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Preface

This report provides the first deliverable (D5.1) in work package five of the European eGOVERNMENT project. The overall goal of the work package is to increase understanding of the use of eGovernment research.

The report has two main purposes; 1) to serve as a platform for the empirical work in the work package, 2) to present indicators used to measure the impact of research on policy making. Some parts of the report are of a more general interest to the project as a whole.

This first deliverable of the work package is based on a literature review. The literature review provides an overview of; research use models, factors influencing research use and indicators on research use. One output from the literature review is a new model to understand research use in the policy process. The definition of policy process, used in the work package, includes the implementation of e-Government policy, where the utilisation of research results plays an important role. The other output is an overview of indicators of the impact of research on policy making in general.

The title of the deliverable is Impact indicator overview (D5.1), whilst the report has a broader focus. This broader focus is made necessary by the need to better understand the different aspects of research use in relation to users as well as the context in which research is used. The different ways of using research are described in terms of policy processes. Focus is on applied and/or action-oriented research rather than on basic research.

The second deliverable of the work package D5.2 (Criteria and guidelines for enhancing the use of research) will be empirically grounded and use the findings in D5.1 as a starting point. The indicators as well as the barriers and catalysts to research use will be used to better understand how research utilisation can be enhanced. The indicators are presented as a continuum in the sense that they cover different aspect of research use and impact, ranging from the design of the research product to the actual use of research. Some of them are facilitators to research use, while others describe the actual impact. This provides a base for further developing and refinement of criteria and guidelines in D5.2.

Executive Summary

The report is the first deliverable (D5.1 Impact indicator overview) for work package 5 of the eGOVERNMENT project. It fulfils the objective of providing a better understanding of the ways in which research is used in policy making and in this context identify possible indicators of the impact/use of research on eGovernment policy making. The objective of WP5 (Measuring eGovernment research and its impact) is to better understand the ways in which eGovernment research is used.

This paper provides an overview of studies that have investigated how research is utilised by policymakers and the way that research can be more effectively used to inform and improve the policymaking process. The literature review revealed that no studies of the use of eGovernment research had been undertaken.

A three stage model is proposed to better understand the nature of research, information and knowledge required at different stages of the policy design and delivery process. The three key stages are strategy or policy development, service delivery (including all elements of implementation) and performance monitoring.

The model provides the basis for the development of thirteen indicators to measure the utilisation and impact of research. The indicators are presented as a continuum starting with a user perspective on the supply and appropriateness of research, before examining their efforts to obtain and use research, it concludes with measures of the influence and impact of research.

The most important factors influencing research use were the adaptation of research outputs to user needs, user's acquisition efforts and links between users and researchers.

The second deliverable of the work package D5.2 (Criteria and guidelines for enhancing the use of research) builds on the key findings of this paper. An empirical study of eGovernment policymakers is being undertaken by the work package to overcome the lack of previous studies undertaken in this area. D5.2 will provide recommendations on the way in which research utilisation and impact can be enhanced.

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1. Introduction

This paper provides an overview of studies that have investigated how research is utilised by policymakers and the way that research can be more effectively used to inform and improve the policymaking process. This report provides the first deliverable for Work package 5 of the eGOVERNMENT project. The goal for the first element of this work package was to provide a better understanding of the ways in which research is used in policy making and in this context identify possible indicators of the impact/use of research on eGovernment policy making.

Most elements of the eGOVERNMENT project are addressing issues concerned with the supply of research; these include fragmented funding mechanisms, poor trans-national coordination of national eGovernment research policies and under-developed co-ordination of national eGovernment research programmes and initiatives. Work package 5 focuses on the demand and consumption side, as it investigates ways to improving the utilisation of research in the policy making process. This paper examines the policy design and delivery process. It focuses on three core activities. These are strategy or policy development design, service delivery and performance monitoring.

The paper is divided into seven sections. The next section examines the growing emphasis on the use of evidence in the policy making process and the demand for research. This is followed by a review of the studies undertaken on the role of research in the policy making process. Key terms are defined and the evolution of ideas and models about the role of research are presented.

Section four consolidates many of these complex elements into a new model to better understand the nature of information, research and knowledge required at different stages of the policy design and delivery process (see figure 4.1). Having examined conceptual issues and key factors impinging on the use of research in policymaking the next section examines studies that quantify the use of research in the policymaking process. The relative importance of different factors affecting and hindering the utilisation is identified.

The penultimate section examines the measures and indicators that can be adopted to measure the use of research in the policy making process. An overview of key findings is provided in the final section. The two key elements of this paper that will be utilised to complete the next deliverable (D5.2) are the better understanding or the key factors impinging on the use of research and the action points to enhance the use of research identified by previous research.

2. Background: eGovernment and evidence informed policymaking

2.1 eGovernment, research and policy making

In many EU countries there has been a significant increase in funding in recent years for eGovernment¹ initiatives, for electronic service delivery and for enhancing the role of ICT in transforming government. Work Package 3 from this project is producing an overview of eGovernment research commissioned by European governments.

The development of eGovernment research, like the development of eGovernment initiatives is new. As a result we were unable to find any studies examining the use of eGovernment research. Consequently, this paper draws heavily on a diverse array of studies investigating the role of research in the policy making process in other policy areas. This previous generic research is utilised to examine the use of research and to identify the characteristics that hinder or enhance the use of research.

A focus on the use of research in eGovernment policymaking raises two important questions. Firstly, is eGovernment policymaking any different from other policymaking? Secondly, how does the implementation of eGovernment policies and projects differ from the development of other projects or the more general introduction of ICT and what role might research play in implementation?

The first question is probably easier to answer than the second. The breadth of studies investigated by this research has identified a number of different roles for research in a wide variety of policymaking environments. The models identified in the next section are able to easily encapsulate the role that research might play in the eGovernment policymaking process. Indeed, it is probable that the eGovernment policymaking process is very similar to the general process. The one minor exception might be the emphasis that eGovernment policy guidance documents place on the need to have citizen centric models for delivery. However, this is more of a concern about policy emphasis or an important detail in the implementation of specific projects, than a difference in the policymaking process.

It is possible that eGovernment policy implementation might be different from other policies. eGovernment initiatives are seen in many countries as an important part of the transformation and/or modernisation agenda. Transformational change is usually described

¹ Defined by the OECD as “the use of information and communication technologies [ICT], and particularly the Internet, as a tool to achieve better government.” OECD, 2003 p11

as incorporating organisational re-engineering or restructuring supported by ICT (Cabinet Office, 2005). eGovernment can be an important component in a transformational approach since it can provide services enabled by IT, designed around the citizen or business, not the provider, and provided through modern, co-ordinated delivery channels. Organisational re-engineering and a citizen centred approach to delivery through multiple channels is a significantly different approach in comparison with the implementation of most other policies. Nonetheless, whilst implementation may be more complex the role that research can play in this process is probably the same as for less complex initiatives. Indeed, it is possible, due to the multi-faceted nature of eGovernment implementation that it may benefit more from access to a broader range of research than more traditional areas. The skills required are diverse and access to a wide range of research about organisational change, ICT, implementation and performance management may enable those in the process to develop a wider knowledge base to implement initiatives.

1.1 Evidence informed policy making

In many European countries there has been a growing emphasis on using evidence and research to underpin the modernisation or transformation of government (Lemne and Sohlman, 2004; Performance and Innovation Unit, 2001).

The concept of evidence-based policy making has increased in popularity (Comptroller and Auditor General, 2003; National Audit Office, 2001). *Evidence based policy* has been defined by Davies (1999) as ‘the integration of experience, judgement and expertise with the best available evidence from systematic research’. *Evidence-informed* or even *evidence-aware* policy is probably a better description of the aspirations for the role of research in the policy making process.

The research and evidence for use by policy-makers and practitioners is produced by a variety of sources, including government departments and agencies, academic institutions, independent research organisations, consultants and think tanks.

However, a number of studies have shown that the public sector may not currently be making full use of evidence to inform policy-making and practice decisions (Office for Public Management, 2005). Where research is used, it sometimes has only a limited impact (Percy-Smith et al. 2000; Percy-Smith et al. 2002; Weiss, 1980; World Health Organisation, 2004).

3. Definitions, models and the use of research

The role of research in policy making has received relatively little attention (Weiss, 1991; Lavis et al 2002). A great deal of research is undertaken, but few studies have investigated how research is used in the policy making process. The area is complex; there are subtle differences between statistics (which can be collected by Government agencies, the private sector and researchers), research (a systematic investigation by academics, private sector researchers or government employees), information (facts told, read, or communicated) and knowledge (an organized body of information, or the comprehension and understanding consequent on having acquired and organized a body of facts).

The role of research can be viewed from a provider and consumer viewpoint. The users or consumers of research range from individuals to organisations or practitioner/interest communities. Research can be used for many different objectives, these can range from an explicit focus on service design or delivery, through more generic problem solving to the use of research in political debate. Research can also be used by citizens. Weiss (1979) suggests that research is one of the intellectual pursuits of society and one must also consider the contribution that research makes to wisdom.

This section reviews many of the studies that have been undertaken on the role of research in the policy making process. Key terms are defined and the evolution of ideas and models about the role of research are presented. The next section consolidates many of these complex elements into a new model to better understand the nature of information, research and knowledge required at different stages of the policy design and delivery process. The final section presents a range of indicators that can be adopted to measure the use and impact of research. Indeed, many of the concepts and models presented here provide the context for the indicators proposed in section six.

3.1 Concepts and definitions

It is important to highlight, as this section demonstrates, that research and policy-making or policy makers are not homogeneous. A useful starting point to demonstrate this is Sanderson's (2002) suggestion that there are two main forms of evidence required to improve governmental effectiveness. He suggests the two main forms of evidence or research :-

- Promote *improvements* (knowledge that enables the design and delivery of more effective policies and programmes).
- Facilitate *accountability* (information about the performance of government).

This two-fold definition has the virtue of being simple, but it hides a number of important issues and raises a number of questions.

Firstly, what constitutes *knowledge* and/or *information* and is there a difference between them?

The UK Cabinet Office adopted a broad definition of '*research evidence*' :-

“Expert knowledge; published research; existing statistics; stakeholder consultations; previous policy evaluations; outcomes from consultations; costings of policy options; output from economic and statistical modelling”

UK Cabinet Office Strategic Policy Making Team (1999)

A number of commentators have questioned some of the components of this definition. Walter et al (2004), in a review of more than 3,000 papers, questioned the concept of 'expert knowledge' (as research evidence) proposed in the Cabinet Office definition. Walter's research concluded that research utilisation involved integrating knowledge from research with other forms of knowledge, such as knowledge from practice experience and peer groups.

There is a substantial literature on the nature of knowledge. The framework Walter's study used for understanding knowledge is provided below. Interestingly, Walter's framework highlights differences between individual, institutional and group knowledge. Only the fourth category of their knowledge typology explicitly utilises research. However, the use of information, statistics and research is probably incorporated in all the categories.

The different types of knowledge Walter's et al (2004) identified were:-

1. **Organisational knowledge:** knowledge gained from organising public services, through governance and regulation activities.
2. **Practitioner knowledge:** knowledge gained from providing public services, which tends to be tacit, personal and context-specific.
3. **Service user knowledge:** knowledge gained from experience of and reflection on using public services, which is often tacit.

4. **Research knowledge:** knowledge gathered systematically within a planned strategy, which is mostly explicit and provided in reports, evaluations and so forth. In this review, evidence is defined as empirical findings from research.
5. **Policy community knowledge:** knowledge gained from the wider policy context and residing in the civil service, ministries, think tanks and agencies.

The second query regarding Sanderson's (2002) two-fold definition concerns the way research is used in the policy making process to promote *improvements* and facilitate *accountability*. These terms are integral to the policy design and delivery process, but research is used to achieve a number of other objectives as well. For example Boaz and Nutley (2003) have identified four main uses for research, these are:- .

- The design and develop public policy
- To assess the impact of policy interventions
- To improve policy implementation
- Identification of tomorrow's issues

3.2 Models of research utilisation

A number of models about the use of research in the policymaking have been developed to demonstrate or characterise the way the preceding components interact with each other. For example a number of models have been developed which examine the manner in which research is used by different individuals and organisations. Glaser, Abelson, and Garrison (1983) described five early and widely accepted models. The first three were originally proposed in 1969 by Havelock and the last two by Sashkin, Morris, and Horst (1973). They have subsequently been adapted by a number of commentators. The five models are:-

- The research, development and diffusion model
- The social interaction model
- The problem solving model
- The planned change model
- The action research model

There have been a variety of additional models. Some focus on the research product or supply of research while others focus on potential users.:-

- Systems oriented models (Laser et al, 1983)
- Practitioner oriented models (Hall et al, 1973)
- Consumer oriented models (Fine, 1981)
- Policy-oriented models (Weiss, 1979)
- Integrated organisation-oriented model (Huberman, 1987)

There are a wide variety of research and knowledge utilization models. They range from simple to complex and from consumer-oriented to policymaker-oriented. Many reflect the two communities theory of knowledge utilization that views users and researchers as residing in two differing and alien cultures requiring linkers or integrators. They also reflect elements, such as 'interaction', 'problem-oriented', 'planning', and 'interdependency' approaches.

Practitioner-oriented models place importance on the role of professionals contributing to knowledge production as well as use. The marketing oriented models highlight the importance of consumers in the entire process. The integrative organizational model, the last in the above list, linked the instrumentalist and transactional extremes of research utilisation models.

The areas of most interest in the context of this paper are the policy-oriented models proposed by Weiss (1979). In total six models of research utilisation were proposed. Weiss (1979) suggested that last four are the most common.

Table 3.1 Weiss's models of the role of research in the policy making process

Research Model	Description
Knowledge driven model	Research generates knowledge that impels action
Problem-solving model	Direct application of the results of a specific study to a pending decision
Interactive/social interaction model	Utilisation occurs as a result of a complex set of interactions between researchers and users which ensures that they are exposed to each other's worlds and views
Enlightenment (or percolation) model	Research is more likely to be used through the gradual 'sedimentation' of insights, theories, concepts and perspectives
Political model	Research findings are ammunition in an adversarial system of policy making
Tactical model	Research is used when there is pressure for action to be taken on an issue, and policy makers respond by announcing that they have commissioned a research study on the matter
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Source: Nutley, S. (2003) Bridging the policy/research divide: Reflections and lessons from the UK adapted from Weiss (1979)

Deficiencies noted by this model include the promulgation of invalid as well as valid generalizations (Edwards 1991). Weiss noted that incomplete, inadequate, oversimplified, and wrong findings often seep into the ground waters of knowledge along with quality research studies. The percolating process sometimes is so long that the research results may be out of date by the time they arrive or they may never reach the policy makers. Weiss also highlighted that 'as more studies are done, they often elaborate rather than simplify. They generate complex, varied, and even contradictory views of the social phenomena under study, rather than cumulating into sharper and more coherent explanation'.

Many of the preceding studies are relatively dated. More recently, Walter et al (2004) have developed three models encapsulate what is happening on the ground to promote research use in social care. Whilst they represent a simplification of reality they help to provide a better understanding of the processes and relationships currently involved in promoting research use in social care.

The models highlight the assumptions and ways of thinking that underpin different approaches to developing the use of research. Such approaches are not 'value-free', but contain particular ideas about what research-informed practice means and how it is best achieved.

The models highlight three different foci for the promotion of research. These are the individual or practitioner, the organisation and the community or systems used in social care. These models provide a focus on 'who' is viewed as responsible for the dissemination or consumption of research and research activities. The three models of research use in social care are:-

Research-based practitioner model

- It is the role and responsibility of the individual practitioner to keep abreast of research and ensure that it is used to inform day to day practice.
- The use of research is a linear process of accessing, appraising and applying research.
- Practitioners have high levels of professional autonomy to change practice based on research.
- Professional education and training are important in enabling research use.

Organisational excellence model

- The key to successful research use rests with social care delivery organisations: their leadership, management and organisation.
- Research use is supported by developing an organisational culture that is 'research-minded'.

- There is local adaptation of research findings and ongoing learning within organisations.
- Partnerships with local universities and intermediary organisations are used to facilitate both the creation and use of research knowledge.

Embedded research model

- Research use is achieved by embedding research in the systems and processes of social care, such as standards, policies, procedures and tools.
- Responsibility for ensuring research use lies with policy makers and service delivery managers.
- The use of research is both a linear and instrumental process: research is translated directly into practice change.
- Funding, performance management and regulatory regimes are used to encourage the use of research-based guidance and tools.

The three models are not mutually exclusive. However, few studies have been undertaken to investigate their effectiveness. The limited evidence available suggests that the successful development of the *research based practitioner model* faces a number of barriers primarily in terms of the capacity of practitioners to access and interpret research. The *organisational excellence model* was well supported by members of the social care workforce, but there was limited evidence of its effectiveness in practice. There is little evidence about the success of the *embedded research model*, it remains relatively under-developed.

4 Consolidating an understanding of the role of research in the policy design and delivery process

A new model is proposed to better understand the nature of research, information and knowledge required at different stages of the policy design and delivery process. This staged model is shown in Figure 4.1. It is in the form of a ‘feedback’ loop, commencing with strategy development activities, moving on to policy delivery or implementation activities and finally concluding with performance monitoring activities. The ‘feedback loop’ is facilitated by the use of monitoring results to inform and refine strategy and delivery activities.

The model draws together many of the preceding definitions and typologies to better comprehend the information, research and knowledge required at different stages of the policy design and delivery process. The new model provides a holistic and inclusive view of research use in policy making process. The conceptualisation places many of the components in the previous section into their wider context. It enables a more complete understanding of the implications of many of the preceding models and the extent to which they engage all the relevant stakeholders in the use of research in the policy making process.

4.1 A new model of the role of research in the policy design and delivery process

The first stage of the developing a new model with an holistic complete process approach involved identifying the core elements of the policy design and delivery process. The development of the new model provides a clear context for the key goal of Work Package 5 – an identification of the way research is used in the policymaking process. It also provides a sound basis for the development of recommendations to enhance the use of research, this will be the main focus of Work Package 5 Task 3.

A diagram of the policy design and delivery process (adapted from Cabinet Office, 1999) is provided in Figure 4.1. The process commences at the strategy development stage. In the context of evidence based policy making it highlights the need for policymakers and partners to better understand the characteristics, opportunities and needs of their potential service users and/or the environment within which policies are developed (this could range in scale from the local neighbourhood to a national population). The model then considers the delivery of services, before completing the feedback loop by monitoring performance. The model has the advantage of further clarifying and contextualising all four elements of the Boaz

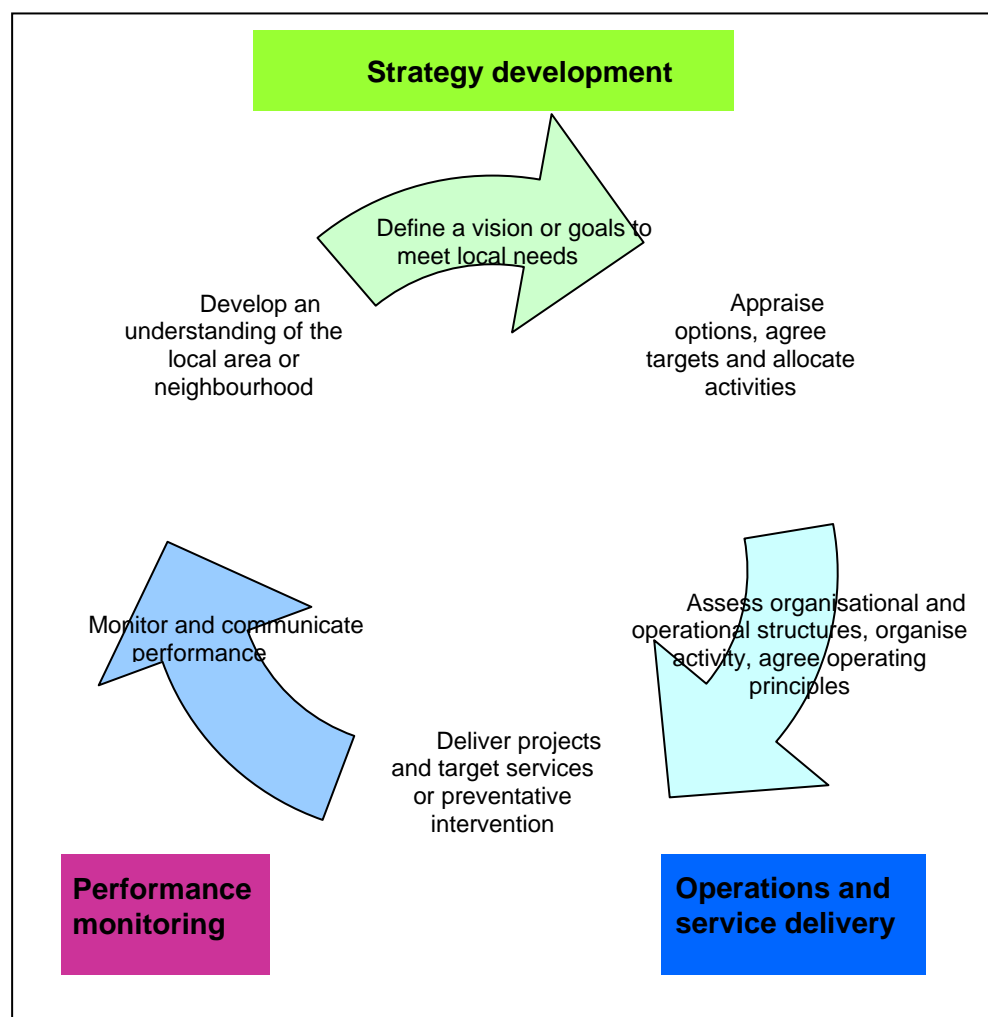
and Nutley (2005) typology, including the ‘identification of tomorrow’s issues’. The model is also appropriate at the scale of the individual and for the organisational context.

It is important to highlight that the components of the model will be operating within a broader context. The prevailing economic, social and cultural conditions or context will be acting throughout all stages and on all component parts of the model. The prevailing political and administrative context might also have an influence, higher tiers of regional or national government can restrict or place mandatory requirements on activities. The legal context for all decisions will also be important.

The model is also able to accommodate different scales of analysis and enable different groups to envisage their role in the policy design and delivery process. It is probably as appropriate to an individual as it is to departments or parts of an organisation, entire organisations or even groups operating in partnership. Each of these entities will be undertaking their activities with different levels of initial understanding and skills. It is therefore important to highlight that the research required by one group may be too advanced or inappropriate for another group or a similar group in a different location. The model better captures the different types of research that might be used at different stages of the policy design and delivery, but it is still important to remember that the needs of individuals or organisations will be different because they will start from different skills and research knowledge levels.

A key advantage of the model is that it does not treat research and statistics as amorphous terms. Unlike many of the preceding conceptualisations the new model highlights the sources and types of research, information and knowledge are required at different stages of the policy design and delivery process, see Figure 4.1 and Table 4.1. For policies or services being delivered by partnerships the importance of sharing research, knowledge and statistics between partners also varies. The different roles for researchers and the areas of research appropriate at different stage of the policy design and delivery process are also emphasised.

During recent years technology has provided policy makers and service delivery organisations and performance evaluators with new opportunities to access research, information and datasets online from organisations such as the National Statistical Offices, EuroStat, research organisations and research facilitators. Communication and sharing of data and information between organisations has improved and become more rapid. Technology offers new opportunities to analyse data and access research to better target services. It also provides the ability to monitor service delivery performance and understand the context for changes in outputs and outcomes.



Adapted from Cabinet Office (1999) Professional policy making for the 21st century

Figure 4.1 The policy design and delivery process

Table 4.1 provides a conceptual overview of the key research, information, statistics and information sharing requirements at different stages of the policy design and delivery process shown in Figure 4.1. It was noted earlier that technology is a key component of the eGovernment and modernisation agendas. Technology is not shown as a component of the model because it permeates all stages. At all stages of the model technology enables individuals and organisations to more easily access, analyse and share statistics, information and research. Indeed, it is possible that Internet technologies, which have enabled the development of online research and statistics databases and improvements in software to gather and analyse information could be the catalyst to enable better more targeted access to research so that it can better inform the policymaking process.

Table 4.1 Research and statistical requirements in the policy design and delivery process

Stage of the policy design and delivery process	Policymakers' research requirements	Policymakers' information and statistical requirements	Research and statistics sharing activities between partners
Strategy design	A broad range contextual research is required. Ideally, up-to-date or time-series research to better understand current and future needs, opportunities and the local/national environment.	A broad range of up-to-date information is required, at fine geographical detail for targeting to enable policymakers to better understand baselines and trends in neighbourhoods, regions and nations.	Research and statistical information can be shared to enhance understanding and enhance visioning activities. Sharing this information will usually be non-contentious.
Operations and delivery	Research focused on the services or initiatives being developed is required. Operations and organisational research focusing on the initiative or service being delivered can be important.	Business, individual, and/or household statistics are required by service providers to enable them to 'join-up' and enhance services or better target those in need.	Sharing individual and/or household information within administrations and between partners can be contentious. Data sharing is important to enhance targeting and joined up delivery but it can be difficult to overcome legal and technical problems.
Evaluation and performance monitoring	Researchers provide analytical skills and perceived independence for many evaluation studies. Numerous researchers analyse evaluation studies to enhance understanding and develop new theoretical perspectives.	Robust statistics collected in a consistent way to enable comparison over time is essential to ensure accountability. Data usually concerns or is derived from outputs of service delivery.	Data sharing is less contentious because most information will be aggregated by service or geographical area. Local 'political' and/or legal concerns may determine what data is shared with partners, citizens and researchers.

Table 4.1 reveals an interesting dichotomy concerning the nature of research and statistical requirements at different stages of the policy design and delivery process. Many policymakers interviewed for the Foley et al (2006) study were grateful for the very robust statistical information provided by the Office for National Statistics and other central government sources. But they were disappointed by the amount or range of local statistics available and the timeliness of some of the data, only 2001 census data was available for many topics. Similar concerns have also been expressed about the timeliness of research by Eccles (2003) and the Alberta Heritage Foundation (2003). In total these studies interviewed more than 2,000 policymakers and found major concerns about the long time periods for research and the dated nature of some studies. As a result of these deficiencies the Foley et al (2006) study found that several administrations and partnerships had commissioned research or resident surveys to overcome gaps in local or up-to-date information.

Policymakers were also confused about the validity of research, this was not a problem encountered with statistics due to the high reputation and robust methodologies used by most national statistical agencies. However, the lengthy timespan of some official statistical agencies to process data and provide statistics was thought to be problematical.

The validity or credibility of work provided by different research organisations was often unknown, particularly where there were different outcomes. Many policymakers suggested they wanted “further assurance that content/discipline experts agreed with findings” (Alberta Heritage Foundation, 2003).

The first stages of the policy design and delivery process (see Figure 4.1) requires the development of a vision or goal.

It is probably at this first stage of the design and delivery process that research can have the greatest input to eGovernment or general administrative goals and targets. Research studies enable policymakers to understand the *context* for local needs and opportunities. Research can also be useful in understanding how proposed activities have operated elsewhere or to consider the array of *possible impacts* if policies or initiatives are introduced. Research can also provide details of relevant variables to adopt as *goals* or *monitor* to evaluate progress.

The second stage of the policy design and delivery process requires the establishment of organisational and operation structures and the delivery of services or preventative intervention. Most of these activities focus on the operations of the organisations delivering the service. For most services this is a ‘heads down’ activity based on three of Walter’s five knowledge types (*organisational*, *practitioner* and *service user* knowledge). There is some scope for operations and organisational research and *policy community* knowledge can also be utilised where these assist with refining service delivery to enhance performance.

In a digital environment input from ITC and information management specialists and researchers can also be important because co-ordinating the efficient delivery of services

usually requires data to be shared between departments in the same organisation or between different partners. At this stage concerns about sharing data, individual's privacy and the national data protection legislation become more significant, particularly if data about individuals or households needs to be shared. This issue is very pertinent if services, preventative work and early intervention are to be targeted at the most disadvantaged. Information from multiple sources is usually required at household or individual level to better target interventions.

The second stage of the policy design and delivery process requires research and statistical input that usually has a very practical service delivery focus.

The third and final stage of the model of Figure 4.1 focuses on performance monitoring. Ideally this should stimulate change in the processes underlying the delivery of services or projects. This stage often provides an opportunity for the analytical and methodological skills and perceived independence of the researcher to be utilised. This can offer a very focused role for the researcher.

But, as many researchers have found monitoring the performance of public sector service delivery is enormously complex; game playing and unintended consequences are commonplace in evaluation and performance management studies. No matter how sophisticated the managerial and monitoring processes, success is driven by culture and the positive participation of people impacted by the change. The creation of robust target variables that may be able to perfectly measure the most complex issues is worthless if the monitoring process which utilises them does not encourage change to enhance performance at the local project or for wide ranging evaluations in administrations.

Central government approaches usually aim to ensure probity and accountability. Methods used can be characterised as independent audits, structured reviews and traffic light or other reporting schema to monitor performance and ensure accountability.

OECD research² found that change will only happen if people care about a project and/or are required, encouraged or incentivised by evaluation to consider and change the processes underlying the delivery of projects or services. Most evaluation methods fail to address the underlying processes, they focus on goal achievement, value for money or other outputs, outcomes or benefits. There are evaluation processes being developed in Canada and other countries that encourage interaction between researchers/evaluators and service delivery organisations. This interaction through workshops and sustained involvement can help to

1. ² Foley, P (2006) The adoption, use and development of benefits realisation methods in OECD member countries

bring about changes in delivery to improve failing performance or to 'over-achieve' if projects are meeting expectations.

Interestingly, this issue highlights one of the key failings or difficulties often put forward as a barrier to greater use of research in the policymaking process. As the next section highlights sustained interaction between researchers and policymakers has been shown to be lacking but highly valuable in a number of studies (Eccles, 2003; Walter et al, 2003).

4.2 Benefits of a new model of the role of research in the policy design and delivery process

This new model provides a more realistic understanding of the complex nature and role of research, information and knowledge at different stages of the policy design and delivery process.

It also raises a number of questions about deficiencies in previous research. Some previous studies have not differentiated between information, research and knowledge. In many previous studies 'research' has been regarded as an amorphous term, there has been no consideration of the role of different types of research and researchers in the policymaking process. The consumers of research have also been regarded as an homogeneous group, frequently failing to distinguish between groups with very different research interests such as strategists, service co-coordinators and providers or performance managers.

This approach is new and needs to be further developed, but it does highlight a number of important issues. Firstly, it is evident that different stages of the policy design and delivery process have different research, information and knowledge requirements, see Table 4.1. It is also likely that in many administrations the different stages of the process will be undertaken by different groups or individuals – strategist and planners in the first stage, service delivery specialists in the second stage and performance managers or accountants in the final stage. Providing each individual or group with the research or information relevant to their needs is vital.

Secondly, previous studies have far too often provided homogenous models of how organisations use research. These models are often rich in generic ideas to enhance the use of research but they frequently fail to note the different requirements of departments or individuals within an administration or organisation.

Finally, it is evident from the preceding two points that there is a need for better targeting to provide different groups with the information that is relevant to them.

These key considerations should be borne in mind when reading the rest of this paper. They will also provide an influential foundation to the final element of WP5 which propose ways to enhance the use, uptake and impact of eGovernment research.

Four key considerations arise from the development of a complete process model of the role of research in policymaking:-

- Robust evidence of what works in promoting research use is limited. There is a tendency to regard research and policy makers as amorphous concepts and entities.
- There is a significant level of activity to promote research use, but this needs to be better targeted at different groups and different stages of the policy design and delivery process
- The diversity of activities and stakeholders in the eGovernment arena, in terms of delivery organisations, user groups and workforce, demands a variety of actions to promote use.
- The development of a complete process model of the role of research in policy making may provide a positive way forward in considering ways to enhance the role of research.

5. Research utilisation in the policymaking process

A small number of studies have attempted to investigate the use of research. These studies tend to suffer from four methodological problems (Landry et al, 2003), first identified by Mandell and Sauter in 1984. These are:-

- The composition of the population being surveyed
- Specification of the term 'use'
- Problems associated with defining and measuring factors influencing use
- Problems associated with the inability of respondents to report and explain behaviour accurately

It must be highlighted that three of these problems relate to factors associated with measurement indices. These are investigated further in the final part of this paper. Nonetheless, despite these difficulties a number of studies have provided an indication of the use of research and the factors enhancing uptake.

5.1 Research utilisation studies

Percy-Smith et al (2002) undertook a study of 696 key research users in local administrations in the UK. The study examined the 'consumption' of research within different levels of the local authorities and its role in encouraging policy and practice change.

69 per cent of respondents reported that research was used effectively for developing new policy initiatives, and 70 per cent reported that research was used effectively for improving service quality. However, relatively small numbers of respondents reported very effective use of research in these areas (13% and 8% respectively). This suggests that research has a moderately significant influence on policy-making and practice decisions.

In one part of the survey, respondents were asked to identify a single piece of research that had led to significant change of policy. 38 per cent of respondents were able to do so.

Where identified research had contributed to change the largest proportion (38 per cent) related to specific service delivery changes. Only 9 per cent were developments of new policy areas. Some commentators (OPM, 2005) concluded that this study suggested that research appears to have greater impact on practice than strategic policy-making. However, neither the study, nor the commentators reported the relative number of service delivery changes and new policies or strategies developed. It is probable that there are far fewer new policies developed

than there are changes to existing services, as result the relative importance of research in each activity will remain unknown.

Landry et al (2003) interviewed 833 officials from Canadian government agencies. Their research focused on the uptake of university research and developed a six stage utilisation typography. Interestingly, they called this a *knowledge* utilisation typography rather than a *research* typography, see Table 5.1. Section 3.3 highlighted how previous studies had distinguished carefully between research and knowledge.

Table 5.1 Stages of Knowledge Utilization

Stage	Activity
<i>Stage 1 Reception</i>	I received the university research pertinent to my work
<i>Stage 2 Cognition</i>	I read and understood the university research that I received
<i>Stage 3 Discussion</i>	I participated in meetings for discussion and popularization or the aforementioned university research
<i>Stage 4 Reference</i>	I cited university research studies as references in my own professional reports or documents
<i>Stage 5 Effort (adoption)</i>	I made efforts to favour the use of university research results.
<i>Stage 6 Influence</i>	University research results influenced decisions in my administrative unit

Source: Landry et al (2003) adapted from Knolt and Wildawsky (1980).

The study found that university research was used more extensively than commonly assumed. Landry et al (2003) found that 12 per cent of respondents always received or obtained university research pertinent to their work, this was the first stage of their typography. 40 per cent sometimes received relevant research. Conversely 16 per cent of respondents never received university research pertinent to their work or believed this question did not apply to their work situation. At the final stage of the typography just under one per cent (0.8) of respondents reported that university research always influenced decisions. Eight per cent reported that university research was usually an influence.

The study also revealed significant differences between policy making areas. Regression analysis showed that research utilisation was highest for those working in education and information technology activities and lowest for those in municipal and regional affairs, public works and public infrastructures.

5.2 Factors affecting research utilisation

Few robust studies such as those in section 5.1 have been undertaken, but these studies and a number of others have provided a valuable insight into the factors that are most influential in enhancing or preventing research utilisation.

The most useful study has been produced by Landry et al (2003); the multiple regression approach adopted by the research identifies the relative importance of different elements (evaluated against three utilisation models). As noted earlier this study found that the policy or administrative domains of users had an influence on the use of research. The best predictor for research use found when examining organisational interests was the *user's context*.

Examination of factors against a 'two communities' and 'interaction' models (which assumes difference in cultures and the level of interaction between administrators and university researchers) found that the most important factors were *adaptation of research outputs* to user needs, user's acquisition efforts and *links between users and researchers*. The research methods (quantitative, qualitative and theoretical studies) adopted in studies to produce research findings were found to be unimportant.

Surprisingly, Landry et al's (2003) research found that projects focusing on user needs did not affect utilisation. The study suggests that policy interventions should not attempt to induce researchers to shift the focus of projects from the advancement of knowledge to meeting users' needs. Instead, most of their recommendations concern the practical methods to ensure research meets the user's context.

Three key recommendations are proposed by the study. The first is to invest resources in demonstrating the pertinence and validity of university research in particular fields of work. The second is to increase the adaptation of research products for users. The third is to enhance mechanisms linking researchers and users.

Other studies have also provided a valuable insight into factors that are most influential in enhancing or preventing research utilisation. These are presented below in two tables summarising key issues. Each table divides factors into issues that need to be addressed by research producers or research consumers. This simple two-fold classification is useful, but there is some overlap between groups.

Table 5.2 Barriers to research utilisation

Research consumer barrier	Study
Lack of <i>time</i> to read research	Percy-Smith et al (2002)
Lack of relevant <i>skills</i> to understand research	Eccles (2003)
Different levels of <i>autonomy in applying research</i> findings	Walter et al (2003)
The lack of a core role for service users in supporting the use of research	Walter et al (2003)
Uncertainty about the <i>validity of research</i>	Alberta Heritage Foundation (2003)
Research needs not just technical review, but debate by all stakeholders	Du Guerny, 2005
Mutual mistrust between research consumer and producer	Eccles (2003)
<i>Population instability</i> , personnel changes	Eccles (2003)

Research producer barrier	Study
Research has a shelf-life, <i>timeliness</i> is important	Lemne and Sohlman (2004)
Poor <i>accessibility</i> of research	Lavis (2003)
Inadequate systems of dissemination of research within the administration	Percy-Smith et al (2002), Alberta Heritage Foundation (2003)
Poor substance of evidence provided	Maclennan and More (1999)
Lack of a local focus, despite the inherently local dimension of the sector	Maclennan and More (1999)
Research on organisational restructuring in the health sector is less methodologically sound than clinical evidence	Davis and Nutley (1999)
Research organisations should report from bodies of research rather than single studies	Lavis et al (2003)

Table 5.3 Catalysts to enhance research utilisation

Research consumer catalysts	Study
Respected professionals can champion research results and influence opinion	Davies et al (2005), Percy-Smith and Darlow (20095)
Collaborative approach to the creation and use of research	Walter et al (2003)
Personal contact and trust between research consumer and producer, this takes time	Eccles (2003)

Research producer catalysts	Study
The accessibility of research and main findings	MacLennan and More (1999), Percy-Smith and Darlow (1995)
Make clear the implications for policy making	Percy-Smith and Darlow (1995), King and Ollerearnshaw (2000)
Research findings should be translated into concrete recommendations or action points	Percy-Smith and Darlow (1995), Eccles (2003)
Active dissemination increases the likelihood of research being used	Walter et al (2003)
Complex research findings need face-to-face dissemination	King and Ollerearnshaw (2000)
Educational outreach increases understanding and impact	Walter et al (2003)
Working together after the use of research in policy making to evaluate impact	Eccles (2003)
Better understanding of the political culture by researchers	Eccles (2003)

Interestingly, many of the barriers and catalysts in the two tables provide practical methods of focusing on the three issues highlighted as being most influential in the Landry et al (2003) study. These are research focused on the user context, the adaptation of research outputs to be more accessible to users and the promotion of better links between users and researchers. It is important to highlight that the new model proposed in this paper was

specifically developed to enable a better understanding and conceptualisation of user context and the appropriateness of different types of research.

5.3 Interaction between the research and policy worlds

Analysis of the lack of research utilisation have not only commented on the limitations of research and the apparent inhospitality of the policy making environment but also on the divergence of these two worlds (Walter et al, 2003). The research and policy worlds have different priorities, use different languages, frequently operate to different timescales and are subjected to very different reward systems.

The response to these problems has generally been twofold. Firstly, improvement in communication between researchers and policy makers. Secondly the establishment of better institutional mechanisms to bridge the research/policy divide. These two issues are considered below within the context of the eGOVERNMENT project.

- 1. *Improving communications*** Much of the focus for this approach has been on finding ways in which researchers can improve how they communicate and disseminate their findings. Walter et al (2003) found that provision of targeted research outputs can raise awareness of research findings and that seminars and workshops, which enable the discussion of findings, can encourage more direct use of research. In Switzerland the National Research Council set aside ten per cent of research funding explicitly for dissemination work outside the academic community. The eGOVERNMENT project will provide some insight into the research requirements of policymakers. Work packages should also try to find best practices in improving communication at the individual and institutional levels.
- 2. *Building institutional bridges*** Analysis suggesting the benefits of sustained interaction inevitably leads to discussion of how this can be institutionalised within the policy process. One approach is to use policy-making guidelines to encourage the early involvement of in-house and other researchers in the policy process. This is probably beyond the scope of the eGOVERNMENT project, but it is an area of activity that should be more closely investigated, analysed and, if appropriate, advocated by the project.

6. Measuring research use and impact

Weiss (1979) noted that ‘the use of research in the sphere of public policy is an extraordinarily complex phenomenon’. She suggested that ‘much of the ambiguity in the discussion of “research utilisation” derives from conceptual confusion’. Landry et al (2003) highlighted similar concerns, particularly problems associated with defining and measuring use. The development of measures and indicators is therefore a longstanding problem.

Even when suitable indicators have been found Landry et al noted that an additional problem is the ability of respondents to report (or explain) behaviour accurately.

Nonetheless, one of the underlying objectives required for work package 5 is the derivation of indicators for research use. A small number of researchers have developed indicators that are relevant for this study, most notably Gerhardus et al (2002), Landry et al (2003) and Nutley et al (2004).

This previous work has not always distinguished between the *use* and *impact* of research. The *use* of research is probably easier for policymakers to recognise. The *impact* of research requires a far more subjective view about the merits of individual research items utilised. For example, many policymakers may be able to remember research articles they have read or recall conversations they had with researchers. They may even be able to provide interviewers with citations of research in policymaking documents.

However, the impact of any single research paper or conversation is very difficult to assess for two reasons. Firstly, the precise level of influence or impact of any individual study or conversation on a policymaking decision will be difficult to assess. Secondly, the views of some policymakers about the impact of research might be influenced by the success of a policy. They may make subjective judgements about the impact of research in the light of the success of the implementation of a policy. For example, 100 per cent use of research to develop a policy might be regarded as having no impact if policy implementation fails and none of the goals for the policy are achieved. As a result of this difficulty, some observers have advocated using terms such as ‘influence’ or ‘contribution’, rather than ‘impact’ (Nutley et al, 2004).

The indicators that can be used to investigate research use can be presented as a continuum. The continuum starts with a user perspective on the supply and appropriateness of research, before examining their efforts to obtain research and the institutional (and broader) context for utilising research. The continuum concludes with measures of the influence and impact of research. The continuum ranges from simply considering the appropriateness of research, awareness of research findings, through developing knowledge and understanding and changing perceptions, to actual changes in policy and practice. Importantly, such a continuum is able to reflect a cyclical, iterative process, rather than a

straightforward linear one (where research is commissioned to provide results applicable for a particular problem). The continuum is better able to accommodate conversations, discussions and presentations between researchers and users. It is also better able to reflect the fact that research takes time to have an impact and research use can take place in hidden ways. The timing of research impact studies is therefore always crucial, formative as well as summative assessments are important (Nutley et al, 2004)

The remainder of this section describes the continuum of indicators that can be used to investigate research use, influence and impact.

Indicators and sources	Methods
An index of the adaptation of research products for users (Landry et al, 2003)	<p>Nine criteria can be adopted to examine the ways research has been adapted to meet user needs, each is measured against a five point scale (from no adaptation to decisive adaptation) –</p> <ol style="list-style-type: none"> 1) Ease of comprehension of report 2) Operational nature of conclusions 3) Focus on areas where user intervention is possible 4) Credibility of the source 5) Pertinence to user work activities 6) Realism of recommendations 7) Ability to verify results 8) Exclusivity of research results 9) The appeal/aesthetics of reports
Acquisition effort (Landry et al, 2003)	<p>Two items are used and policymakers are asked to reply on a five point scale. The two items are :-</p> <ol style="list-style-type: none"> 1) I personally made an effort to establish relationships with researchers 2) My organisation provides sufficient means to access research

Links between users and researchers (Landry et al, 2003)	Four categories are used and policymakers are asked to reply on a five point scale. The four items are :- 1) Meetings with work colleagues in my field 2) My colleagues' research work is useful to me 3) Electronic mail and the Internet are used to access research 4) My organisation has a reference library
Research projects used (Gerhardus, 2002)	Methods include interviews to determine the number of research studies or projects an interviewee can name or their knowledge of research studies from a list
Number of researchers consulted (none of the previous studies adopted this measure)	Interviews could be used to find out the number of researchers an interviewee can name or their knowledge of influential researchers from a list
Organisational context for research (Landry et al, 2003)	Three categories are used and policymakers are asked to reply on a five point scale. The three items are :- 1) Research results are considered pertinent by my organisation 2) My colleagues' research work is more useful to me than other research 3) Research reports have reached me at just the right time to be used
Respondent assessment of the frequency of research use to understand the working of programmes and policies (Landry et al, 2003)	Policymakers reply on a three point scale (always, often or sometimes, never).
Respondent assessment of the frequency of research use in different activities (Gerhardus, 2002)	Respondents are asked about the extent (on a one to five scale) to which research was quoted or referenced in five different activities. These were - speeches, statements, guidelines, executive orders and other comparable activities

Respondent assessment of the way research was used by them (Gerhardus, 2002)	Respondents are asked about the way research (in general) or a particular study had been assessed. The five possible impacts were – confirmation of pre-existing ideas, challenges to pre-existing ideas, indicates a problem, quantifies a problem, indicates solutions/possible actions to a problem
Respondent assessment of the importance of research to improve programmes and policies (Landry et al, 2003)	Policymakers reply on a three point scale (always uses research to improve policies, often or sometimes, never).
Respondent assessment of the influence of research to improve programmes and policies (Gerhardus, 2002)	This method asks for the importance (on a one to five scale) of nine factors in influencing programmes and policies. One of the nine is research, thus the relative importance of research against other factors can be assessed. The nine factors are – experience, common sense, political will, political/legal environment, international organisations, research, public demand, broker, others (peers etc)
Respondent assessment of the impact of research to improve programmes and policies (Gerhardus, 2002)	Respondents are asked about the extent (on a one to five scale) to which research was quoted or referenced in six different activities. These were – public statements, guidelines, decrees, annual plans, budgeting and legislation
Barriers to research use (Gerhardus, 2002)	Respondents are asked about barriers to using research (in general) or a particular study. The seven possible barriers were – not enough time to read adequately, limited relevance, results contradict each other, low quality of research, research(er) was biased, research was not useful for a specific decision, other

These thirteen measures provide a useful overview of the key indicators that can be adopted to investigate a continuum of research uses. The focus of all the preceding studies is nearly always on the subjective views of respondents. These generally provide softer measures of research use. Very few of the studies examined have developed hard, statistical output measures.

7. Conclusions

This report provides the first deliverable for work package 5 of the eGOVERNET project. It fulfils the objective of providing a better understanding of the ways in which research is used in policy making and in this context identify possible indicators of the impact/use of research on eGovernment policy making.

In several European countries there has been a growing emphasis on using evidence and research to underpin policymaking and the transformation of government. However, the utilisation of research is not assisted by the fact that relatively few studies have investigated the role of research in the policy making process. Governments advocate greater use of research but a problem for them is that little is known about how they can achieve this. This study provides a significant contribution to better understanding of this complex area by analysing many of the key studies undertaken.

There are a wide variety of research utilization models. They range from simple to complex and from consumer-oriented to policymaker-oriented. Many reflect the two communities theory of knowledge utilization that views users and researchers as residing in two differing and alien cultures requiring linkers or integrators.

A new model is proposed to better understand the nature of research, information and knowledge required at different stages of the policy design and delivery process. The model provides an holistic and inclusive view of research use in the policy making process. The conceptualisation places many of the components of previous research into their wider context. It enables a more complete understanding of the implications of many of the preceding models and the extent to which they engage all the relevant stakeholders in the use of research in the policy making process. The model provides a sound foundation for later components of work package 5.

This approach is new and needs to be further developed, but it does highlight a number of important issues. It is evident that different stages of the policy design and delivery process have different research, information and knowledge requirements as well as needs for interaction with stakeholders. Previous studies have far too often provided homogenous models of how organisations use research.

Previous research found that the most important factors influencing research use were adaptation of research outputs to user needs, user's acquisition efforts and links between users and researchers. 13 indicators that can be used to investigate the use of research are presented as a continuum. The continuum starts with a user perspective on the supply and appropriateness of research, before examining their efforts to obtain research and the institutional (and broader) context for utilising research. It concludes with measures of the influence and impact of research.

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