigahertz bands. Lower frequencies do not have the necessary information carrying capacity.

Radio communications at very high frequencies have shorter ranges than at lower frequencies. This means that in urban areas at least, many of the broadband mobile devices of the future will almost certainly have to connect to nearby high capacity networks capable of supporting the communications of multiple users. How nearby is nearby will be a critical issue – to what extent will fibre have to be brought to the kerb and into offices? High capacity satellite systems may also have a key role to play, especially in rural areas.

Terrestrial wireless systems and satellites are of course major users of the radio spectrum, and the usable parts of the spectrum can be regarded as a finite resource that needs to be managed carefully. Spectrum uses are agreed internationally and as manager of Ireland's spectrum, the ODTR has a key role to play with others in these discussion not only in telecoms, but in other spectrum using sectors such as transport. In house, we are working on an extensive review of the radio spectrum covering the commercial economic and technical aspects, and will publish a paper later this year.

ii) Third Generation Mobile Services

Given the likely long-range importance of wireless broadband communications, let me say a few words about third generation mobile services, often known as UMTS . These deliver much more capacity than the current second generation GSM phones, with data rates up to two megabits per second, and so can extend the applications offered into real-time video, web surfing, and the downloading of entertainment. By offering fast access to the Internet, for example, it will enable e-business applications such as on-line banking and shopping.

Getting the licensing of third generation mobile services underway will be a major ODTR activity during this year. It is likely that the transition in use will be gradual, with both second and third generation operating simultaneously and I would expect hybrid second and third generation terminals to be the norm for some years.

iii) Market convergence and divergence

After much talk, information and communication sector convergence is becoming a reality at various levels. At the industry level, for example, we are seeing convergence of telecommunications and broadcasting, computing, consumer electronics, entertainment, publishing, retailing and power utilities. At the service level, we see convergence of local and

long-distance, wireless and Internet-based services. At the device level, we are beginning to see convergence between for example the television, the telephone, the computer, machines and appliances.

Yet as a consequence of this convergence, there is at the same time *divergence* in the sense that telecommunications is no longer just about simple voice telephony, but embraces all forms of electronic, optical and radio communication, including voice, data and imaging. Soon, it may broaden even more to include communication of smell and touch.

iv) Market consolidation and expansion of sector boundaries

Let me say a few words about the restructuring of the telecoms sector. Pick up almost any newspaper nowadays and there are stories about global telecoms mergers and acquisitions – actual, proposed or rumoured.

In the last year we have seen the impact of this within Ireland. The events of last week, both at home and abroad, further underline this trend. Sometimes, M&A and alliance activity among traditional telecommunications companies is defensive, seeking to grow and thereby becoming less digestible by others. Sometimes such activity is aggressive in the sense of winning new geographical markets or adding further capabilities to a company's activities.

There are also M&A and alliance activities aimed at repositioning businesses so they are better equipped to address opportunities arising from convergence. M&A activity between traditional telecoms, Internet, content and software companies illustrate the point. These kinds of developments challenge the traditional definition of telecoms and give rise to the title of information and communication sector instead. Even this renaming may seem too confining before long.

The edges to totally different markets are getting blurred. For example, here in Dublin supermarkets are getting into the supply of mobile telephones. In the UK, Dixons, with Freeserve, has had a major impact on the Internet services market. Companies with a successful background in retailing are used to operating in genuinely competitive markets, and they understand very well the need to offer consumers good value for money. As a

regulator, genuinely competitive markets and good value for money for customers are exactly what I want to see.

v) Cable/broadcasting

On the Broadcasting front, licences were issued in 1999 that provide for digital cable and MMDS. In addition to enhancing television services, the upgrading of the networks will enable the provision of full telecommunications services on cable and entry level internet and e-commerce on MMDS.

As some of you will be aware, plans for the introduction of digital terrestrial television (DTT) are well advanced. DTT will enable far more programme services to be delivered over the airwaves thus providing more choice to consumers and providing a competing platform to cable, MMDS and satellite for the delivery of television programming and data to Irish homes. In addition, it will also provide an entry point for many households into the world of e-commerce and other interactive services. I regard the introduction of specially designed, user friendly products by the digital operators as key to an inclusive Information Society.

How to ensure Ireland Benefits?

So these are the major forces, but it is a very astute investor who will identify correctly the pace and sequence of change.

My Office's role is to ensure that a framework is in place that keeps the needs of Irish telecommunications users at the forefront and that allows operators the commercial freedom to exploit new technologies and develop innovative services. In particular I want to ensure that no segment of the market gets left behind. Further steps to encourage competition will be needed as the market evolves and to cater for further technological change. I will mention just a few issues we will be dealing with in the near term.

Mobile Market

The predictions for the mobile market vary but most commentators expect the number of mobile subscribers to surpass the numbers for fixed subscribers by about 2005. I want to ensure that all end-users of such services benefit. I will be reviewing access to the mobile markets in the context of fixed-mobile convergence and propose to hold a competition later this year for the award of spectrum for UMTS. The current case relating to the award of the third mobile licence should be resolved and Irish mobile consumers can look forward to greater choice, more innovative pricing and an increased range of services in future.

Internet

Last year my Office devised the outline framework for access pricing and interconnect for Internet services. This is to ensure that operators are encouraged to develop more innovative pricing schemes and in that way make it more accessible for Irish users to become part of the Internet revolution. I expect to complete this work on the pricing structure for the framework early this year.

Consumer Protection

The presence of so many major international players on the Irish market can only be good for Irish telecoms users. I welcome the contribution that all players have made in driving down the cost to end-users while at the same time increasing the range of services and quality of service available. However, from a consumer point of view, such choice is only of benefit if one can actually distinguish which operator best fits one's own needs.

They say information is power. Well I want to see that power placed in the hands of the consumer. The ODTR will be publishing shortly the requirements for publishing performance measurement indicators of service quality that all operators will have to introduce on a phased basis. It is a complex business, comparing service between operators, but essential for users. Tariff transparency is a key concern of consumers and we are considering how we can help. The best judges as to whether tariffs are clear are consumers themselves and perhaps we can be more useful most quickly by supporting and promoting their pressures rather than devising regulatory common measures that will necessarily be complex, involve costs for operators and take time to introduce.

99 Review

The European Commission has carried out a review of its regime, its effectiveness to date and the needs for the future. It has published a consultation paper on the future framework, seeking responses by February this year. My Office is, in association with our colleagues in the IRG, preparing a co-ordinated response to the Commission on our views. In addition to the co-ordinated response, we are also consulting with interested parties here so that our position will be informed by consideration of all views. Any new Directives are unlikely to be enacted until 2003.

Development of ODTR

No matter how much we do, however quickly, there is still a mountain ahead of us, one that we are excited about and happy to tackle as quickly as possible. We have been building up our staff resources and skills to be able to respond ever more quickly to market needs. This task will continue this year. Just before Christmas my office launched a major recruitment drive and I have been very pleased by the response. And while I don't want to turn this evening into a recruitment fair, maybe we would represent the kind of change of direction some of you may be considering!

Conclusion

As I mentioned at the outset, eminent people have fallen into serious error in trying to predict the future in this sector. I hope that I will be found to have done better by keeping a wider range of possibilities in view. The common thread in early predictive failures was vast underestimation - is there a possibility that I am also underestimating the scale or change for the next decade? Perhaps so, but given the work that has been done, I am more happy with our understanding of the issues that need tackling in the next few years. We will play our part to enable that the downward spiral in prices will continue, coupled with an increased range of services and better quality.

This is very important for the overall development of the Irish economy. It is no accident that so many large multi-national corporations are locating here. Ireland now has what it takes to compete with the best the rest of the developed world has to offer. This is an exciting time for Ireland and particularly this industry. I believe we can look forward to the future with an air of optimism that only a decade ago would have been beyond anything we could have dreamt of. I intend that my Office will play its part in delivering on this potential.

Thank You.

-Ends-