SIXTH FRAMEWORK PROGRAMME

URBAN-NET

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The Science-Policy Interface and Urban Research Uptake

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1. Introduction

European countries face great challenges. The financial crisis, climate change and energy efficiency, ageing population, immigration and increasing global economic competition all call for fundamental reforms at the local, national, regional and European level. Knowledge is seen as the key to cope with this task on both short and long term. Under the Europe 202o Strategy, the EU has set out to become the most dynamic competitive knowledge-based economy in the world.[1] To enforce this goal the Barcelona objective has been set, stating that all member states should raise the level of their R&D effort to three percent of the countries' GNP.[2] The basic idea behind this objective is that by investing in the so-called knowledge triangle, encompassing research, education and innovation, the socio-economic position of Europe will be strengthened in terms of jobs, skills and productive power. Secondly, knowledge is thought to make the political process more rational, leading to effective polices that will make for a more sustainable and prosperous European society.[3]

The focus on research, education and innovation has seen much support in the whole of Europe. There is a common understanding that in the world of today knowledge is power. Information is needed to deal with local problems and keep up with global developments. If we do not invest, Europe will lose its attractiveness as a place to live and do business.[4]
The ideas on how to guide this process however have met some criticism. According to some authors, the out-take on the function of knowledge within the European Commission reflects a narrow understanding of innovation and policy making. In some very highly specialised fields, such as nano-technology, direct impact of scientific research might be the case. Yet for most of the challenges that face the European Union pure analytic studies do not lead to clear-cut answers or direct policy measures. The struggle within the field of environmental science and climate change, shows there is a so called science-policy interface.[5]

With respect to urban issues this problem is even more apparent. The key questions in European cities are all multifaceted and it is generally recognised that an integrated approach is needed to confront them.[6] Hence, in this increasingly complex world, it is not more than logical that urban practitioners search for information to base their decisions on. Over the past 20 years the EC has set up many research programmes and projects to further urban issues. So far it has been proven difficult to translate their results to the daily practices in European cities. Policy makers often state that the findings are inaccessible, hard to understand or not suitable to their specific problems. Researchers on the other hand claim the possibilities within single studies are limited and their job is to make thorough investigations, not to design new policy solutions.7

[1] European Commission (2010). *Europe 2020. A European strategy for smart, sustainable and inclusive growth*.
[2] This is also called the Barceloba 3% objective, aiming at investments in RTD 2% business and 1% public.
[3] European Research Area (2009). *A knowledge intensive future for Europe*. Expert Group Report. Brussels: European Union.
[4] See: Nooteboom, B. & Stam, E. (eds.) (2008). *Micro-fundations for innovation policy*. Amsterdam: Amsterdam University Press.
[5] Standing Committee for the Social Sciences. (2009) *Vital questions: The contribution of European social science*. SCSS Science position paper. European Science Foundation.
[6] Leipzig Charter on Sustainable European Cities, 2007.
[7] Young, J. (2008). Impact of research on policy and practice. Working with complexity. *Capacitu.org*, 35.

Under this label several models and methods have been developed during the past decades to confront the science-policy interface. Since the 1990's the active connection and interaction between researchers and policy makers has become the preferred way to bring the 'two communities' together. Due to the rise of multi-level governance, a diverse group of stakeholders has become involved in the process, calling for new ways of participation and collaboration. With respect to the European knowledge strategy it is very important to not only invest in innovative research, but also in innovative ways to make findings useful.

2. Scope and outline of this paper

Disseminating research outputs is a key objective of URBAN-NET. Since URBAN-NET's inception a number of other European initiatives and activities concerning urban issues have arisen such as the FP7 follow-up Coordination and Support Action proposal Urban-Nexus; the proposal for a Joint Programming Initiative called Urban Europe; the Social Polis platform etc.

To support these initiatives and give more basis to the overall European Urban Agenda, insight in effective ways of knowledge utilization is needed. New programmes and projects should adopt the state of the art in this field to be really innovative. Therefore this deliverable is on recent insights and literature on methods, modes and models to bridge the gap between researchers and policy makers.

The general question is in what ways does academic research currently contribute to public policy and how could it do so in the near future? What modes and models exist, how do they work and what are their possibilities and limitations, given the current social and political situation?

This paper looks at recent developments in the field of knowledge utilization on a theoretical basis. The focus is on the use of knowledge derived from academic research in public policy. So called tacit knowledge or research done by consultants is not taken into account directly. Also the debate about the open method of coordination, in which evaluations and benchmarks play a central role, is left out.

Given its conceptual character, the paper presents models and methods for knowledge utilization at the institutional and strategic level of government. The implementation of policies and research findings by practitioners and their ultimate effect are beyond its scope. Emphasis lies on research programmes and programmes set up to tackle urban social-economic problems on the level of the EU, individual Member States or metropolitan areas. Although the fields of natural science and healthcare are more advanced in terms of knowledge utilization and innovation, the issues at stake and policy environment differ too much from urban development to really serve as an example. Especially in the complex, dynamic and multifaceted world of cities it is important to take the context into account and see knowledge utilization as a process.

3. The linear model of knowledge utilization

Scholarly interest in the ways of transferring academic research to policy making initiated in early 20th century, but the field of knowledge utilization did not develop until the 1950's. Major studies were done in the 1970's to mid-1980's.[8] In the 1990's a new wave of attention to the science-policy interface arose, influenced by major changes in society and governance. This also called for a shift in focus within the debate on the need to bridge the gap between research and policy. On the one hand the dawn of the information age created more demand for knowledge and more ways to distribute it. On the other hand the awareness grew that communication between the academic world and the reality of practitioners and policy makers is more complex than the old linear model suggests.[9]

The classical view in the knowledge utilization field depicts researchers and practitioners as two distinct groups with each their own visions, norms, values, interests, goals, language and discourses. This divergence leads to a cultural or behavioural gap, explaining why the use of research in policymaking is so problematic. The 'two communities theory' generated in the 1960's en 1970's when sociological research on public policy showed that scarce links between academics and government.[10] Practitioners were found to value research, yet seldom get in contact with it directly and when they do, find it hard to make sense of it. Researchers on their part saw much public usage in their work, but did generally not know how to get that message across and in cased they succeeded, got little academic credit for it.[11]

The two communities theory is still the main perspective on the science-policy interface. It is strongly connected to the traditional approaches of knowledge utilization reflecting the so-called linear model.[12] Coming from a positivist view on academia and a textbook explanation of policy making, the general idea is that good data will find its own way into policy and practice. The one-way process goes from research through development and diffusion to agenda setting, decision making and evaluation.[13] Along this course there are roughly three functions of knowledge:

I. Instrumental – Relative small scale, simple policies are based on specific empirical data.
II. Strategic – Useful elements are drawn on to reach a certain political goal.

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[8] Larsen, J.K. (1980). Knowledge utilization. What is it? *Knowledge: Creation, diffusion, utilization*, 1(3), pp. 421-442.
[9] Backer, T.E. (1991). Knowledge utilization: the third wave. *Knowledge*, 12(3), pp. 225-240.
[10] Caplan, N. (1979). The two communities theory and knowledge utilization. *American Behavioural Scientist*, 22(3), 459-470.
[11] Glaser, E. & S.H. Taylor (1971). Factors influencing the success of applied research. *American Psychologist*, 28(2), pp. 140-146.
Weiss, C.H. (ed.) (1977). *Using social research in public policy making*. Lexington, MA: Lexington Books.
Weiss, C.H. (1980). Knowledge creep and decision accretion. *Knowledge: Creation, diffusion, utilization*, 1(3), pp. 381-404.
Glaser, E.M., Abelson, H.H. & Garrison, K.N. (1983). *Putting knowledge to use: facilitating the diffusion of knowledge and the implementation of planned change*. San Francisco: Jossey-Bass.
[12] Havelock, R.G. (1969). *Planning for innovation through dissemination and utilization of knowledge*. The University of Michigan, Institute for Social Research.
[13] Dunn, W.N. (1980). The two communities metaphor and models of knowledge use. *Knowledge: Creation, diffusion, utilization*, 1(4), pp. 515-536.
Glaser et al. 1983; Landry, R., Amara, N., & Lamari, M. (2001a). Utilization of social science research knowledge in Canada. *Research Policy*, 30(2), pp. 333-349.

III. Conceptual – Gradual shifts in ideas and insights held within the policy world on the basis of a general, large, abstract body of knowledge.[14]

The first function assumes that policymakers use findings directly and objectively to base decisions on. This is often perceived as the preferred and only method of knowledge utilization. Some scholars go even as far as to see the function knowledge only in the form of problem solving action or applied research where data are gathered to fill the lack of information in a certain policy area. Yet others argue that the use is or can be more incremental.[15] The second function takes this notion the most far, portraying knowledge as something that once in the hands of policy makers, becomes subjective. Practitioners would not be interested in the pure research results, but only in findings that fit their own views or interests and legitimize pre-formed decisions.[16]

The third function falls in between instrumental and strategic and takes a nuanced point of view. It depicts a more diffusive, complex use of scientific information stating that not only direct, assignable influence of specific research counts, but it starts when policy makers 'take knowledge of knowledge'. This is what Weiss' described as the enlightenment function.[17] According to her, policy makers use academic research as a source of information and ideas, but seldom as a straight input for new policy. Although they take specific studies into account, it is their general concepts or aggregated thoughts that influence the policy process. Especially the meaning of the social sciences for practitioners is more of an intellectual enterprise. This means that academic knowledge has effect and is used, but in the form of a slow transformation of views and paradigms.[18] It explains why new research findings, particularly when they are a bit radical, are not easily embraced by policy makers and practitioners and how ideas get to stick around for a long time after scientific studies already have proved them wrong.[19]

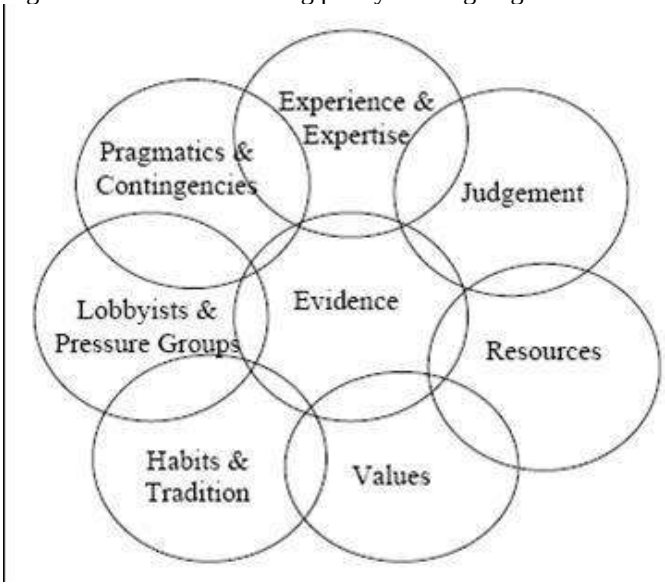
4. The interactive model of knowledge utilization

The concept of the enlightenment function steps away from the view on knowledge as something purposely produced by an objective community of researchers, only to be transferred to and received by the policy world.[20] Yet it still depicts both policy making and knowledge utilization as a one-way course of actions. By the 1980's however scholars agreed

[14] Weiss, C.H. (1979). The many meanings of research utilization. Public Administration Review, 39, pp. 426-431. *Knowledge: Creation, diffusion, utilization*, 1(3), pp. 318-404.
[15] Caplan, 1979; Lindblom, C.E. & Cohen, D.K. (1979). *Usable knowledge. Social science and social problem solving*. New Haven: Yale University Press.
[16] Weiss, 1979; Bulmer, M. (1982). *The uses of social research*. London: Georg Allen and Unwin; Huberman, M. (1987). Steps toward an integrated model of research utilization. *Knowledge: Creation, diffusion, utilization*, 8(4), pp. 586-611.
[17] Weiss, C.H. (1977). Research for Policy's Sake: The Enlightenment Function of Social Science Research. *Policy Analysis*, 3(4): 531-545.
[18] Weiss, C.H. (1982). Policy research in the context of diffuse decision making. *The Journal of Higher Education*, 53(6), pp. 619-639.
Weiss, C.H. (1991) Policy research as advocacy: pro and con. *Knowledge & Policy*, 4(1/2), pp. 37-56.
[19] Dunn, W.N. (1983). Measuring knowledge use. Knowledge: *Creation, diffusion, utilization*, 5(1), pp. 120-133.
[20] Sabatier, Paul and Hank Jenkins-Smith (eds.). (1993). *Policy Change and Learning: An Advocacy Coalition Approach*. Westview Press.

that the linear model is too static and simplistic. Instead they saw a series of interactive processes that strongly depend on their context. This lead to the development of the interactive model of knowledge utilization.[21]

Figure 1: Factors influencing policy-making in government



Source: Davies, 2004

First it was recognised that policy making in real life rarely goes along the lines of the text book model of agenda setting – information gathering – decision – enforcement – implementation – evaluation. It is a much more complex process where the actions of problem definition, data inquiry, ideation and the design of new solutions or policy measures take place simultaneously.[22] Academic research or evidence plays a role in all these activities, alongside other sources of information and ideas held or gathered by the policy makers and practitioners involved. Knowledge flows through the interactive policy process continually and shapes this system, but is also shaped by it.[23]

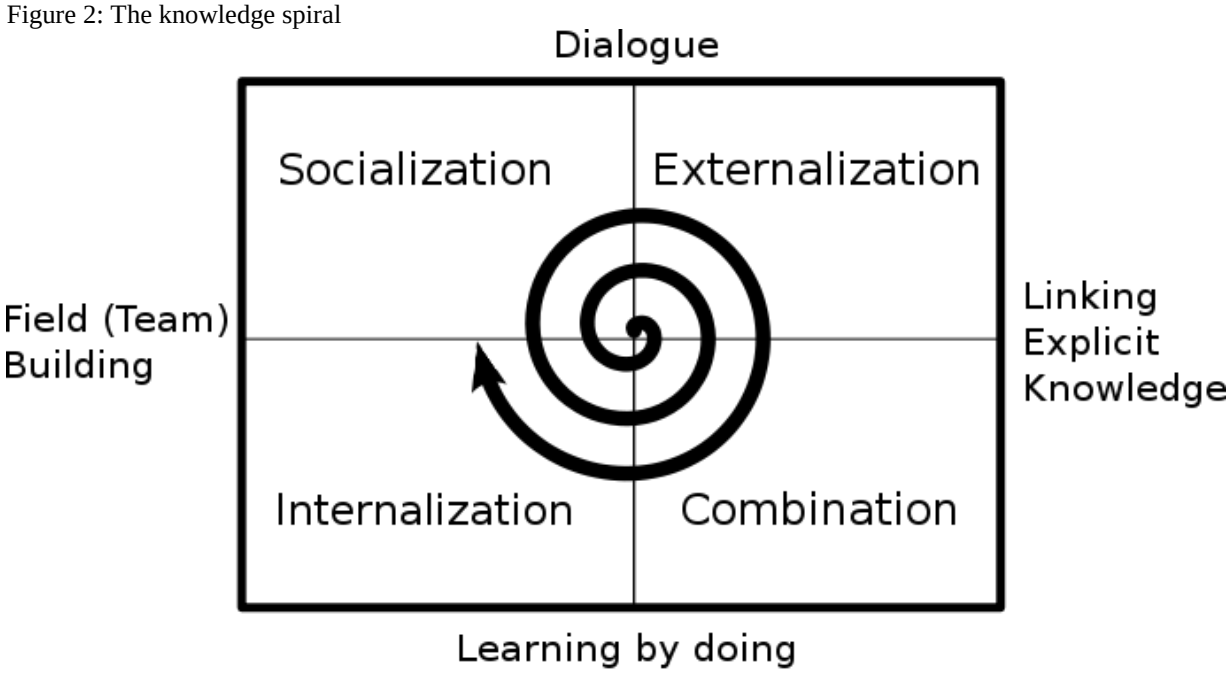
Drawing on this notion, scholars came to another insight in the nature of knowledge utilization. They became aware that knowledge doesn't equal academic research or data, but evolves out of a process where findings are put into a context. Knowledge is not simply created by scientists and sent to policy makers and practitioners who use it to make plans and take actions. The latter are active agents instead of passive recipients who filter and reconstruct the facts presented to them according to their own views, values, experiences, understanding, long standing habits and common practices.[24] To policy makers academic

[21] Glaser et al., 1983; Landry, et al, 2001a.
[22] Kerr, D.H. (1981). Knowledge utilization: epistemology and political assumptions. *Knowledge: Creation, diffusion, utilization*, 2(4), pp. 483-501.
[23] See: Neilson, S. (2001). Knowledge Utilization and Public Policy Processes: A Literature Review. Paper for the International Development Research Centre.
Porter, R.W. & Hicks, I (1995). Knowledge utilization and the process of policy formation. Towards a framework for Africa. Paper for USAID.
Davies, P. (2004). Is evidence based government possible? Campbell Collaboration, Jerry Lee Lecture.
[24] Knorr Cetina, K. (1999). *Epistemic cultures. How sciences make knowledge*. Cambridge: Harvard University Press.

research is a source of information, a lens through which they can look at a certain problem, domain or topic. This lens does not contain pure results, facts and figures but the parts of it that are meaningful and useful to that person.[25]

This socialisation process is depicted as a knowledge spiral in which all sorts of information, research data and evidence are internalised and combined. The result. given that it runs smoothly, is innovation.[26]

Figure 2: The knowledge spiral



Source: Nonaka & Takeuchi, 1995

Hence the knowledge derived from academic studies and used in policy making is socially constructed through a dialectic, interactive process between science, policy and practice. Empirical data and insights are simply one of the so-called interacting sources. This does not mean that it is false or wrong, but merely that the pure scientific information is framed into the context of the policy and practice world.[27] In this world a lot of things matter next to academic evidence, such as policy traditions, existing measures and structures. Simply presenting data and calling for new or alternative policies generally does not work unless there is great urgency. Even then research first has to go through the policy process where it acquires meaning and significance.[28] The field of knowledge utilization generally distinguishes six stages in this line of action:

- reception
- cognition
- discussion

[25] Huberman, 1987; Neilson, 2001
[26] Nonaka, I. & Takeuchi, H. (1995). *The Knowledge-Creating Company. How Japanese Companies Create the Dynamics of Innovation*. New York: Oxford University Press.
[27] Booth, T. (1988). *Developing Policy Research*. Aldershot: Gower Publishing Company Limited.
[28] National Center for the Dissemination of Disability Research (1996). *A review of the literature on dissemination and knowledge utilization*. Southwest Educational Development Laboratory.

- reference
- effort
- influence[29]

In other words, academic evidence is not a panacea, even with respect to the natural sciences and technology. However it especially applies to socio-economical issues where expertise, ideas and interests not only come from scientists and problems are never one sided. Values shape policies in this field much more than hard evidence, if that would exist at all. Research can therefore only provide a context or medium. To be relevant it needs to be more than a collection of findings and studies, but suit the needs and thoughts of policy makers.

Within the field of knowledge utilization it has been long understood that in order to really bring the two communities together, much more is needed than simply establishing contacts between researchers, policy makers and practitioners. In the 1970's scholars already argued for a set of deliberately designed arrangements to connect the science and policy worlds and challenge their standard modes of behaviour.[30] These arrangements have to make researchers more aware of policy needs and practitioners more perceptive to academic knowledge.This has become labelled as boundary work. The basic idea is that the academic and policy world need each other, yet the gap between them is so big that interests will never come together on their own.[31] The only way to overcome this deadlock is to involve a third bridging party or instrument. Active boundary work is concerned with managing the science-policy interface by honouring the structure of both worlds, yet seeking for ways to make their interaction more fluid.[32]

After a period of heavy debate in the field of knowledge utilization, the interaction model has become widely accepted as a more appropriate way to deal with the science-policy interface. The interaction model takes science out of the ivory tower and focuses less on the academic effort. Instead it puts emphasis on the active relations between the two worlds and the process in which research becomes meaningful, usable knowledge.[33]

However there is still much discussion within the field of knowledge utilization on the question how interaction should best take place. In general two approaches can be distinguished in the literature. The first seeks to bridge the gap between the two worlds

[29] Knott, J. & Wildavsky, A. (1980). If dissemination is the solution, what is the problem? *Knowledge: Creation, diffusion, utilization*, 1(4), pp. 537-578.
Landry, R., Amara, N., & Lamari, M. (2001b). Climbing the Ladder of Research Utilization. Evidence from Social Science Research. *Science Communication*, 22(4), pp. 396-422.
[30] Caplan, 1979.
[31] Gieryn, T.F. (1983). Boundary-work and the demarcation of science from non-science: strains and interests in professional ideologies of scientists. *American Sociological Review*, 48(6), pp. 781-795.
Jasanoff, S.S. (1987). Contested boundaries in policy-relevant science. *Social Studies of Science*, 17(2), pp. 195-230.
[32] Jasanoff, S. (1990). *The fifth branch. Science advisors as policy makers*. Cambridge, MA: Harvard University Press.
Guston, D.H. (2001). Boundary organisations in environmental policy and science: an introduction. *Science, Technology & Human Values*, 26(4), pp. 399-408.
Clark, W.C. et al. (2010). Towards a general theory of boundary work: insights from the CGIAR's natural resource management programs. Harvard Kennedy School Faculty Research Working Paper Series.
[33] Porter & Hicks, 1995.

through deliberate forms of knowledge production, transfer and dissemination. It builds on tools that connect research and policy through an intermediate. The second argues that in order to be effective, interaction should be based on active and continued participation of a wide range of stakeholders. It calls for methods and instruments that make these actors collaborate in a joint learning process.

5. The connection approach

The connection approach to the interaction model rose out of the debate on evidence based practice and evidence based policy. Since the 1990's it is argued that policy measures and instruments should be more rational and efficient using scientific evidence and insights. Consequently policy makers require access to these data and researchers need to provide it.[34] However, to practitioners the academic world is vast, fragmented and complex and they lack the time and skills to keep track of all useful knowledge. Researchers on their side find it hard to combine their aspiration to do significant work with the dynamics of the policy process that calls for instant answers and short-term solutions. The result is that as far as evidence based policy goes, it usually just copies best practices from other fields or places. The projects and initiatives rising out of it seem innovative nevertheless often lack a conceptual background and therefore usually don't lead to structural improvements or institutional changes.[35]

The connection approach is focused on bridging the gap in the form of intermediate institutions, and arrangements. They are mainly directed at getting the word out and connect research to policy before the phase of decision making and implementation. In such they function as a vehicle or conductor to transfer ideas and insights to practitioners and direct the needs of policy makers to academic experts. This is done by gathering, ordering, translating and disseminating information and by initiating, funding and coordinating research projects. Within these activities both academic significant and policy relevant knowledge is created.[36]

The objective of the connection mode is getting the knowledge out there to make for better policy and practice. Hence like the classic linear model it is the content that matters and knowledge is seen as a means to an end. However the connection approach actively takes the context of both the academic and policy world into account and is concerned with transferring useful insights instead of pure scientific data. Institutions within the policy process are the main target group, consisting of a broad range of stakeholders.[37]

Getting the knowledge out there

The connection approach has given rise to boundary work. It argues for bridging institutes and arrangements that take an active role in connecting the two worlds by creating conditions for

[34] Black, N. (2001). Evidence based policies: proceed with care. *Britisch Medical Journal*, 323, pp. 275-279.
[35] Friedman, M.A. & Farag, Z.E. (1991). Gaps in the dissemination/knowledge utilization base. *Knowledge: Creation, diffusion, utilization*, 12(3), pp. 266-288.
Owens, S., Petts, J. & Bulkeley, H. (2006), Boundary work: knowledge, policy and the urban environment. *Environment and Planning C*, 24(5), pp. 633-643.
[36] Landry et al., 2001b; Stone, D. (2009). RAPID Knowledge: bridging research and policy in international development. *Public Administration and Development*, 29(4), 303-315.
[37] National Center for the Dissemination of Disability Research, 1996.

the most effective knowledge transfer.[38] The basic idea is that in dealing with the science-policy interface good communication is more important than the quality of information. The message has to be presented in a form practitioners can make sense of, otherwise the impact of significant academic research or studies provided by the classic forms of boundary work remains low. There is simply too much knowledge out there and on top of this, it is rarely clear and coherent. Completely different views an a certain topic supported by scientific evidence are not uncommon.[39] Practitioners and policy makers can not be expected to go through piles of books, reports and publications in search of general threads and the useful elements. This has led to focus on the transfer of knowledge by boundary organisations that hold an overview and can deduce, summarize and translate. They consist of knowledge workers that perform the role of coordinator and advocate, making them knowledge brokers.[40]

Knowledge transfer, or dissemination, has four key elements[41]:

- Source – the organisation or person creating and transferring new knowledge. Needs to be reliable and credible, aware of the its position in the field and holding a clear focus.
- Content - the message and information being transferred. Needs to be valuable, effective, recognisable, compatible, perceptible, comprehensible, transferable, legitimate, uncontested, salient, not too abstract or complex, confined, brief, and applicable.
- Medium – the way knowledge is transferred. Needs to suit the daily practices and learning capacity of the policy world. Modern media and ICT make for more diverse forms of knowledge transfer that go beyond written documents.
- Users – the target audience that seeks knowledge. Need to be actively involved instead and not just passive recipients. This involves a process that accommodates their context and concerns.

In general knowledge directed at policy makers does not have to be bite-sized per se to be relevant, but tailored to fit their interests and working processes. Using different forms of dissemination and repeating the message over time, has been proven to increase the impact. Especially when the information is far-reaching and conceptual or when the policy context is complicated, new facts or ideas will not sink in easily.[42]
It has also become clear that effective knowledge transfer does not start when data are collected and the report has been written, but already during research projects and preferably even in the initiation phase.[43] By involving stake-holders the reception of knowledge is carefully guided, policy makers are prepared and results do not come out of the blue. Personal interaction, meaning face-to-face contact between researchers, practitioners and knowledge workers, is very important to make this work.[44]

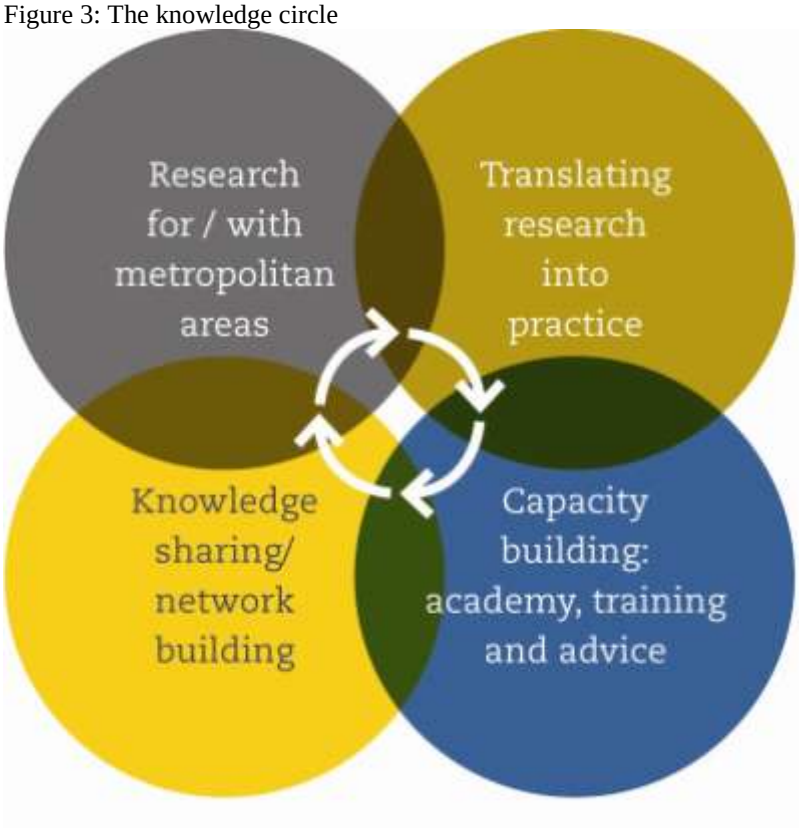
[38] Lövbrand, E. (2007). Pure science or policy involvement? Ambiguous boundary-work for Swedish carbon cycle science. *Environmental science and policy*, 10(1), pp. 39-47.
[39] Davies, 2004.
[40] Hoppe, R. (2008). Scientific advice and public policy: expert advisers' and policymakers' discourses on boundary work. Paper University of Twente.
[41] National Center for the Dissemination of Disability Research, 1996.
[42] Friedman & Farag, 1991; Davies, 2004.
[43] Banks, G. (2009). Evidence based policy making. What is it? How do we get it? ANU Public lecture series.
[44] Landry et al. 2001b.

In general four connected connecting or bridging activities are distinguished:

- Knowledge creation: funding research and setting the thematic focus
- Knowledge diffusion: ordering, translating and presenting information
- Knowledge application: advising, consulting and process management
- Knowledge cognition: teaching and training

These four activities can be seen as part of a knowledge circle that is rooted in academic research, but led by the needs and interests of practitioners and policy makers. Boundary institutions manage this process and are responsible for it's structure, focus and scope. In performing this task they have a range of 'connection tools and techniques' to choose from.

Figure 3: The knowledge circle



Source: EMI

In the realm of knowledge creation boundary institutions provide funding schemes and set up thematic research programmes involving both academics and policy makers. This can be one-time events where the two worlds make their positions known and share views, however scholars have for long called for sustained interactivity.

Notwithstanding the large body of written documents, publications are still a valuable way to transfer knowledge. Instead of the classic ways of boundary work, the new institutions and organisations focus on compact and practical books, guides, reports and articles that summarize and translate academic data and findings into comprehensible information. Also newsletters, factsheets and roadmaps are forms to get knowledge out there in a brief and easy way.

ICT has given way to new forms of knowledge diffusion that hold great possibilities. Websites, databases and e-libraries have the unique capacity to bring together and give access to a large body of information. Forums, blogs and social media can also be used to draw attention to new research projects and gather the questions and demands of policy makers and practitioners.

The realm of knowledge cognition involves bringing information to a target audience directly. Workshops, seminars, meetings, ateliers and conferences are important ways to share a certain message and connect researchers to policy makers and practitioners. Master classes and training programmes go a step further by providing long term learning environments.

Forms of bridging institutions

The connection approach encompasses classic forms of boundary work such as knowledge departments within government agencies, think tanks, advisory councils and blue ribbon committees. They are often publicly funded and closely connected to the policy world, but consist of (former) scientists and policy advisers that act as experts. As bridging institutions they mainly focus on the general debate and paradigms within certain domains and are rarely aimed at influencing specific policy directly. The knowledge they produce therefore often remains within the realm of the enlightenment function.[45]

Since the emphasis on evidence based policy and practice, new forms of bridging institutions have been created. Knowledge transfer is their core activity, focussing on all or several elements of the knowledge circle and in such serving both the research and policy process. They are called knowledge networks, platforms, associations, consortia or alliances. Some have developed out of classic boundary organisations, however most are novel. A dynamic, flexible structure is one of their core elements. Though they are real institutions, most are light, dynamic and flexible. Another important aspect is their strong link to the academic and policy world through personal contacts. By knowing the right people, new bridging institutions are capable of making the right connections, in other words networking. Yet they are independent because of their diverse funding and position as the objective third party. A third significant feature is the focus on excellence and innovation. The institutes aim at presenting top quality knowledge, strive for continuous improvement in policy and practice and employ highly skilled knowledge workers to execute all these tasks.[46]

There are many examples of these kind of bridging institutions. With regard to urban development in Europe, URBAN-NET itself is an important one. Initiated in 2006 to be the first intergovernmental structure at a European scale for the coordination of transnational research in the urban field, it clearly works within the connection approach. As a European Research Area Network it sets research agenda's, funds projects and makes results available and applicable for policy making. This is done together with stakeholders in the academic and policy world across different countries, creating new networks.

[45] Hoppe, R. (2010). From 'knowledge use' towards 'boundary work'. Sketch of an emerging new agenda for inquiry into science-policy interaction. Working paper University of Twente.

[46] Stone, D., Denham, A. & Garnett M. (1998). Think-tanks across the world. A comparative perspective. *Manchester: Manchester University Press*; Neilson, 2001; Hoppe, 2008 & 2010.

COST is one of the oldest boundary institutions, set up in 1971 as an intergovernmental framework for European cooperation in science and technology. Initiatives come from academics themselves. COST funds their networking and dissemination activities additional to the nationally funded research.[47]

EURA, the European Urban Research Association, serves as an international network of urban scholars directed at urban practice. It was launched in 1997 to gather and distribute knowledge on our urban future, bridging research and policy. EURA publishes newsletters and journals, organizes conferences and meetings and hands out awards to excellent urban researchers.[48]

URBACT is an European exchange programme, created in 2002 to promote urban sustainable development by bringing stakeholders together in specific projects. The main goal is to share good practices and lessons learned between professionals involved in urban policy throughout Europe.[49]

EUKN, short for European Knowledge Network, is another prime example of the connection approach. It has been deliberately set up in 2005 as an intergovernmental knowledge hub to connect networks of urban practitioners, researchers and policy makers. Exchange of insights, information and expertise is the prime objective. This is done through an extensive, high quality knowledge database, supported by National Focal Points in currently 15 member states, and networking activities.[50]

URBAN MATRIX is a platform created by EUROCITIES, supported by EUKN and funded by DG RTD. The objective is to transfer knowledge to facilitate European learning about projects and policies related to sustainable urban development. Between 2006 and 2010 it has connected knowledge providers and end-users to allow the exchange of best practice, expertise and application of sustainable urban development solutions.[51]

Social Polis is a platform created in 2007 for the development of a research agenda on the role of cities in social cohesion and inclusion. It aims at exchange of knowledge and questions between scientific, policy and practice stakeholders.[52] Social Polis has gathered the results of past urban research projects funded by the EC to support policies on sustainable European cities. [53]

EMI, the European Metropolitan network Institute, is a new boundary organisation, established in 2010 to improve the link between knowledge and urban policy in Europe. Emphasis is on the practical use of academic research and accelerating innovation and

[47] www.cost.eu
[48] www.eura.org
[49] http://urbact.org
[50] www.eukn.org
[51] www.urban-matrix.net
[52] www.socialpolis.eu
[53] EC, DG Research (2010). World and European Sustainable Cities. Insights from EU research.
Stigendal, M. (2010). Cities and Social Cohesion. Popularizing the results of Social Polis. Malmö University.

learning processes. It encompasses all elements of the knowledge circle: knowledge creation, applied research, capacity building and dissemination in close cooperation with EUKN.[54]

Also on nation level there are institutions aiming to bridge the gap between research and policy in the field of urban development. An example is the UK based Centre for Cities, an independent institute aimed at improving the economic performance of British cities. Since 2005 it provides practical research and policy advice to urban professionals working in different levels of government.[55] Also DIFU, the German Institute for Urban Affairs, has a long standing tradition in providing information to cities. The institute works on a comprehensive range of subjects on a scientific level but also in a practical way and is mainly funded by the municipalities themselves.[56]

The Dutch NICIS Institute is a typical knowledge institute, connecting researchers, policy makers and practitioners since 2001 in knowledge creation, dissemination and education. It strives to be a partner in urban policy and facilitate innovation excellent research.[57] The Swedish MISTRA Urban Futures Centre is a foundation that supports strategic environmental research. Since its start in 2007, building bridges with policy and practice has been an important objective.[58]

An example in a slightly different field is the UK based Oversees Development Institute, ODI. This think-tank has a history of over 50 years and is regarded as one of the world's top institutes in knowledge transfer. It is funded by grants and donations from research foundations, international organisations, NGOs and business. ODI has no clear organisational structure or model based on (elements of) the knowledge circle. Instead it draws on a wide range of activities to connect research to policy and practice, on different levels using diverse tools or techniques. The institute takes research as the starting point, but aims at policy impact and is therefore guided by the practical situation in developing countries. Relations and contacts are as equally important as the knowledge products that are produced. ODI works on a project basis, involving partners from different fields.[59]

Since the 1980's the method of RAPID (Resources for the Awareness of Population Impact on Development) has been developed as an effective way to facilitate policy reform with non-expert policy elites. RAPID uses computer based models and presentations to educate participants and open the black box of policy making. Through this method ODI has lead the way in bridging the gap between research and policy.[60]

Strengths and critique

The connection approach and new forms of boundary work have certainly brought much needed progress in dealing with the science-policy interface. Bridging institutions create knowledge that is more suited to the needs of practitioners, yet still has academic quality and

[54] www.emi-network.eu
[55] www.centreforcities.org
[56] www.difu.de
[57] www.nicis.nl
[58] www.mistra.org
[59] www.odi.org.uk
[60] Porter & Hicks, 1995; Stone, 2009.

value. The focus of knowledge transfer makes for better links between the research and policy world. The network characteristic of many institutions serves the purpose of diffusing, sharing, discussing and translating knowledge into practice better than in the linear model.

The work done by bridging institutions is however not simple and is know to function best in situations with a clear defined problems within a current policy tradition. Practitioners will only tend to make use of the provided knowledge products if they address urgent and acute questions or subjects. Another important precondition is the existence of a body of knowledge to draw on. Without an expert community that can speak their mind on well researched and documented issues, there is not much to transfer or disseminate. Last, bridging the gap by connection ideally has a limited group of stakeholders in traditional government systems. When the two worlds are very wide and complex, as is the case in multi-level governance or international policy domains, much more effort is needed than the standard techniques of knowledge transfer hold. In other words, connecting information and interests requires a context that is relatively straightforward and confined.[61]

These conditions show that the connection approach also has limits. In the past couple of years the work of bridging institutions has seen some criticism of scholars working in the field of knowledge utilization. They state that dissemination is indeed a key element, but not the one and only answer in dealing with the science-policy interface. Even in the connection approach direct influence is still difficult to achieve. Think tanks and knowledge institutes are sometimes claimed to merely recycle knowledge instead of creating something new and relevant. Simply collecting and distributing information, data and insights is insufficient. Even when knowledge workers try to come up with general insights or advice, the research they draw from is often contextual. Therefore standard solutions that can be made into evidence based policy or practice are rare.[62]

Another debate is about the degree of independence these kind of institutions should have. Some authors claim knowledge workers are more political entrepreneurs serving their own purpose, while others state that to have real impact boundary work is not enough.[63] The connection approach leaves the two communities intact and even amplifies their differences by putting a third party in place. However the aspiration to be light and adaptive, institutionalisation happens at some point.[64]
Connected to this argument is the question as to whether the connection approach can really foster innovation. It is generally believed that knowledge dissemination serves agenda setting and discussion in the policy process, yet does rarely lead to radical changes or insights. No matter the position as a third party, working with the two worlds means bridging institutions have to adapt and can not be too critical or disruptive.[65] As stated before, knowledge has the highest change to lead to different policy and practice if it is the result of an interactive process, evolving the different stakeholders directly. Solutions brought by a third bridging

[61] Clark et al., 2010; Hoppe, 2010.
[62] Stone, D. (2007). Recycling bins, garbage cans or think tanks? Three myths regarding policy analysis institutes. *Public administration*, 85(2), pp. 259-278.
[63] Braun, D. (1993). Who governs intermediary agencies? Principal-agent relations in research policy-making. *Journal of Public Policy*, 13(2), pp. 135-162.
[64] Stone, 2009.
[65] Weiss, C.H. (ed.) (1991). *Organisations for policy analysis: helping governments think*. California: Sage.

party often have the form of a compromise that can easily be put aside[66], hence the call for co-creation instead of coordination as the next step in dealing with the science-policy interface.[67]

6. The collaboration approach

The collaboration approach is strongly linked to debates about the rise of multilevel governance, public-private partnerships and communicative planning. Since the turn of the century this has led to a focus on the process of policy making and the relations between a diverse group of stakeholders. The idea is that for evidence based policies, parties should not only interact within strategic networks, but contribute personally on a more practical level. It is this direct contract between researchers, policy makers and practitioners that produces relevant knowledge, not the abstract ivory tower of the linear model or the bridging institutions in the connection approach. Collaboration results in a sense of ownership and a learning experience that makes research come to life. In other words, the two communities interblend to generate joint results and projects. Boundary organisations do play a role in this interaction, however mainly in the role of facilitator and process manager.[68]

The collaboration approach is the most flexible and dynamic approach to knowledge utilization. The focus is on temporal arrangements guided by problems or questions of practitioners instead of broad institutions or organisations. Networking and innovation are the main objectives to which the process is structured, but nothing is fixed or hierarchical arranged. At the basis lies a flat organisational structure with open communication among the members and shared responsibilities and authority as this (theoretical) equality, the knowledge that is produced is a combination of both academic efforts and practical information.[69]

The collaboration approach suits current complex urban policy and practice because it takes the context as an ingredient in the process.[70] The production and implementation of knowledge for cities is very complicated because it is closely linked to interests and power.[71] Local, regional, national and European government systems all play a role and the issues they deal with are so complex and persistent, that a generic, straightforward solution does not exist.[72] To come up with policies that work within a certain city, knowledge creation should

[66] Clark, 2010.
[67] Owens et al., 2006, Lövbrand, 2007
[68] Jasanoff, S. (ed.) (2004). *States of knowledge: The co-production of science and social order*. London: Routledge.
Crona, B.I. & Parker, J.N. (2007). Network determinants of knowledge utilization: preliminary lessons from a boundary organisation. Unpublished paper.
Regeer, B.J. & Bunders, J.F.G. (2009). *Knowledge co-creation: interaction between science and society*. Den Haag: RMNO
[69] Regeer & Bunders, 2009.
[70] Nowotny, H., Scott, P. & Gibbons, M. (2001). Re-thinking science. Knowledge and the public in an age of uncertainty. *Cambridge: Polit Press*.
[71] Young, 2008.
[72] Nolmark, H. et al. (2009). Survey of research on cities and sustainable urban development. Node: Nolmark Development.

evolve out of a dialogue between experts and practitioners from different fields and backgrounds, over a shared practice[73].

Co-production means that researchers, practitioners and policy makers are all active agents in producing sound, usable knowledge. Their interaction is intensive and continual during a project or programme. The result is something far more practical than action research and supported than applied research.[74] It is on one hand experimental, but because present issues on the city level are leading also very down to earth. The involvement of scholars and experts ensures that scientific data and insights are taken into account and results have some academic proof. Yet it is not the objective content that matters most, the aim is to share and exchange information. Different perspectives on the issue come together in a learning process, whereby in the course of the interaction knowledge is developed and tested.[75] Scholars describe this as practise based, interdisciplinary knowledge.[76]

The collaboration approach fundamentally challenges the two communities and the daily practices of both researchers and policy makers. Both have to step out of their common modes of behaviour and thought. Their expertise, views and values are highly important, but only as a source in the learning process. The general idea is that by leaving the boundaries of the two worlds behind and creating a new, joint action space, new, innovative ideas and insights will come to life. The focus on a tangible issue or problems, frames the situation and prevents the participants from undirected experimenting and philosophising.[77]

The role of boundary work in the collaboration approach is not only to bring the two worlds together, but to achieve commitment and sustained interaction between the actors involved during the whole process. The aim is to build a learning environment where mutual relations and meaning can be created. Focus is therefore not so much on the institutions within the specific context but key persons that have the capabilities to contribute to the process. Another difference with the connection approach is the absence of a clear action plan or blueprint, no standard set of tools and techniques to produce and share knowledge are applied. Instead it's all about creating the right conditions that suit the specific context and issues at hand. Nevertheless the situation differs every time and processes need to be tailor made, several crucial elements to create these conditions can be identified.

Instruments and methods

Because the collaboration approach puts emphasis on the process, knowledge and the ways to transfer are of secondary importance and there is no set of deliberate tools and techniques, like in the connection approach. In stead several instruments or methods have been developed, and in fact are still being developed, to foster and guide participation processes. They all seek

[73] Nolmark, H. et al. (eds). (2009). Urban Knowledge Arena's. Re-thinking urban knowledge and innovation. Final Report of COST Action C20.

[74] Lövbrand, 2007

Maasakkers, T. van (2009). How can practitioners analyse and engage science-intensive public disputes. Unpublished paper MIT/TNO.

[75] Schout, A. (2009). Organizational learning in the EU's multi-level governance system. *Journal of European Public Policy*, 16(8), pp. 1124-1144.

[76] Nolmark, H. et al., 2009; Regeer & Bunders, 2009.

[77] Nolmark, H. et al. (eds.), 2009; Van Maasakkers, 2009.

for ways to ensure learning amongst a group of stakeholders. Some of the instruments focus more on the structural arrangements, the social setting that shapes the practices, while others address the ideal course of actions.

The most common and well know instrument in the collaboration approach is the Community of Practice, CoP, sometimes called Practice & Policy Communities. Since anthropologists Lave and Wenger[78] introduced the term in 1991, it has been widely implemented in areas where knowledge and policy meet. According to the theory, a CoP goes beyond the networks and platforms developed in the connection approach. Participants do not just exchange contact details and hold meetings from time to time to share interests, a in standard networking, but form a close-knit group with the aim to jointly develop new ideas or practices surrounding a certain issue. Members are active practitioners with a certain expertise and experience that strive to develop knowledge from best practices. The community of practice is the informal structure linking the participants and the set of implicit rules and agreements that tie them to the task at hand. Mutual commitment and trust are essential to the success of a community of practice. They form the basis for the development of the common goal and the sharing of resources that make for new knowledge. The strength of a community of practice is that it not only produces new ideas and insights, but also social capital between stakeholders in a certain policy context.

CoP's are generally focussed on practitioners, involving researchers only as experts. The method of Joint Fact Finding takes academic knowledge directly into account in seeking ways to make effective and evidence based policy and practice. Joint Fact Finding is an inclusive process that brings stakeholders together to solve problems collaboratively based on a set of best practices. Participants collectively generate and analyse information, both scientific and practical, needed to make decisions. Joint Fact Finding is a learning experience directed at producing the best possible outcome through open consensus seeking: knowledge that is sound, legitimate and relevant. The instrument has proven to be effective in the fields of environmental science, urban planning and healthcare.[79]

Although process-centred, Joint Fact Finding and CoP's have innovative knowledge as the intended result. Other instruments in the collaboration approach merely aim at getting stakeholders to talk and view any outcome as relevant and valuable input for policy making. These are referred to as Open Platforms, Open Dialogues, Open Spaces, Third spaces or Structured Dialogues. The main idea is to provide an environment or setting away from the usual contexts of each of the stakeholders so they can interact in a completely free way. Open Spaces are events or gatherings of people with the intent to investigate a certain problem or question, with as less pre-set structure, such as a binding agenda, strict time-schedule or formal leadership, as possible. This has to encourage the participants to engage in the process

[78] Lave, J. & E. Wenger (1991*). Situated learning: legitimate peripheral participation*. Cambridge: Cambridge University Press; Nolmark, H. et al. (eds.), 2009; Regeer & Bunders, 2009.

[79] Karl, H.A. (2005). Joint Fact Finding: A more effective approach for enhancing the use of science in environmental policymaking. Paper prepared for the Salt Lake City Annual Meeting.
Karl, H.A. (2008). Joint Fact Finding: a participatory approach for more durable natural resource management decisions. Presentation.
McCreary, S., Gamman, J. & Brooks, B. (Refining and Testing Joint Fact-Finding for Environmental Dispute Resolution: Ten Years of Success. *Mediation Quarterly, Volume 18 (4*)

without institutional restraints. The technique is developed by Owen since the 1980's as a way to develop interaction among groups of conflict. The mere requirements are a recognition of shared interests and willingness to participate. Yet participation is completely voluntary. Important preconditions are a comfortable setting, a set time span and highly sensitive process management. Because this puts people under stress, the process of Open Spaces can be described as an informal social pressure cooker.[80]

The concept of structured dialogue (SD) goes go back to the work of Aleco Christakis and John N. Warfield on Interactive Management developed since the 1960's. The general goal is to achieve mutual understanding and joint action within a longer standing debate. SD's build on this momentum to gather participants and work towards concrete solutions or propositions. To reach confidence and consensus, the dialogue is carried out through a structured process with specific steps and tools. This process is transparent and inclusive, involving a wide range of parties and actors, yet focused and time-restricted to achieve end results.[81]

Today, SD's are being used in the context of peacemaking, global indigenous community development, government and social policy formulation, strategic management, health care, and other complex domains. The method has proven to work well in situations of multi-governance where there is no formal representation. To this end the EC in the past years has initiated SD's on religion, youth policy and international aid.[82] These processes involve stakeholders from various national and international organisations, practical backgrounds and levels of government over a certain period of time. The aim is to work towards more effective policy and practice through strengthened partnerships.

The SD process can be broken down in four phases or steps. Before the actual dialogue can commence, a period of preparation is needed to map the field, its debate and its stakeholders and draw up starting documents. In the next phase a selected group of participants comes together to design the dialogue process. The group, consisting of interested and willing individuals with different views and backgrounds, formulate a jointly agreed description of the purpose and a proposal for actions. After this preparation and start up phases, the dialogue itself can commence. During the process, that can last two to three years, stakeholders meet on regular basis and exchange knowledge and information. Next to meetings, seminars and expert ateliers online tools as discussion boards or blogs can be used. Guided by clear, urgent issues and specific topics the debate is focused on reaching agreement and recommendations for action. The final step in the SD process is the valorisation of the results. Participants draw up the conclusions in papers and reports that are distributed to a wider audience.[83]

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[80] Owen, H. (1997). *Open space technology: a user's guide*. San Francisco: Berrett-Koehler. www.openspaceworld.com

[81] Kent, G. (2005). Structured dialogue. Unpublished paper University of Hawai'i
Brömmelstroet, M. te & Schrijnen, P.M. (2010). From planning support systems to mediated planning support: structured dialogue to overcome the implementation gap. *Environment and Planning B*, 37(1), pp. 3-20.

[82] Houston, K. (2009). The logic of structured dialogue between religious associations and the institutions of the European Union. *Religion, State and Society*, 37(1), pp. 207-222.

[83] http://ec.europa.eu/europeaid/who/partners/civil-society/structured-dialogue_en.htm
http://ec.europa.eu/youth/focus/focus165_en.htm

Third Space is a concept used to refer to all settings that are separate from usual environments and foster community building. In theory anything can be a third space, from public centres to transnational institutions or organisations such as the EC. The concept is often used to refer to local initiatives or networks that let people, mainly practitioners yet also citizens, draw bottom up solutions through shared learning and joint experience. The basic idea is that, since they do not belong to an established system, they are potential sources of innovation.[84]

Since the notion of third space is rather abstract, it has little practical application yet. It does however come close to the concept of the Urban Knowledge Arena, UKA, developed by the Swedish boundary organisation MISTRA, described earlier in this paper, in commission of the COST programme.[85] UKA involve a platform or forum that simultaneously supports knowledge flow, mutual learning and knowledge production in an urban setting. As CoP's, a UKA is a group of people representing certain institutes yet able to interact freely. They have a background in government, business, public organisations, academia or civil society and share a common project related to urban knowledge management. They come together as a form of collective action based on partnership and specific relations between the actors. The intention is the development of innovative knowledge related to a specific place and time, usually addressing an issue of immediate urban concern. UKA are informal, temporal, *ad hoc* and formed as bottom up initiatives. During the process exciting, specific local knowledge is gathered and exchanged and new generic knowledge is produced. The difference from Joint Fact Finding is that UKAs are not primarily policy focused, nor do they strive for the best possible outcome. With regard to Open Spaces and Structured Dialogues, UKA are more practical and bottom up.

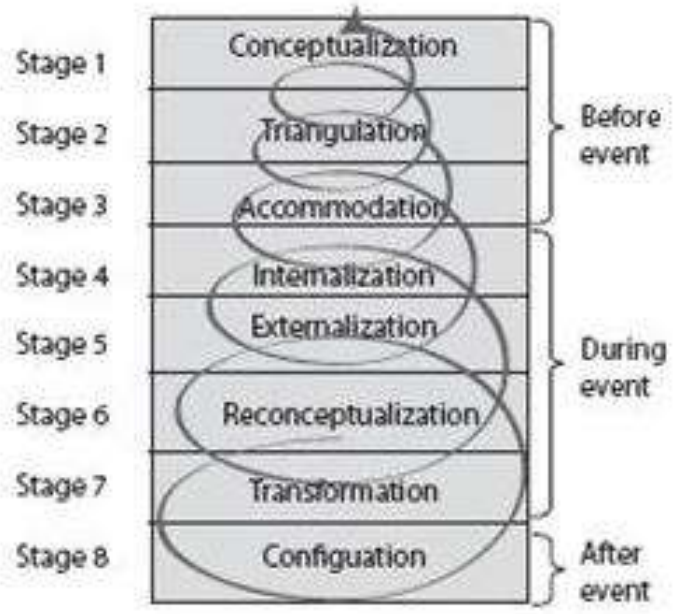
Building a joint learning environment

CoP's, Joint Fact Finding, Open Spaces and Structured Dialogues are all quite abstract instruments and methods. They have some basic ingredients and structure, yet activities and direction are developed by the participants during the process. This characteristic is their strength. It has however been recognised that cooperation and co-creation involve much more than just putting a group of stakeholders together. To come up with novel insights or real solutions on a multifaceted issue, the process has to be deliberately designed. Without a good preparation, only contacts are built and fostered.[86]

First the right stakeholders have to be identified and selected. It is very important that the necessary competences and personalities are present among the participants. Otherwise partnership will not work. Within the collaboration approach not only researchers and policy makers are involved, but a wide range of public and private stakeholders in the field. These actors also need support from and within their respective institutions in order to not end up with isolated results. So both creative persons that can think out of the box but remain strongly embedded on institutional level are essential. Incentives, both internal and external, can help to ensure their involvement.[87]

[84] Sassen, S. (2008). The world's third spaces. Unpublished paper.
[85] Nolmark et al. (eds.), 2009
[86] Young, 2008; Van Maasakkers, 2009
[87] Nolmark et al. (eds.), 2009; Pellini, A. & Serrat, O. (2010). Enriching Policy with Research. Knowledge Solutions, Asian Develop Bank.

Figure 4: The Learning Spiral



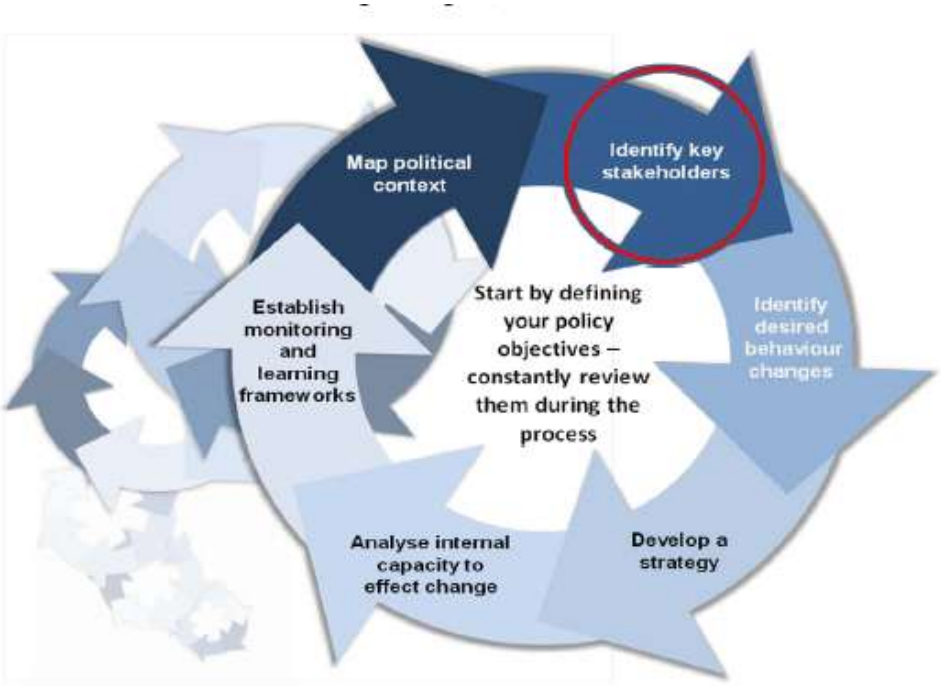
Source: Blindenbacher & Nashat, 2010

Secondly the methodological principles at project level have to be right. In order come up with real collaboration, sustained, face to face participation over a period of time is crucial. Arrangements have to be set up to foster engagement and communication during the process and build trust and commitment. All stakeholders should therefore ideally have a say in the design and development of the process. Also the focus needs to be on a present, actual issue on the level of cities. The problem can be complex, it need not to be too abstract or strategic to get actors involved and produce meaningful results. Knowledge made to measure the local context is proven to have the most direct impact on policy.[88]

The past few years more attention has been given to ways of building a joint learning environment. Major international institutions recognise the need for more concrete design principles and have pooled their knowledge on this topic to come up with process guides. A good example is the Learning Spiral developed by the World Bank to help fill the gap between the creation of knowledge and its application by concerned stakeholders. It is based the principle of learning by doing through interaction and active participation by stakeholders. Knowledge is not merely transferred, but part of an engaged dialogue.[89]
The Learning Spiral takes the concept of knowledge as a social construction, developed in a process where meaning and value are attached to data, ideas and insights, to the next level. It can be considered as an updated and elaborated version of the knowledge spiral by Nonaka and Takeuchi, described earlier in this paper. The spiral deconstructs the process in eight stages.

Figure 5: The Outcome Mapping Approach

[88] Nolmark et al. (eds.), 2009
[89] Blindenbacher , R. & Nashat, B. (2010). The Black Box of Governmental Learning. The Learning Spiral—A Concept to Organize Learning in Governments. *Washington DC: The World Bank*.



Source: ODI

The British Overseas Development Institute (ODI), portrayed in the previous section as one of the worlds top boundary organisations, has also generated several tools and concepts to guide learning processes. They aim at creating order in the complex practices of research, policy making and capacity building. It has been increasingly recognised that for policy chance the presentation of information is only one step in a much broader process.[90]

The first action is to examine the political context surrounding a policy issue and identifying the relevant topics and stakeholders. To support this, ODI has developed the Alignment, Interest and Influence Matrix. The next step is to investigate the potential and requirements for change within the policy field. Here ODI uses the Outcome Mapping Approach, a tool and strategy to optimize knowledge utilization.[91] It resembles the knowledge circle described before, yet with many more steps that focus less on content and more on the process and its participants. The idea behind Outcome Mapping is that co-production and collaboration with a group of stakeholders can only have structural impact if it influences behaviour and thoughts beyond the project. Therefore the current practices have to be known, as the ways to influence them.[92]
The following step involves designing a strategy to actually promote and set off change. Here ODI makes use of Force Field Analysis to map positive and negative influences. Subsequently the capacity to implement change is considered, using techniques as SWOT-

[90] Young, 2008; Jones, H. (2011). A guide to monitoring and evaluating policy influence. ODI Background Note.
[91] Jones, H. & Hearn, S. (2009). Outcome Mapping: a realistic alternative for planning, monitoring and evaluation. ODI Background Note.
[92] Mendizabal, E. (2010). The Alignment, Interest and Influence Matrix (AIIM). Overseas Development Institute.

analysis. Finally a monitoring and learning system is developed to follow the progress being made and determine the effect.[93]

An interesting, concrete example of a joint learning environment is the Reference Framework for Sustainable Cities (RFSC). It is developed under the French presidency of the European Council to facilitate sustainable urban development and mutual learning between European cities. The development, implementation and use of the RFSC is a deliberate interactive process between stakeholders from cities and local authorities, Member States and the EC. They are assisted by a range of experts.

Instead of providing a blue print or binding framework, the RFSC offers guidance and support. Basically, the RFSC is an online toolkit to help local and regional actors in decision making processes about sustainable development. The focus is on an integrated approach and follows a series of steps to develop a local strategy or project. A broad list of topics, priorities, actions and indicators is provided to start a common dialogue that can be adapted to the particular situation of a city or municipality. The RFSC also holds the possibility to compare strategies and projects and learn from other cities through networks and communities.[94]

Limitations and concerns

The faith in the possibilities of the collaboration approach is high all over Europe because it is more in line with current ways of governance. Scholars, practitioners and knowledge workers alike see it as the way to finally overcome the science-policy interface. The method is specifically suited to address unstructured, wicked problems and new, undefined issues involving a diverse range of stakeholders. The collaboration approach makes researchers and practitioners partners in the same process, creating shared ownership of knowledge. This fluid, reflexive approach holds the best promises to develop innovative knowledge and integrative strategies. Because policy makers are both user and producer, the results are suited to their needs and interests from the beginning. In theory this makes it more relevant and useful for actual policy measures.[95]

Yet, the collaboration approach also has limitations that need to be taken into account. There seems to be a lot of wishful thinking based on the need for something new rather than proven experience. Collaboration is not an easy way to bring research and policy together. To have real impact, it involves a long, complicated process that is open ended. The process itself is both input and outcome. All tangible results are side effects and this means that sometimes no concrete result can be presented.[96]

While collaboration provides the best context for innovation, this can easily go wrong because so much depends on the conditions. Most importantly, in comparison to the other approachs it requires a completely different attitude from the participants. They need to be willing to change their established patterns of behaviour and adapt to the situation of co-production. In

[93] Young, J. & Mendizabal, E. (2009). *Helping Researchers Become Policy Entrepreneurs*. Overseas Development Institute. Briefing Paper.
[94] www.rfsustainablecities.eu
[95] Schout, 2008
[96] Kogan, M. (2004). Models of knowledge and patterns of power. Paper for the UNESCO Forum on Higher Education.

practice this commitment and trust seems hard to establish. Particularly researchers are not keen on losing their independent academic position, also because they don not get the direct benefits. In the scientific world there still is little support and recognition for equal partnerships with policy makers and practitioners. Yet if academics remain unable to step out of the ivory tower and put themselves in a subservient position, CoP's, Structured Dialogues and UKA's will derive their knowledge only from best practices.

Another limitation of the collaboration approach is that the interactive processes work best on a lower scale where participants can meet frequently and address a tangible issue. This makes results context specific and subjective. No matter how innovative the knowledge that participants come up with, it can rarely be directly translated to other situations.

Scholars still know little about the best ways to promote participation and exchange between stakeholders that has sustainable effect within and beyond collaboration processes. Experience over recent years has shown that the open, flat structure is a rarely reached ideal. Pre-existing institutional practices continue to play a role; co-production does not take place in a vacuum. This makes the effectiveness of the collaboration approach unsure. It holds high possibilities, yet in the end up in endless talking without a clear purpose.

7. Conclusion

This literature survey on knowledge utilization has made clear that in order to deal with the science-policy interface, the idea that merely investing in good research will not make Europe more fit to the challenges ahead. The linear model does not fit the current situation of multifaceted problems in a context of multilevel governance, particularly with respect to urban development. This conclusion is far from surprising, already in the introduction to this paper it was stated that innovative ways of knowledge utilization are needed.

The question of what does work, however, does not have a straightforward answer. The one thing we do know is that interaction is the key for better knowledge utilization. Stakeholders have to be somehow involved in a process where ideas and insights are transferred and value and meaning is attached to academic research. The kind of parties to engage and the degree of participation differs according to the situation. Since the 1990's bridging the gap between research and policy has unmistakeably brought the two communities closer together. Yet evidence based policies are still rare.

Academic efforts are found to have the most direct impact if they are tailor made to a specific policy field and developed in close contact with the end users. It's not the objective scientific truth that matters, but the strategic relevant elements that find their way into policy and practice. Knowledge is filtered and deconstructed data. This calls for methods focused on mutual learning and co-production.

Looking at the current developments the approach to knowledge utilization clearly moves from strategies involving intermediates and boundary institutes towards active participation and sustained interaction. Both the connection and the collaboration approach have strengths

and weaknesses. They are equally valuable and serve different purposes. The tendency to do away with knowledge transfer and focus on joint learning processes is potentially harmful. On the whole there is not one best way to organise the science-policy nexus. There are several models which tools, instruments and methods can work additionally. Instead of working with a blue print for knowledge utilization, actors should deliberately choose from a rich toolbox according to the situation at hand.[97]

Figure 6: Models and methods in knowledge utilization

		Relationship between science and practice	**Role of academic knowledge**	**Type of knowledge**
Linear Model		SEPERATE Limited contact	AUTONOMOUS Good data will find their own way into policy	Monodisciplinary Traditional sciences
Interaction Model	*Connection approach*	CO-OPERATION Bridging the gap through networking and dissemination	INSTRUMENTAL Development of relevant knowledge and transfer to users	Mono- en multi-disciplinary Social sciences
	Collaboration approach	CO-PRODUCTION Actively seeking new ways and solutions to deal with complex problems	TRANSDISCIPLINARY Academic knowledge is part of a joint learning process	Multi- and inter-disciplinary Experimental

Source: RMNO

What we need to strive for is a system that on the one hand tries to generate and transfer general principles and strategic knowledge for a wide audience. On the other hand this system should promote small scale, locally focused participation projects that engage a specific group of creative stakeholders. Institutes like ODI show this is possible, yet not easy. It involves good timing, preparation and process management. The use of knowledge in policy should be open, voluntary and casual, yet the context has to be shaped so as to systematically support this process.

[97] Young, 2008