

West Midlands Innovation and Technology Council Strategy 2005 A Framework for Action

the technology region – turning ideas into products

1. The Vision:

Our strategy is to reinvigorate the West Midlands economy through the exploitation of emerging, innovative technologies in existing and new globally competitive businesses.

The West Midlands Innovation and Technology Council is focused on the future. Its vision is to make a major impact on the Region's prosperity tomorrow by actively promoting innovation in carefully selected areas where the region has strength today. This will create new high value jobs in the technology sector and stimulate major economic growth over the next ten years.

This vision is not based upon rhetoric; it is based on transforming the Region's present reality – a legacy of achievement, resource and knowledge, but also of problems, change and challenges – into a future of economic prosperity that is robustly based on deep and durable strengths in science, industry and technology. In short - the vision is to establish the West Midlands in the eyes of the world as a world-class location to innovate in every area in which it has – or can have – globally significant resources, capabilities and infrastructure.

The Innovation and Technology Council is a strategic body, but one with very practical aspirations and intentions. There will be no economic gain from innovation without action. Innovation is about doing new and often disruptive things. Making these things happen needs focus and action that will catalyse further activity and in turn leverage the much larger flows of resource and effort that will make major economic contributions to the Regional economy. The trick will be to stimulate action in the short term that will lead to fulfilment of the medium-term vision – and to do this at the same time as looking further into the future to spot new potential areas as they emerge.

In order to answer the vital question – 'what is the Regions' economy going to be based upon in the future?' - we must gain a sophisticated understanding of how all the different elements that contribute to successful innovations are linked. In order to catalyse such innovations we must take very carefully considered and targeted actions. In order for such actions to make an impact they must be of sufficient scale, and they must generate the level of private sector leverage that will make them happen and demonstrate that we are right.

To achieve these aims, the Council will engage at all levels – with industry, technology and science across the Region and beyond, with Advantage West Midlands and its partners, with National Government and with the growing globalisation of knowledge transfer. The Council will have succeeded if it achieves the sort of quantifiable economic impact that, years from now, makes somebody in a great new industry that is delivering prosperity and global influence for the West Midlands look back and say 'they started that'.

2. Introduction:

The West Midlands Innovation and Technology Council was set up in 2004. It brings together leaders from the region's science technology and industry bases to champion innovation. The Council is the primary source of advice on innovation to Advantage West Midlands – the Regional Development Agency – who are charged by Government with developing and implementing the Region's Economic Development Strategy. The primary rôle of the Innovation and Technology Council is thus to create a practical strategy that, if followed by the AWM Board and partners, will provide a direct route for West Midlands industry and business to exploit the Region's science and technology base, and indeed, the world's knowledge by turning it into high value added products and services that world markets demand - and will pay for.

This strategy sets out the basic framework that the Council has established to turn their vision of a future West Midlands that is truly innovative and world-class across a range of areas into reality. It considers where we are now, and how we will monitor progress in improving our overall position. It describes the basis upon which the Council debates and analyses potential thematic areas for action. It details the philosophy behind the type and range of catalytic actions that the Council proposes in order to promote activity in these areas (and how success will be monitored, failure used as the basis for future learning, and linkages across themes and areas promoted and implemented). It describes each thematic area so far identified. The major sources of leverage and partnership identified are then described, and strategies for engagement outlined – regional, national and international.

This document aims to be a concise design manual for the Council's strategy, not a comprehensive exposition of it. It is a living document and will reflect what the Council learns from action as that action evolves. The intention is to tie this action to very clear economic deliverables. Further discussion, data and debate on each of the topics covered will be provided in separate documents that act as appendices and as a further resource and knowledge base created by and for the Council.

3. Analysis of the Current Situation, and how we will monitor progress

Measuring innovation is uniquely difficult. Most good quantitative measures are of necessity rooted in what can be surveyed in the present, but innovation changes this *status quo* in ways that are difficult to predict – often through qualitative changes in attitudes, ways of working and ways of life. Innovation also brings the added complexity that it often starts and grows under highly localised conditions – bulk measures need to be disaggregated to a very considerable degree if they are to spot it.

The Council has debated suitable measures in some detail. More work is needed, but it is already clear that measures of gross value added and investment in research and development are useful and relevant. Likewise skilled jobs sustained and created will be a key indicator of success. A major challenge here is to disaggregate such measures sufficiently to allow their use to monitor and inform action. In terms of innovation, industrial sector or SIC code based data is often insufficiently fine or even inappropriate. Data at least down to the level of larger firms - and preferably below that - is needed – the more so given the Government's target of radically increasing business R&D spend alongside recent major increases in the National science budget. The West Midlands at present punches below its weight in terms of R&D and gross value added, although survey based evidence of firms reporting new product introductions paints a more optimistic picture, with the West Midlands leading the UK regions and devolved administrations in this measure.

It is clear that, currently, regional economic data in the UK is fundamentally inadequate to measure progress in innovation. Already since the introduction of the West Midlands regional Observatory data has improved but much needs to be done. Some of the more accessible measures are at best ill-focused proxies for innovative activity – R&D spend, for example, is really an input measure, where what we need are output measures. The best that can be done at the moment is to drive the direction of progress and develop, over time, appropriate economic measures with targets.

The Council sees a critical need for knowledge of three distinct types to underwrite the this strategy and the measures it will recommend . We need to know the key areas of knowledge, expertise and resource (including infrastructure) that exist in the Region already – both in terms of its science and technology base and its industry base. We need to know a lot about the ‘glue’ that intermediates between knowledge and its economic use by business. We need to know the true economic significance of all of this – particularly the areas where we are excellent - and to go on measuring at least the first order deliverables so we can monitor the impact of actions taken which aim to magnify their economic contribution.

3.1. The West Midlands Knowledge Base and Industry Base

The West Midlands is rich in both industrial capacity and in technological and scientific research. The Council has drawn upon research into both these areas in developing this strategy – particularly the report commissioned from Arthur D Little and published in 2004. This described the diverse range of businesses, higher education institutions, research and technology organizations and intermediaries active in the region. The Council wants to build upon and develop this, particularly in the areas of strength that it highlights, with more detailed research into what is there and what is needed that can trigger full economic development of potential innovations. Such work is likely to range from qualitative surveys, through commissioning expert inputs to tapping the knowledge of existing intermediaries and organizations involved in sectoral and technological networks.

3.2. The West Midlands Innovation ‘Infrastructure’

The West Midlands is also rich in people, organizations and projects active in connecting potential ideas with those capable of their economic exploitation. The Region produced one of the first Regional Innovation Strategies using funding from the EU and has continued to update and progress the actions emerging from these. This ‘innovation for all’ agenda has been instrumental in stimulating wide underlying innovation activity. The Region has a strong professional services sector, and considerable knowledge of the corporate finance vital for most successful innovations. A range of technology transfer and other initiatives, and expertise, exists within the public and HE sectors – particularly AWM’s own Clusters and Technology Corridors and the range of ‘third leg’ activities across the Region’s Universities (activities funded by HEFCE to provide the professional infrastructure to assist Higher Education engagement in knowledge transfer. The Council is keen to learn more about and build working relationships with this massive and complex resource. It intends to add a more strategic perspective and leadership to this powerful and willing base level of innovation activities.

3.3. The West Midlands Economy

A rich and growing base of economic data already exists within the West Midlands upon which to base strategy. The West Midlands Regional Observatory is a primary focus and centre of expertise in gathering, analysing and deploying this data. The council will work with them and the other areas of economic development activity -

that use their analysis – particularly the skills agenda. The aim will be to develop a sound Regional economic model and gain an increasingly deep understanding of where innovative action can have the most impact. New work will be commissioned where necessary, but the Council will aim to take full advantage of working in partnership with existing work wherever practicable - both to maximise return and to ensure alignment of basic measures with other strategic areas.

4. Overall Strategic Approach

The Council's fundamental strategy of selecting a small number of key areas for action is based upon a realistic assessment of what is achievable and what is likely to be effective. The overarching aim of this focus is to avoid dissipating resources and create real and major impact. In arriving at this strategy, three possible approaches were debated.

The first, which was rejected, was to attempt to influence innovative behaviour across a very broad spectrum of businesses and activity – an 'innovation for all' agenda. This was seen as impracticable given the likely resources available – these would have been spread too thinly to have made any significant impact.

The second approach, the one adopted, was to take action in a small number of key areas where impact, and economic benefit, were likely to be large. The Council considers that careful deployment of resources can leverage much greater activity in such areas and lead to very significant impact on the Region's economy.

The third approach, again rejected, was to gather all available resources and direct them at one major area in an attempt to create a globally pre-eminent centre of excellence for the Region. This was regarded as being too expensive and involving too great a risk. In addition, given the Region's strong diversity within the context of an existing world-class manufacturing base, it would inevitably ignore some major strengths and not adequately reflect the Region's true character as an exploiter of new ideas as well as a generator of them.

The thematic approach chosen will, by giving strong direction and focus, ensure clarity of objectives and prudent use of available resources. It does not imply that the principles underlying the other two approaches are not valuable for the Region, but they are not the best use of the Council's particular expertise and original positioning. The 'innovation for all' agenda, in particular, can be incorporated in the business support packages being developed by the Enterprise board on the basis of ten years experience described earlier. However, the council is keen that initiatives to develop world-class scientific and technological research for the region be promoted, as well as projects to develop the latent innovative potential of its companies and people. Therefore it will, at this stage, seek to work with and assist institutions and organizations involved in such efforts – but as a partner rather than leader. The Council's primary rôle is to champion the key areas where it sees the potential to leverage big economically significant innovations, and so promote the region globally as a distinctive and attractive place in which to innovate.

5. Basis for selecting thematic areas for action

The existing research and survey data outlined above has allowed the Council to identify the themes described below as having major innovative potential. In arriving at these, it is important to acknowledge that such analysis is complex, and to record some of these complexities that must be embraced if such a selection is to be robust and rigorous.

In the first place, the quality and depth of knowledge is variable across potential themes, and in some cases has necessitated gathering further data as a first step towards developing a programme for action. Such a tactic is always likely to be needed.

Secondly, weighing such different types of information is a matter of judgement – it should not be forgotten that the exercise of such experience and judgement is very much the *raison d'être* of the Council. There are seldom easy answers when considering innovation.

Thirdly, the idea of a 'theme' or 'area' for action is deliberately generic in character. Innovation crosses sectors, technologies, disciplines and areas of traditional knowledge and activity. What emerges is by definition something new. That said it is unsurprising that some themes emerge from existing clusters of activity and strength in the Region. It is, however, equally unsurprising that some do not – reflecting, rather, enabling technologies or sectors where new technology is demand driven by customers or regulation.

Finally, it would be perverse to expect that the current states of development – or sizes – of different themes should be similar. Some represent existing markets looking for new solutions to problems, some represent existing solutions looking for new markets. Rates of development and implementation also vary dramatically. The important qualification for inclusion is that – once fully developed - all must offer sufficient benefit on a Regional scale.

In considering each area the Council has imposed a clarity of process by asking a consistent set of questions, and balancing the answers to each – accepting that the data available is highly variable, and often difficult to compare across areas.

5.1. Key Specific Questions in Selecting Themes

The following set of 'exam questions' are central to selecting a theme:

- TECHNOLOGY / KNOWLEDGE POTENTIAL
 - Is this a West Midlands science / research/technology strength?
 - Are there established exploitation links / networks?
- INNOVATION POTENTIAL
 - Is there a West Midlands industry / business / skill base capable of developing technology into a product / service?
 - Is there a West Midlands business base capable of exploiting / manufacturing the product on a sufficient scale?
- MARKET POTENTIAL
 - Does the West Midlands industry / business base have sufficient presence in / route to the potential, often global, market?
 - Is the potential market big enough?

The more of these questions to which the answer yes can be made, the more likely the area is to be one with serious potential. Although, where the ultimate market is sufficiently large, the Council accepts that the West Midlands may not need to be engaged in all aspects of the innovation – just sufficient to bring major benefit to the Region. Of course, the Council's selection of the shortlist of areas to support, to be robust, could never be based on a simplistic set of ticks in the boxes these questions define. As already emphasized it is a matter first of interpretation of real underlying strength and then of analysis as to whether action is likely to be effective. Equally, if

all the answers are yes in a particular area, then it is likely that it is being exploited already and may well not need support – just championing. Thus, the thematic areas chosen by the Council already are those with enough strong ‘yes’ answers, and sufficient promise that practicable action will unlock potential. The next step is to design such action – this is considered below, after a brief amplification of the Council’ approach to judging answers to the questions posed above.

5.2. Key General Questions regarding Themes

In arriving at a final shortlist of themes to promote, various questions of a general character are also important and worth recording. Firstly, and most obviously, those themes where the West Midlands has a unique set of advantages, not found in other regions, are the most important. Secondly, themes with the most far reaching impact across a range of areas and sectors are likely to generate more economic benefit than those that are bounded in only one. Finally, there is benefit in supporting areas where the actions chosen to solve problems and promote innovation are themselves likely to be widely applicable to others.

The Council is keen, in supporting a limited number of carefully selected themes, to create and share a growing framework of knowledge about innovation and its support. Different themes will answer different questions and suggest tools to help solve different problems. But taken as a whole, this knowledge will provide a sound basis for future Regional strategies to promote innovation, as well as proven interventions for use in other strategy areas such as enterprise and skills.

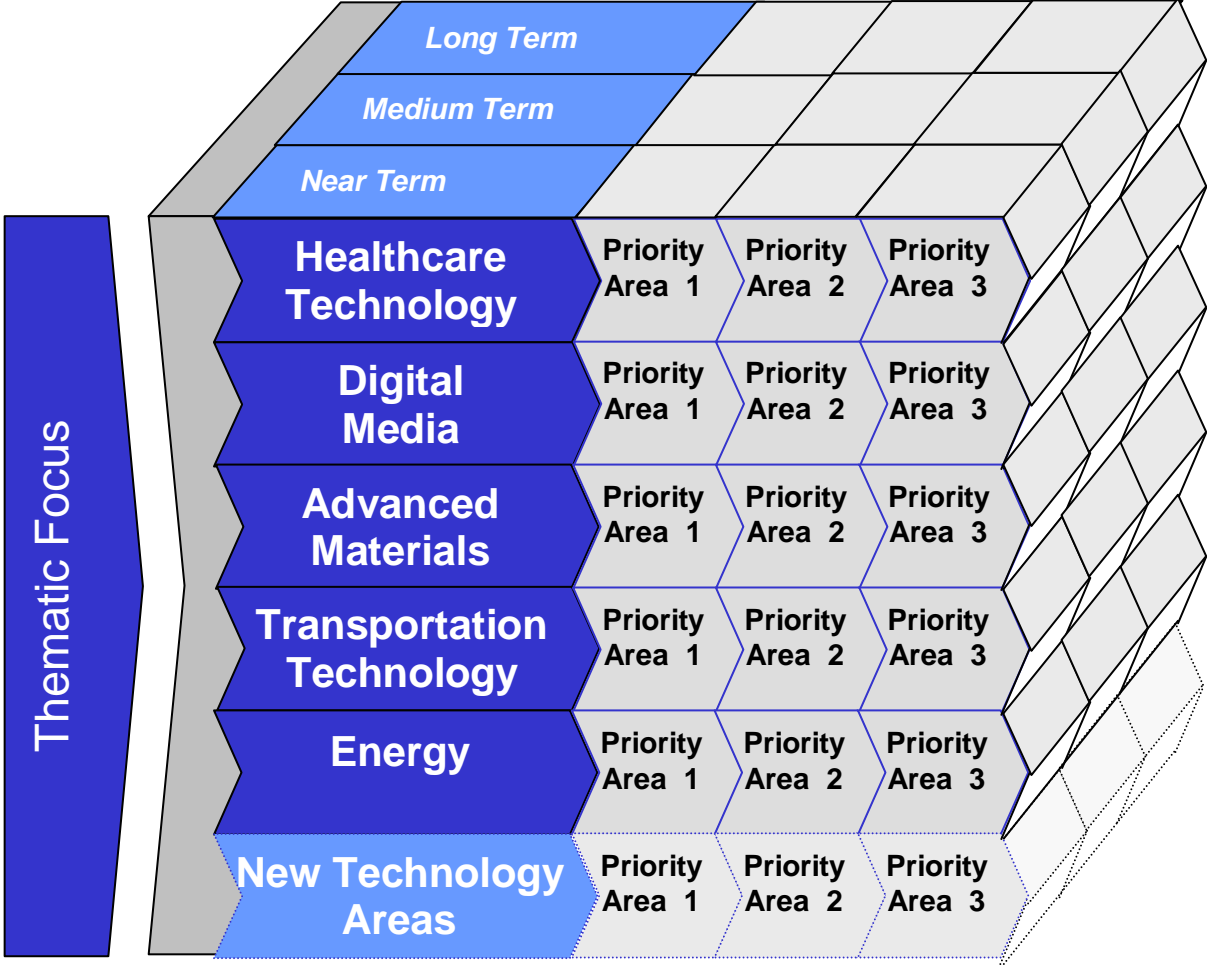
5.3. Future Development of Themes

The selection of the themes outlined below represents the first major phase of the Council’s strategy. It is anticipated that action in each area will provide tangible and growing economic benefit for the region in the reasonably short term (two to three years). In the medium term (four to six years) more actions, based upon the results of the earlier ones, will cement and magnify this benefit and ensure it is both sustainable and large in the long term (seven to ten years).

It is also intended to maintain a broad search for new innovation areas with long term potential for the region. The Council will act as a focus for such Regional ‘Foresight’ and ‘Futures’ activities, and try to ensure that they are well directed and based upon sound methodologies. It will also actively engage with National and International activities of this sort to ensure that the West Midlands benefits from, and is both promoted and fully represented in, such activities.

The following diagram summarises this strategic approach, lists the thematic areas chosen, and indicates the continuing parallel actions that will be necessary to profit from the strategy and move it forward. It emphasizes that within each theme, priority areas must be established and projects designed to promote each of them, solve their most pressing problems, generate momentum, and leverage other resources. The diagram also emphasizes that this is just the first, initial, phase of the strategy. Careful monitoring and evaluation of what works and what does not will underwrite the future medium and longer-term phases where the full economic contribution will be realized. It will also be central to deciding when sufficient has been done to allow the Council to ‘exit’ a particular theme and to defining what constitutes ‘success’ in such interventions.

Continued Development of Robust ways to Investigate Innovation and Design Suitable Actions



Relationship & Partnership Development

Ensuring Regional Impact

Leveraging Research and Innovation Investment

Measure and Monitor Impact

6. Catalytic actions to promote activity in these areas and how outcomes will be monitored

The West Midlands Innovation and Technology Council is a strategic body – it will propose actions to AWM and identify Champions to take them forward, on the basis that they will catalyse rapid development of each thematic area, but not provide major financial aid in their own right. This approach is dictated by two key factors.

Firstly, AWM funds for action are, and are likely to remain, limited. Whilst the Council will lobby for ever greater public investment in the vital area of innovation, imminent radical increase is unlikely. Secondly, public funding is inevitably short-term and project based – if longer term support is needed, then this is best provided by other routes including private sector funds (possibly primed by AWM's own seed fund activities), or public sector R&D investment. Action promoted by the Council must therefore aim to stimulate these other routes, not replace them. Where problems standing in the way of innovation are structural, and not amenable to market-based solution, the Council will try to propose workable solutions and strive to implement them, but it accepts that it will not be able to provide the long-term funding to sustain them through its own efforts alone.

The other major principle underlying this strategy is that actions promoted by the Council will be for the benefit of a sector, cluster or embryonic new industry as a whole. In general this means that individual businesses or individual areas of research will not be funded unless there is a very cogent and pressing argument that doing so will provide much wider benefit. Where activities which do benefit individual organizations, such as proof-of-concept fund for example, may be appropriate, they will be supported on the condition that they are available on a sufficiently wide, transparent and competitive basis, and consistent with EU State Aids. Similarly, where an action creates IPR, great care will be taken to ensure that this is available for general benefit, and not restricted to a small group of participants.

6.1. Thematic Working Groups

Design and delivery of catalytic actions demands a great deal of expert knowledge as well as strong and active networks and contacts. Given this, and taking the general principles outlined above into account, in each chosen thematic area the Council will select one or more champions from amongst its members. The Council will look to them to lead a wide debate with all those involved in that theme in the West Midlands and beyond. To implement this, a broad working group will in general be the first step. The intention at this stage is wide consultation, not to impose any permanent or inflexible structure.

Wherever possible this consultation and fact-gathering activity will be co-ordinated through existing delivery mechanisms (particularly AWM Clusters or Corridors) and existing sector or industry based networking organizations. The Council will seek to provide pump-priming funds to support this activity where necessary (and is keen that an administratively simple and flexible mechanism to do this is established, subject of course to its scrutiny).

Working groups will be expected to produce action plans that:

1. Provide underpinning evidence to demonstrate that the Council's initial choice to support a particular theme was sound.
2. Highlight the major factors standing in the way of innovation from the 'demand' perspective of those capable of exploiting the technology or knowledge.

3. Propose catalytic solutions based on a survey of where those solutions can best be found.
4. Detail actions to implement these solutions including clear indication of the scale of direct or leveraged funding required?.
5. Define criteria for assessing success or failure of these actions.

It is hoped that this will also provide those involved in each thematic area with the opportunity to develop their own local innovation strategy.

The Council will consider action plans, solicit further detail or modification as appropriate, and propose to AWM the specific actions that deserve support. To deliver these actions, the Council anticipates that the best mechanism will be to establish a small steering committee for each theme, chaired by the Council champion and probably drawn from the original ad hoc working group. Wherever possible, as already noted, executive support will be drawn from existing cluster, delivery or networking mechanisms and organizations (as before with suitable simple minor funding if needed). This committee will oversee preparation of a detailed project proposal for submission to AWM based upon the actions and monitoring mechanisms proposed. This should be sponsored within AWM by the relevant cluster, corridor or innovation team as appropriate, and funded through the Agency's normal procedures. The Council does not want to be over-prescriptive about these structures – they are presented as guidelines, not rigid templates.

6.2. The Sort of Actions Envisaged

Suitable actions are likely to vary considerably, but the overall strategy suggests a very broad 'bottom up' categorisation. The basis for each category is a common problem faced by innovators, and particularly the outcomes that may provide a solution. The categories and sort of actions and outcome measures that may be appropriate are discussed below in very brief outline.

6.2.1. Actions to Facilitate Contact

By definition, innovation is about introducing something new – something people have never encountered before within their area of activity. This demands communication at various levels which in turn demands extensive contacts. Actions to facilitate contact are many and various – they range from networking activities, through more active 'translation' to intermediation. Translation can help establish the basic link between potential innovators and those who can help them, intermediation can help the firm make practical use of this link. Likely outcome measures should not simply be based on establishing contact, but upon demonstrating that contact has led to dialogue and active participation.

6.2.2. Actions to Facilitate Resource

A major roadblock to innovation is often lack of resource – be it finance, people, facilities, skills or whatever. A range of actions to redress such problems exist – from very focussed networking and intermediation that overlaps with the previous category, to more active pilot programmes that encourage others to provide the resource (which could include absorbing the sunk costs, or fixed costs of such provision), through to providing the resource itself. Outcome measures are simple – how many more beneficiaries get the resource, and how well is this improvement sustained.

6.2.3. Actions to Generate Solutions

Resources are a general need in most areas of innovation, but there are also very specific needs that must be met for a given innovation to succeed. This may be a solution to a technical problem, exploiting a new market opportunity, or even a regulatory or legal issue. Actions to provide such a solution are specific – funding for

very targeted research (or more likely to bring together relevant researchers from a number of organisations), technology search activities, market research, or provision of highly specialised advice. Outcome measures are quite simply whether progress towards a solution has been made.

6.2.4. Actions to Generate and Disseminate Knowledge

This is likely to be a common category of action. Research may be needed to establish the true capacity for innovation and economic success in a given area. It may also be needed to provide data on what expertise is available and where. It is also likely that characterisation of existing markets, or potential for the growth of new markets will frequently be needed. Measuring the outcome of such knowledge generation is not as simple as weighing the resulting report – the usefulness or economic benefit of the knowledge gained is more important, as is the effectiveness with which it has been transmitted to those who need it and can use it.

6.2.5. Actions to Facilitate Demonstration

This is another large area for action. To convince companies or customers to invest in or buy something new often means that there must be something tangible to show to them and readily accessible ways of presenting it. Innovators also often need to prove something works as a first step in commercialising it, or they may need new sorts of infrastructure within which to demonstrate it. Providing such demonstrators may be a very effective catalytic action – whether a prototype, a demonstration facility, or simply facilitating demonstration through publicity, events or exposure at trade shows. Outcome measures must be based on impact – increased relevant contacts, sales enquiries or actual take up.

6.3. The Big Picture & Overall Outcome Measures

Within each theme it is proposed that a small suite of such actions should be combined into an initial project or set of projects. These should produce the maximum short term impact, provide a basis for judging the likely impact of, and form for, further actions, and generate more general insights applicable to other areas of innovation. The actions should ideally concentrate on one priority area within the theme, or on a very focused set of key issues across the theme.

The success of this first round of actions in each theme will dictate whether more or less emphasis should be dedicated to the theme in future (or indeed whether it should be dropped or radically altered). A second round of actions should then be planned, and new projects developed as before. These will consolidate previous work and develop new priority areas within each theme. Success of each round of actions will be measured first of all on a judgement that is based on an aggregate of the outcome measures for individual actions. But it will also – most importantly – be measured on the success that these actions have had in leveraging further resource, activity, publicity and impact from external sources, including direct involvement by business.

Leverage is considered in more detail below. Measuring leverage is difficult – flows of investment are obvious, but ascribing them to a particular set of actions is extremely problematical, as is assessing the value of publicity. However, given the catalytic nature of these actions and the constraints on their size, they must generate substantial leverage if they are to meet the aspirations of the Council.

Notwithstanding, and acknowledging, difficulties in quantifying leverage, a realistic and challenging rule of thumb should be established that AWM seed money should lever at least twice, and as an aspiration ten times, its own mass if it is to be judged successful. Subsequent rounds of development should likewise leverage similar

amounts to ensure the innovation is effective in generating new economic activity in the region.

There is a final and absolutely crucial corollary of this, and of the basic principle underlying this strategy that it will concentrate on those themes with major economic potential for the West Midlands. This is that outcomes must be scalable, and that this should be a final test of the suitability of any action proposed. If the economic potential of an innovation is, say, five hundred million pounds, and current activity only five million, then activity must scale by two orders of magnitude. Any catalytic action the Council chooses to take must support and take account of this sort of increase in scale. Moreover future resource constraints must be highlighted – be they available skills, research, premises, people, physical infrastructure or whatever – and these needs communicated to the areas of policy and strategy formulation best placed to deal with them – regionally, nationally and even globally. Only then can the overall outcome aspirations of the Council be realised – these are, to reiterate, radical increases in gross value added by business and, ideally in funds invested in R&D or equivalent development, and above all significant growth in regional economic activity

7. Thematic areas so far identified

The characteristics of each theme isolated by the ITC as a focus for action vary considerably. Likely catalytic actions, the wider application of their outcomes across other areas, the present state of development and likely timetable for action also all vary. This section, therefore, presents a much abbreviated outline of each thematic area. One of the outputs the Council is keen to see is a detailed strategy and action plan for each area – these documents will serve as ‘living’ appendices to this section, and provide the detail not presented here.

7.1. Healthcare Technology

The West Midlands has a strong medical technology industry, but no really significant pharmaceutical presence – in this it is distinctive amongst Regions and it is this distinction on which we intend to capitalise. This is allied to a much broader halo of companies in other sectors with technologies, expertise and products of considerable relevance to healthcare. Much of the Region’s industry also has great competencies in operating world-class quality and technological systems and services essential in safety critical applications like healthcare.

The Region also has a strong clinical research base, allied to major hospitals and old and new medical schools. Demographically, the region is an attractive base for clinical trials. The NHS sector in the region is also at the forefront of the new push towards releasing innovation. They have also recently chosen to locate their major new ‘NHS Institute for Learning, Skills and Innovation’ at Warwick.

Possibly most promising of all are the existing strong links between various of these actors. Local collaborations and partnerships present considerable promise as bases from which to build world-beating regional capabilities. AWM’s Medical Technologies Cluster is very active in this area, as is Medilink West Midlands. The Central Technology Belt also sees medical technology as a major area of expertise in their corridor.

The key priority areas where the ITC would like to see activity are:

- **I-Health – Developing and applying “intelligent” healthcare tools, systems and processes**
- **Human Engineering – Applying existing skills to innovative product development**

- Proof of Concept Funding/Validation and Trialling of Innovation – to support innovation and an effective process for the validation and trialling of innovative concepts and products to promote adoption.

7.2. Digital Media

The West Midlands is a leader in several areas of Digital Media. A strong group of companies clustered in Warwickshire are major suppliers of software to the global games industry. There are also strengths in specialist television, film and music.

University activity is also strong in various aspects of relevant technology, application and the didactic aspects of harnessing these technologies for ‘serious’ (non-recreational) use, known colloquially as ‘serious games’. It is this specialism, which we intend to use as a trailblazer and halo for the wider digital media cluster. Indeed the Region has a clear lead in developing games technology to meet the training, and skills maintenance and development needs of major public and private sector organizations ranging across defence, emergency services, healthcare and industry. New technology can offer massive new capabilities here, and it represents a major market opportunity for digital media.

The area is already supported through the AWM Screen, Image and Sound Cluster. Some demonstration facilities already exist in Millennium Point. The ‘Digital Central’ project will act as a focus for networking and activity in the sector.

The key priority areas where the ITC would like to see activity are:

- Serious games
- Innovative content development for current and future platforms
- New applications of existing and emerging technologies to fully exploit digital content development

7.3. Advanced Materials

Several of the region’s universities and research organizations have world-class research knowledge and expertise across a variety of advanced materials technologies and applications. These are already heavily used by major companies in various sectors both within and outside the Region. This concept of advanced material includes both the incremental development of the full range of traditional and emerging materials as well as the perceived step jump into micro-engineering and nanotechnology.

The issue facing this theme is not spotting hot spots of potential, but spotting where these can have major economic impact through offering solutions to the major problems and needs of industry. Advanced materials is not confined to applications in any one sector, it is an enabling technology across many sectors.

There is considerable interest and activity here already in the Region. AWM’s Manufacturing Cluster is heavily involved, as is the Central Technology Belt, particularly through its Advanced Materials Director. Both of these are working with the Council to gather deep knowledge of regional capacity and need in this area as a precursor to an action plan.

The key priority areas where the ITC would like to see activity are:

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7.4. Transportation Technology

Transport is one of the West Midlands' traditional major industries. Despite successive major reverses, much capability and capacity remains, which is now world class in very competitive sectors. These include automotive, rail and aerospace – and all are represented by strong AWM Cluster groups. The region has a number of large first tier suppliers, and in automotive several OEMs. It also has a very strong range of technology and service organizations, as well as research expertise in universities.

The region is the 'centre of gravity' of the UK automotive industry, and this represents the logical place to focus initial actions in this theme. A considerable number of relevant projects – both regional and national – are already underway here, and form a basis for developing future work. Three distinct groups are immediately apparent with the capacity to foster major innovative developments – the research and technology providers, the niche and specialist manufacturers and the volume producers (especially the Premium Automotive Group) and their supply chains. In each area there is very considerable opportunity for read-across, both between these different groups and with technologies in each of the other themes.

The key priority areas where the ITC would like to see activity are:

- Niche vehicle design and manufacturing
- Electronics reliability
- Premium automotive research and development

7.5. Energy

Energy is at the centre of all industrialised economies, and the West Midlands involvement in it goes back to the earliest days of industrialization in Britain. Matthew Boulton's often quoted remark in 1776 about his Birmingham works – "I sell here, Sir, what all the world desires to have – POWER" – still resonates. The West Midlands still has a wealth of knowledge and resources in energy that could make it world-class again. In addition, now as then, the Region's traditional and continuing strengths in engineering based industries provide an ideal base for developing new technological solutions locally. Recent changes in market and supply conditions are providing a particular opportunity and need, which must be grasped quickly.

Universities in the region are strong in several areas of new and renewable energy including fuel cells and biomass. The automotive sector has strengths in sustainable transport technologies. The region has long been associated and still has research strength, particularly at Birmingham University in areas like electrical generation and distribution – and in nuclear. The Council is keen to isolate those areas where early action will open the prospect of major developments relevant to the energy needs and challenges of the 21st century.

The key priority areas where the ITC would like to see activity are:

- Bio-energy across full range of potential applications
- High added value components and systems for a wide range of technologies
- Smart energy systems for electrical use and distribution

8. Sources of leverage and partnership

The Innovation and Technology Council sees its rôle as giving direction and fostering top level debate about innovation in the West Midlands, and then of initiating and 'brokering' strategic action in the most promising areas. It is hoped that this action

will act as a sort of feedback mechanism capable of delivering greatly amplified outputs within the regional economy and beyond. The sections below give an indication of some of the important flows of resource and influence that can be harnessed to provide this amplification. The Council will seek to establish strong links here, as well as continually looking for new ways to leverage and broker major innovative activity.

Publicity and marketing, focused on providing solutions to problems and on new market opportunities will be central activities in this - telling the West Midlands and the world what we are doing about innovation. These need to be fully developed for the Council. Full opportunity will also be taken to engage widely with relevant networking, lobbying and publicity events and activities, and to establish wide contacts with other innovation activities wherever they take place.

8.1. Regional

This strategy has been based on the assumption that delivery will fully utilize the rich existing infrastructure within the West Midlands. This includes utilizing the existing delivery mechanisms of Clusters and Corridors, engaging fully with early stage and other funding mechanisms and initiatives, taking full advantage of sector-based organizations of various sorts and of the growing expertise and resource within higher education being created by the Government's increased funding for university research and infrastructure, and under 'third stream' funding.

All of the themes are already intimately linked to cluster activities, and will reinforce and benefit from existing and future cluster projects. The much broader flows of economic activity within the Region over which AWM has some influence are also important to innovation – a good example here is NHS procurement; there are many others. The willingness of external, and particularly private sector, organizations to become engaged in - and to help fund - the development of a chosen theme will be a critical touchstone of the robustness of the Council's choice of that theme.

The relationship with the regions Technology Corridors is crucial, as they will often act as the source of market and technological opportunity. On a wider level are ITC's links with AWM's other strategic advisory bodies. Of first importance will be its relationship with the Regional Skills Partnership and the Enterprise Board. Links are being forged here already – both formal and informal – and the Council hopes that these will lead to exciting new projects being shared in areas of mutual interest. The Council is also keen to forge similar strong working relationships with the Regional Finance Forum (acknowledging the vital importance of early stage funding to many innovations), various Cluster Opportunity Groups, and more delivery focused organizations such as MAS and Contact (the West Midlands Knowledge Exchange – linking all the Universities to business needs).

8.2. National

The Innovation and Technology Council is well placed to participate in national strategic priorities and in turn exercise influence nationally. It is already one of the best developed Science and Industry Councils around the UK Regions, and anticipates developing strong two-way relationships with national policy making – particularly through the National Technology Strategy Board and Government technology activities. Already the regions priorities have been considered in and mapped onto the national framework. The Council will continue to establish strong informal links at as high a level as possible with relevant areas of Government and with other national organizations involved in funding and promoting innovation and technology.

Other vital areas of national leverage are inward investment, partnerships and joint ventures. The Council's aim is to make the West Midlands the place to come to innovate and do R&D in each of the key areas identified. Working with globally competitive private organisations will be crucial to a successful technological region

In terms of research, the Council strongly supports universities, and research and technology organizations, in their attempts to establish world-class research activities, capabilities and reputations. It is hoped that action in the thematic areas will inform debate and back up such attempts through forging new innovation infrastructures and clear routes to market. Any opportunity to influence National flows of funding for research and knowledge creation in these areas will be taken. Good contacts already exist at individual levels with EPSRC and HEFCE; these will be further developed and extended to other Research Councils wherever relevant.

8.3. International.

Many of the National forms of influence and leverage noted above also apply at a European and global level. Perhaps the most important consideration here is that maximum economic benefit can only be gained from pursuit of global markets. West Midlands pre-eminence in areas of innovation must be promoted internationally, and inward investment and strategic alliances sought from across the world. Already the region is strong on international commercial relationships with 1200 foreign owned companies active in the region. This strength must be developed to take advantage of the global reach such companies have - both in markets and technology sources.

Demonstrable action across the Council's innovation themes will provide added impetus to existing international promotion of the West Midlands, and strong links will be forged with the AWM international team and UKTI wherever appropriate. Within individual themes, particular weight will be placed on actions to generate an international presence and platform to display West Midlands' capabilities.

At the research level, the Council sees European Framework Funding as a key potential resource to leverage funds into the West Midlands technology base. It will make efforts wherever they are relevant to engage fully with the very large resource that the new Framework Programme 7 represents, as well as with other relevant programmes. Such engagement needs knowledge and wide partnership, and efforts to work with those who can benefit across the Region will be supported. In this, existing expertise in the Region will be used wherever possible – such as AWM activity in helping companies engage with FP6, and particularly the knowledge gained in existing Framework projects lead by West Midlands universities.

9. Conclusion

The Council sees its rôle as a broad one. Using the criteria outlined above it will continue to identify the key areas, or themes, where the West Midlands has the potential to excel as a place to innovate on the world stage. In each, the Council will propose and monitor a suite of catalytic actions to help unlock this potential. It will work closely with other strategic bodies – regional and national - to ensure that the technical knowledge, enterprise and skills resources the Region needs to innovate are developed. It will identify the major sources of leverage – money, resources, alliances and partnerships – that can be deployed fully to exploit this potential, and then attract them by publicizing the opportunity. The Council will measure its success in various ways, but the overarching intention is to make a major impact in each chosen theme. Generating major leverage to make this happen from both the private and public sectors will itself be the first demonstration of this impact, but the

true measure of success will be the full long term economic impact for the Region that this investment itself should achieve.