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NESTA Making
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Innovation Index Working Paper

Innovation and Well-being

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NESTA is the National Endowment for Science Technology and the Arts. Our aim is to transform the UK's capacity for innovation. We invest in early-stage companies, inform innovation policy and encourage a culture that helps innovation to flourish.

This working paper was published as part of the Innovation Index project that NESTA is running pursuant to Recommendation 18 in the UK Government's 'Innovation Nation' white paper (March, 2008). As a consequence, it is intended to extend and provoke debate on issues related to innovation measurement. The views expressed are those of the author(s) and do not necessarily represent those of NESTA.

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Contents

1. Executive summary	1
2. The nature and structure of this paper	3
3. What we mean by well-being	5
4. The relationship between innovation and well-being	9
5. Measuring well-being	14
6. What well-being can capture about innovation	19
7. Indicative development plan for future research	23
8. Conclusion	26
Appendix A. Strengths and weaknesses of well-being	27
Appendix B. Well-being and policy	29
Appendix C. Well-being indicators: examples and data	31
Appendix D. Towards national accounts of well-being	34
Appendix E. Consultation List	36
Endnotes	37

1. Executive summary

- 1.1 The concept of well-being is of increasing interest to policy-makers around the world for two reasons. The first is a growing realisation that existing economic-based measures of societal progress fail to completely capture factors that really matter to citizens' experience. Second, this realisation has coincided with the maturing of a now, somewhat substantial body of scientific evidence explaining the nature and causes of individual and societal happiness and well-being.
- 1.2 This paper examines whether well-being could be a useful metric to assist in measuring the UK's innovation performance. It has been commissioned by the National Endowment for Science, Technology and the Arts (NESTA), which has been charged by government to develop an Innovation Index to 'measure UK innovation in the round'.
- 1.3 Though there is very little work directly relating innovation and well-being, there is a substantial body of work that demonstrates that positive emotions in the work place contribute to good functioning and high performance. Furthermore, there are a number of studies specifically demonstrating that positive emotional states result in higher creativity and problem-solving skills, and build resilience and the ability to handle failure – all essential requirements for innovation. Successful functioning in this way also creates well-being, in a two-way relationship.
- 1.4 In addition, it seems uncontroversial to posit that innovation that produces improved products and services will ultimately seek to enhance the well-being of the beneficiaries of those products and services. Moreover, collectively these organisational level results can influence the overall general well-being of society.
- 1.5 Thus, this paper suggests that well-being can be usefully thought of as both an input to and outcome from innovation. It also suggests that three levels of well-being are relevant as potential measures – well-being at work, well-being of beneficiaries (of improved products and services), and general well-being of society.
- 1.6 Though well-being measures are in an early stage of development, life satisfaction measures have been collected systematically for over 30 years. These measures, where respondents appraise how their life overall is going, have exhibited sufficient reliability to be likely

candidates for the purposes discussed here. These types of measures can also be developed for assessing people's well-being in specific domains of their lives, such as work.

- 1.7 Accordingly, inclusion of well-being-based measures in an Innovation Index would help capture a number of different aspects of innovation, which we suggest are not completely captured using conventional economic indicators.
- 1.8 Economic indicators will not adequately capture innovation in those sectors of the economy that are not directly seeking to create economic growth. These could include the public and third sector. Well-being indicators could be particularly useful here since, in addition to capturing innovation, well-being is often a specific identified output of activity in these sectors.
- 1.9 Furthermore, well-being-based measures could be particularly useful in consideration of non-linear innovation, such as open innovation and user-led innovation, by augmenting economic measures, by providing alternative outcome measures where economic measures are inappropriate and by measuring the conditions within organisations that allow these forms of innovation to flourish.
- 1.10 We believe there is sufficient interest and evidence to merit further research in this area. We recommend a research programme be undertaken which aims to refine understanding of the link between innovation and well-being, constructs the well-being based measures appropriate to innovation, and draws out the UK-wide and international policy linkages with the numerous well-being activities that are in place around the world.

2. The nature and structure of this paper

2.1 The origin of this paper

NESTA has been charged by the Department for Innovation, Universities and Skills (DIUS) to create an Innovation Index which more fully captures all aspects of innovative activity in the UK. Over summer 2008, NESTA launched a number of 'mini-projects' to investigate different aspects of the Index. This paper is the result of one of those mini-projects.

The brief for this work suggested that the paper address the following six questions:

1. What are the conceptual implications of this approach to well-being for innovation?
2. How might existing survey data be used in the computation of the Innovation Index?
3. How might existing surveys be adapted to provide information that is relevant for the Innovation Index?
4. How do welfare measures based on well-being surveys compare with traditional productivity-based indicators of a country's economic performance?
5. Does innovation in some areas have greater impact on well-being than in other areas?
6. How can well-being indicators be used to understand innovation in the UK?

The brief also acknowledged that the implications of well-being indicators for innovation and growth had not previously been explored on a systematic basis in the literature; this mini-project therefore would likely be somewhat speculative

2.2 The structure of the paper

The structure of this paper is as follows:

- Section 3 explains the concept of well-being used in this paper and summarises some of the factors known to increase well-being.
- Section 4 suggests how well-being can be thought of as both an input to and an outcome from innovation, and concludes by suggesting what measures of well-being could be particularly useful in considering innovation.
- Section 5 discusses the different approaches to measuring well-being.
- Section 6 highlights some of the key benefits of including well-being as part of a measurement system for innovation.
- Section 7 presents an indicative development plan for taking forward a full-scale version of research required to fully evaluate well-being as part of an Innovation Index.
- Section 8 presents our conclusion.

There are a number of appendices to the document containing material that could not, for reasons of space, be included in the main body of the report:

- Appendix A is a summary of strengths and weaknesses analysis of well-being as an element of an Innovation Index.
- Appendix B summarises recent interest in well-being among policy makers.
- Appendix C provides further detail on the various approaches to well-being measurement summarised in Table 1 in Section 5.2.
- Appendix D looks into the arguments for creating national accounts of well-being.
- Appendix E provides the names of individuals consulted during the course of the work.

2.3 The authors of this paper

This project has been carried out by a partnership composed of Available Light Advisory (www.alighta.com), and *the centre for well-being*, **nef** (the new economics foundation, www.neweconomics.org). The authors were Richard Miller (Available Light), Nic Marks (**nef**) and Juliet Michaelson (**nef**). Additional contributions were made by Stephen Spratt (**nef**).

3. What we mean by well-being

3.1 Concepts of well-being

Well-being is a concept that has been applied broadly, and been assigned different meanings in different contexts. For example, within the health discourse it has been used as an umbrella term for a range of positive health behaviours¹ while the Local Government Act 2001 explicitly granted all Local Authorities in England and Wales the power to promote local social, environmental and economic well-being.

There has been much recent interest in the concept of well-being from economists, social scientists, human resources practitioners and policy-makers. This interest has most probably been in recognition that orthodox approaches to conceptualising and measuring human welfare and progress omit attention to the quality of people's *experiences* of their lives. We therefore propose that this experiential, subjective aspect of well-being is core to the concept, due to being the key criterion by which people determine their sense of whether or not their lives are going well.

The various other aspects of well-being are strongly related to core subjective well-being and will exert strong influences on it. They can be characterised collectively as comprising the objective dimension of well-being which includes observable characteristics about the *material conditions* of people's lives, such as income and wealth, employment status, health and so on.² By contrast, subjective well-being focuses on the extent to which people *feel* happy, satisfied, content and fulfilled with their lives and aspects of them.³

This is not, however, to suggest that subjective well-being should be defined purely through a 'hedonic' description which identifies personal well-being entirely with experiencing positive *feelings*. This would be to ignore the insights of approaches often referred to as 'eudaimonic' which emphasise the role of positive *functioning*.⁴ These identify well-being with what Aristotle called 'the life well lived', in the sense of individuals fulfilling their true potential so that their lives have characteristics such as engagement, autonomy and meaning.⁵ Other approaches to well-being take a needs-based approach where the achievement of well-being is described as the satisfaction of a set of psychosocial needs which, when met, enable people to survive and thrive, both physically and psychologically.⁶

3.2 nef's model of well-being

The model of well-being which informs this paper has been developed by the centre for well-being at nef and describes a dynamic process between the different elements which together give rise to well-being (Figure 1). This model describes an individual's *external circumstances*, for example conditions of work, home and family life and physical health, and their *personality traits and psychological resources*, such as the degree to which they have optimism, self-esteem and resilience in adverse circumstances. It describes these elements as acting together to determine the extent to which the individual is able to *function well*, by exhibiting characteristics such as being autonomous, competent, feeling safe and secure and connected to others. Good functioning leads in turn to both *positive experiences and feelings*, such as happiness, joy, affection, engagement, enthusiasm and satisfaction.

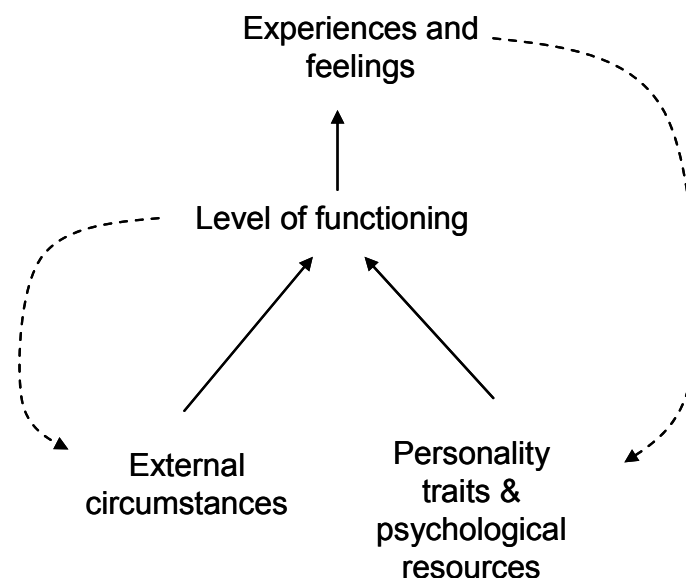


Figure 1: Well-being as a dynamic process

Two crucial feedback loops form part of this process. First, there is a feedback loop between feelings and psychological resources. This reflects experimental psychologist Barbara Fredrickson's broaden-and-build theory of positive emotions, which shows that the actual experience of positive emotions broadens people's repertoire of thoughts and actions and further builds their future psychological resources such as their coping skills and resilience.⁷ Secondly, there is a feedback mechanism between level of functioning and people's ability to influence the external conditions of their lives, something which is well-documented in research evidence. For example, autonomy is known to be a key factor leading to positive health behaviours⁸ and educational achievement.⁹

We therefore characterise well-being as: the dynamic process by which the conditions of an individual's life interact with his/her personality traits and psychological resources to create good levels of functioning and positive experiences and feelings, which in turn enhance external conditions and internal resources.

3.3 Understanding the causes of well-being

Differences in people's feelings about their lives, at the top level of the dynamic model of well-being, can be explained in terms of the other components of the model. The relatively stable elements of personality traits and psychological resources have been found to account for around half of the variation in life satisfaction, while objective circumstances explain perhaps 10 per cent, with levels of functioning responsible for nearly 40 per cent.¹⁰

This overall framework helps to illustrate that some factors have much smaller effects on well-being that might initially be assumed. Income, for example, is just one of the elements within the circumstantial factors which account for 10 per cent of the variance in happiness. Studies have confirmed that while income is to some extent related to levels of subjective well-being within developed countries, the relationship is weak.¹¹

Research has identified a number of psychological mechanisms which help to explain why income and material wealth are less strongly related to well-being than intuition suggests. These include *adaptation*, the process by which an initial increase in well-being brought about by acquiring material goods dissipates as we habituate to and even come to expect their benefits.¹² The tendency to *social comparison* also means that the ability of increases in material wealth to affect well-being is mitigated by the effect of the relative position of an individual's income compared to others.¹³ Thus our wealth and material goods in absolute terms have less of an impact on our well-being than in comparison to those around us.

On the other hand a number of factors emerge from the research evidence as highly correlated to well-being, including:

- Continuing to learn new things throughout life.¹⁴
- Carrying out activities which provide a sense of competence.¹⁵
- Having a sense of autonomy and personal freedom.¹⁶
- Setting and planning towards goals¹⁷ and pursuing goals which are personally meaningful¹⁸ and which are intrinsically, rather than extrinsically, motivated.¹⁹
- Having strong social relationships, including being married or in a partnership,²⁰ having close friends and strong family relationships²¹ and being part of a social network.²²
- Undertaking regular physical activity.²³
- Possessing high levels of social capital, which includes participating in volunteering, taking part in community activities and feeling that others can be trusted.²⁴

This list represents a necessarily very brief summary of an extremely broad and growing literature. For the purposes of this paper, however, a key point to note is that most of these features are general in character and not specifically tied to particular activities. This means that they can be experienced to greater and lesser extents within different domains of people's lives, for example in their activities at home, at work, in their interactions with public services and in their leisure time. Therefore it will be important to consider how these factors might be involved in the relationship between innovation and well-being within various domains.

4. The relationship between innovation and well-being

4.1 A model of innovation and well-being

NESTA's working definition of innovation is 'change associated with the creation and adoption of ideas that are new-to-world, new-to-nation/region, new-to-industry or new-to-firm'. We have considered this definition at two levels – at the level of the entity/firm (though this could be other than a commercial organisation) and the agglomeration (industry, sector, region or nation).

There is almost no research in existence establishing a link between innovation and well-being in any formal sense (though there is much evidence of the positive functioning benefits of well-being, as related in Section 4.2). We believe, however, that the relationship between well-being and innovation is best understood by thinking of well-being as both an input to and an outcome from innovation. In this respect, there is a strong analogy to health discourse and policy, where being healthy is treated both as an end in itself, to be valued in its own right, and also as a means to other ends. Thus, health is discussed as something which allows people to participate in positive activities, such as education and employment, activities which might otherwise not be available to them.²⁵

Figure 2 shows a possible model of inputs and outcomes of innovation at the level of the entity or firm:

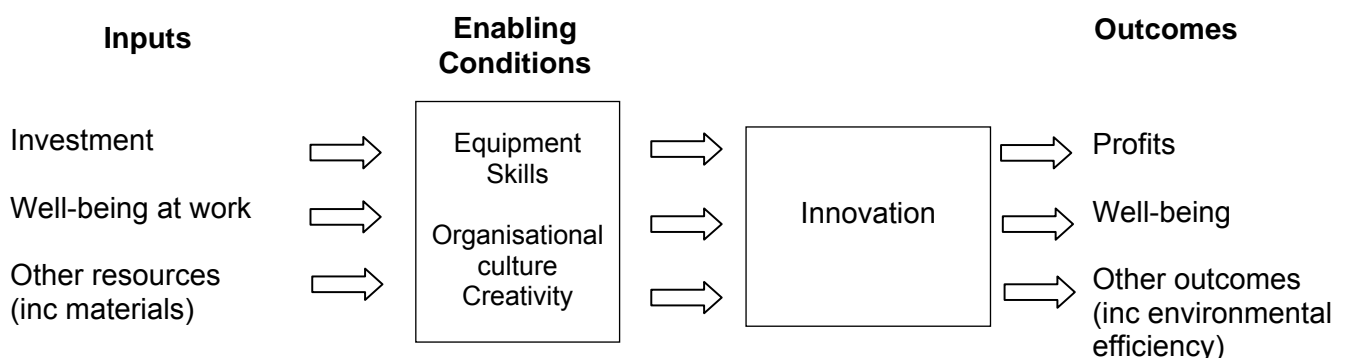


Figure 2: A model of innovation

4.2 Well-being as an input

This model suggests that innovation is the result of a number of inputs and enabling conditions. These include factors which can be seen as analogous to the 'external circumstances' of our dynamic process model of well-being. To varying degrees, depending on the sector we are talking about, these include research equipment, skills level and technological understanding – factors that one would expect to be important based on a traditional understanding of the innovation process.

However, they also include the elements analogous to the personality traits and psychological resources of an individual. These are the 'softer' but crucially important human resource variables, such as the creativity, imagination, resilience and persistence of the individuals that make up the organisation. These characteristics, which stem from the key input of well-being at work, are, in part, the result, not of cash investment, but of the quality of leadership and management in the organisation – in short, the organisational culture.

It is worth spending a moment to clarify what exactly is meant by 'well-being at work'. This phrase indicates the individual's well-being as per our four-part model detailed in Section 3, but as applied to the work environment. So it is about satisfaction and engagement with the domain of work. It is therefore about much more than the momentary pleasures and comforts which employers might hope to enhance by providing employees with leisure and relaxation facilities in the office. Instead, it is about the on-going quality of the work experience, and the extent to which it has characteristics such as interest and challenge. This is discussed further in the next section, after which we return to our model.

4.3 Well-being, creativity and performance

A conventional economic approach to management of employees is based on a number of assumptions, chief among them that labour is something that employees only do because of compensation that they receive for it – work not being intrinsically rewarding and motivating in itself. This assumption is questioned by a growing body of research demonstrating the complex relationship between well-being at work and performance in the work space. Accordingly, it is not clear that well-being at work should be thought of as a cost. It may be more appropriately thought of as an investment, sometimes with very low cost implications where it can be achieved through reshaping ways of working.

The following list shows selected research work and activity around the idea that the creativity of individuals and their work performance are directly related to different elements of their well-being. Some of this work focuses on well-being as an influencer of thinking styles and abilities, while other studies take a more applied approach to examine the effect of well-being on team behaviour and organisational performance.

4.3.1 Research on well-being and thinking styles

- The work of Fredrickson has shown that positive emotions actively broaden a person's awareness and capacity to adopt new patterns of thinking. This in turn builds skills and psychological resources. (Broaden and build).²⁶
- Lyubomirsky has compiled numerous studies which indicate that happiness and positive affect positively impact creativity, flexible thinking, and originality.²⁷
- Amabile has demonstrated that positive emotions lead to more flexible, fluent, and original thinking, both on the day those positive emotions are experienced and (via an 'incubation effect') on the next day.²⁸
- Csikszentmihalyi's model of 'flow', which occurs more often during work than leisure, is one in which the participant feels completely alive and committed to the task in hand such that self-awareness drops away. It occurs when a task provides clear goals, immediate feedback, and a level of challenge that matches the skill.²⁹
- The work of Isen has demonstrated that optimism and resilience are linked with the development of more innovative problem-solving techniques.³⁰

4.3.2 Research on well-being, teams and organisations

- Losada has shown that high levels of positive interactions and 'connectivity' between team members increase the performance of business teams.³¹
- Langer has asserted that managers who are confident that a job will be completed but who are uncertain of the best way of accomplishing the task allow employees to be creative, alert, and self-starting.³²
- There is research indicating that team-based systems enhance productivity. Teamwork has been found to be a more productive way of working because it allows the sharing of skills and information.³³ There is also evidence to suggest that higher productivity derives both from teamwork and from situations where there are worker-generated ideas and higher levels of interaction and problem solving.³⁴ Thus, the research suggests that productivity increases where there are more connections between people and more opportunities for them to be challenged, creative and autonomous.

A number of organisations are currently carrying out research in these areas. These include:

- Positive Organisational Scholarship, based at the Ross School of Business at the University of Michigan, looks at the circumstances and causes of optimal functioning at the level of the individual and the organisation. It seeks to understand the dynamics that enable individual and collective resilience, thriving, creativity, compassion and other indicators of human flourishing.³⁵

- Appreciative Inquiry, which is based at the Weatherhead School of Management at Case Western Reserve University, is an approach to organisational change which focuses on a group inquiry into what is working successfully in the organisation.³⁶
- Positive Organisational Behaviour, which is, in simple terms, the application of the principles of Positive Psychology to the workplace. Like Positive Psychology, it focuses on strengths and on building a positive work space, under the assumption that goodness and excellence can be analysed and achieved. It is based at the University of Nebraska.
- There has been increasing attention paid to 'good work', considered both as having intrinsic meaning and satisfaction and serving the public good, including, in the UK, by the Work Foundation.
- In the USA, the Gallup Organisation has been active in its support of the field of Positive Psychology and advises organisations on growth 'by developing highly engaged customers and building powerful, engaged workforces of talented employees'.

4.4 Well-being as an outcome

The results of a positive innovation will be, depending on the nature of the organisation, higher-quality products or services, increased revenues and profits, and greater satisfaction of service users and beneficiaries. The result of improved products and services and concomitant satisfaction levels would be expected in many cases to include greater well-being for the consumers or beneficiaries of these products and services. (We will use the word 'beneficiary' in this paper to include product and service users in all areas of the economy.)

More indirectly, increased revenues and profits might also lead to improved well-being to the extent that improved material circumstances contribute to well-being. Given the constraints on the ability of income and material wealth to affect well-being discussed in Section 3.3, however, some innovation which results in productivity gains will not result in lasting well-being outcomes. This provides a key reason why both the productivity and well-being outcomes of innovation should be measured separately, as they cannot always be assumed to correlate.

In some sectors of the public and third sectors, the relationship will be more direct. Social services that are aimed at reducing misery in its various forms have well-being as a specific outcome. Clearly, innovations that increase the impact of the factors that cause well-being, as discussed in Section 3.3, will also increase the well-being of beneficiaries.

The evidence discussed in Section 4.3 also suggests strong links for well-being as an outcome of innovation for the members or employees of the entity that creates the innovation. The relationships of positive functioning and exercise of creative faculties seem to go in both directions.

4.5 Measuring well-being across the innovation process

We have been discussing the innovation/well-being relationship at the level of the entity up to now. However, the various outcomes of innovation aggregate across entities to result in general outcomes including productivity and general well-being. Thus, in the same way that the value of a country's goods and services aggregate across organisations into its gross domestic product (GDP), the well-being outputs of successful innovation can be seen as aggregating into a contribution to the general well-being of society.

The challenge, of course, is that many other factors will also contribute to general well-being. These issues, however, can be addressed by surveying representative samples of the whole population about their general well-being, together with the addition of questions which seek information about well-being within certain specific domains.

Thus in summary, we conclude that three different types of well-being measurements could be useful indicators of innovation. These are:

1. well-being at work;
2. well-being of beneficiaries; and
3. general well-being of society.

The benefits of this approach will be discussed further in Section 6.

5. Measuring well-being

Section 4 suggests that well-being can be usefully thought of as both as one of the inputs to and outcomes from innovation. This section explains why using standard economic proxies as measures of innovation neglects important aspects of human welfare to which innovation contributes, and discusses how additional indicators designed to measure well-being might be used to capture these elements as both inputs to and outcomes from the innovation process.

5.1 What is missing from standard economic measures

Orthodox economic theory, and thus implicitly, traditional economic indicators such as GDP growth and total factor productivity (TFP), are based on what has been called the preference satisfaction account of well-being. This says that if an individual's income increases, they are able to satisfy more of their preferences, and this is taken as the definition of an increase in well-being.³⁷ It is therefore this account of well-being which is implicit in traditional approaches to measuring the outcomes of innovation via economic proxy indicators such as TFP.

There are a number of reasons, however, why a reliance purely on economic indicators as measures of progress leaves out important aspects of human welfare. Crucially, by representing welfare purely through economic indicators, the many facets of the lived experience of people's lives are ignored. The context of innovation helps to highlight that productivity-based measures are not able to capture all aspects of progress. Though we believe that well-being has applications across the economy broadly, it is particularly unlikely that NESTA's innovation categories such as civic and community innovation, innovation aimed at the public good and innovation at promoting environmental sustainability will consistently result in gains measurable as productivity. In some cases this may be because productivity measures are not sufficiently sophisticated to capture these forms of non-traditional innovation. Even where they do effectively capture productivity gains, however, traditional economic measures are not designed to directly capture the ultimate well-being outcomes produced by successful innovation in these areas through changes to the ways in which people and society function.

More generally, interpreting economic indicators as measures of welfare assumes that income is strongly correlated with well-being at the national level. But in fact, as discussed in Section 3.3, GDP and other income measures are only weakly associated with direct measures of well-being such as satisfaction with life. Above a relatively low GDP threshold, experienced well-being in countries is not strongly related to the size of their economies.³⁸ In fact, some evidence suggests that in economically developed countries, increasing wealth could be linked with the increasing rates of depression, divorce and suicide which have been observed in recent decades.³⁹

Furthermore, GDP is insensitive to income distribution and objective measures of quality of life such as life expectancy. This produces cases such as that of Equatorial Guinea, which has a GDP per capita of around \$20,000, similar to that of Greece. This measure, however, is driven by huge inequalities in its income distribution, with wealth concentrated amongst a very small elite. The poverty in the country results in life expectancy of 43 years, compared to over 78 in Greece.⁴⁰

GDP has also been criticised for including the spending required in correcting or compensating for undesirable events at societal level, such as natural disasters, and at the personal level, such as family breakdown, but ignoring key factors which contribute to well-being, such as physical and mental health, family security, environmental quality and social cohesion.⁴¹ GDP counts consumption of resources, but it provides no indication of whether such consumption can be maintained: this is a critical issue in the current context of fuel shortages and a rapidly changing climate. These sorts of issues led to Robert Kennedy's famous critique of GDP, which he suggested measured everything 'except that which makes life worthwhile'. The full quote is cited in Appendix D.

5.2 Well-being indicators and alternative measures of progress

Criticisms of standard economic indicators have led to work to develop alternative measures of progress. Although there are a range of approaches to this task, they are united in their aim of measuring human welfare in a way which improves on the purely economic proxies which do not strongly correspond to experienced well-being and quality of life. They seek to avoid these problems either by using objective data which is more strongly related to well-being than financial indicators, or by developing ways to directly capture lived experience, by measuring subjective well-being.

A categorisation of the various approaches to measuring well-being is shown in Table 1, and more details on each of the indicators discussed are available in Appendix C. This makes two key distinctions among indicators. First, it distinguishes indicators based on objective, externally observable data and those which are subjective and therefore require asking people to report on their judgements, feelings and experiences. Approaches which involve both objective and subjective measures are described as 'blended' or 'extended'. The second distinction is between measures which apply at the level of individuals, and those which are aggregated to apply to whole population groups or societies.

Table 1: A categorisation of well-being indicators (see Appendix C for details)

	Individual-level	Aggregate-level
Objective	<ul style="list-style-type: none"> Income (preference satisfaction account) Basic needs (objective list approach) Capabilities approach 	<ul style="list-style-type: none"> GDP Income inequality Adjusted measures of GDP (e.g. ISEW, adjusted net savings) Composite indicators (e.g. the UN's HDI)
Subjective	<ul style="list-style-type: none"> Cognitive assessment (life satisfaction) Feelings (eg CES-D, WEMWBS) Functioning approaches (eg ESS) 	<ul style="list-style-type: none"> Aggregations of individual-level personal well-being measures (e.g. Eurostat, BHPS) Social/Societal Well-being (e.g. ESS, Citizenship)
Blended/Extended	<ul style="list-style-type: none"> Psycho-social needs (basic and psychological needs) – health / services assessment Personal, social, economic and environmental well-being 	<ul style="list-style-type: none"> Extended indicator sets (eg Defra) The Economist QoL index Happy Life Years Happy Planet Index

Objective, individual-level indicators of well-being range from those based on economic status, such as income measures, to basic-needs approaches which measure the state of a set of life conditions which are presumed to be required to allow people to survive and thrive, such as health, education and income. At the aggregate level, there are equivalent objective measures which range from GDP, to measures which adjust GDP to take account of aspects which are otherwise missing, such as inequality, environmental costs and expenditure due to negative events, and those which combine GDP data with objective measures of life expectancy and knowledge.

Our conceptual approach of treating lived experience as core to well-being means that in what follows we give most emphasis to indicators which contain subjective elements. Subjective indicators are becoming increasingly accepted as the rapidly maturing science of well-being creates a stronger more robust evidence base particularly for the most commonly used measure – life satisfaction. Life satisfaction is effectively a cognitive assessment approach, asking people to appraise how their lives overall are going. Satisfaction measures have also been extended to multiple-item scales, for example Diener's 5-item Satisfaction with Life scale.⁴²

Whereas satisfaction approaches can be seen as capturing 'judgements about feelings',⁴³ other measures aim to tap more directly into people's feelings, with scales which measure the frequency with which people experience positive and negative mental states. Additional indicators have

been developed which aim to operationalise the functioning aspects of well-being, asking people to report, for example, on the degree to which they feel capable and autonomous. There are a number of examples of aggregate-level extended and blended well-being indicators, ranging from the Sustainable Development Indicator set developed by the Department of Environment, Food and Rural Affairs (Defra) which includes measures of objective and subjective well-being to nef's Happy Planet Index, which multiplies average life satisfaction of a country by life expectancy and divides by ecological footprint, to show the environmental efficiency with which a country's use of resources produces long, happy lives for its citizens.

5.3 Availability and use of subjective well-being indicators

Life satisfaction, the most established indicator of subjective well-being, has been collected regularly in the United States and Europe for over 30 years, and is now collected at intervals in countries throughout the world. The existence of a range of surveys using this measure has enabled researchers to compile a cross-national database of life satisfaction scores for 178 countries, using a regression model to estimate life satisfaction scores for countries where no direct data is available.⁴⁴ Data availability for other subjective measures is far more limited, although in the UK there are some data series on population mental health. The European Social Survey (ESS) well-being module provides more detailed cross-sectional well-being survey data than has previously been available (see Appendix B for more information).

A number of government bodies in the UK are already using some of these alternative measures of progress, including subjective well-being measures, as key indicators:

- The Index of Sustainable Economic Well-being (ISEW), has been incorporated into the targeting and reporting structure of the East Midlands Regional Development Agency's (emda) Regional Economic Strategy, and has since been applied in several other cases, including English regions of the South East and Yorkshire and the Humber, and in Scotland.
- Defra has brought together the Sustainable Development Indicator set, which includes annual measures of pollution, consumption, objective well-being (e.g. poverty levels, and life expectancy), and, as of 2007, subjective well-being (based on a single measure life satisfaction question).⁴⁵
- The new National Indicator Set for Local Authorities, which underpins the performance framework for local government, includes indicators of subjective well-being.⁴⁶

5.4 Future trends and expectations for indicators

A number of recent developments suggest that subjective well-being indicators are becoming better established and more widely used in policy-

making and government. Many centre on efforts to persuade governments to measure the well-being of their populations on a regular basis. This was strongly argued in two 2004 papers by leading well-being academics, Daniel Kahneman *et al.*,⁴⁷ and Diener and Seligman, who stated that 'periodic, systematic assessment of well-being will offer policymakers a much stronger set of findings to use in policy making decisions'.⁴⁸

An OECD (Organisation for Economic Co-operation and Development) working paper in 2006 argued that the distinct domains that contribute to overall life-satisfaction such as employment, family and community ties cannot be reduced to a single dimension of economic resources, and that therefore in order to assess well-being, measures of economic growth 'need to be complemented with measures of other dimensions of well-being'.⁴⁹ In 2007, the OECD, the European Commission, the Organisation of the Islamic Conference, the United Nations, the UN Development Programme and the World Bank affirmed in 'the Istanbul Declaration' their commitment to measuring and fostering the progress of societies in all dimensions, with the ultimate goal of improving policy-making, democracy and citizens' well-being. The declaration highlights 'an emerging consensus on the need to undertake the measurement of societal progress in every country, going beyond conventional economic measures such as GDP per capita'.⁵⁰

In the UK, work on this agenda is being taken forward on a number of fronts. The Office for National Statistics (ONS) is carrying out a programme of work around the issue of measuring societal well-being, having signalled this as a priority analytical area. While it is currently undecided as to whether new indicators it produces 'might eventually add up to a system of national wellbeing accounts'⁵¹ others are explicitly arguing that such accounts should be created. The well-being module of the ESS was explicitly developed in the context of the calls for subjective national indicators of well-being. Those involved in its design are currently beginning a programme of work to develop prototype well-being indices to stimulate debate and interest among academics and policy-makers.

5.5 Well-being indicators and the Innovation Index

This section has demonstrated that there is a range of well-being indicators, from established measures to those currently under development. In order to include well-being measures within the Innovation Index, it will therefore be necessary to focus on particular indicators of interest. This might be a single measure, such as life satisfaction, or a composite indicator which combines a number of measures into an index score. The details of how well-being index scores could be structured so as to be incorporated into the Innovation Index will be driven to a large extent by the overall structure of the Index, itself still to be determined. However, the measure of life satisfaction – particularly with respect to the particular domains, such as work – is a sufficiently established measure which could be the basis of a well-being indicator with useful applicability to innovation. This is discussed further in Section 6.4.

6. What well-being can capture about innovation

A full strengths and weaknesses analysis of considering well-being as an indicator of innovation is shown in Appendix A. Below are some of the key arguments contained in this analysis.

6.1 Well-being has potential to capture innovation across sectors

Well-being has the potential for greater applicability to innovation outside the manufacturing sector. It is a more appropriate indicator for consideration of innovation in services, the creative industries, the public sector and third sector, where productivity and conventional economic indicators clearly fail to capture outcomes completely.

In particular, the service economy, the knowledge economy, creative industries and many services in the public and third sectors are all very dependent on the individuals carrying out activity. In this context it is natural that the well-being of those individuals would be a vital ingredient.

This dependency on individuals has different aspects. First, in many (though not all) of these sectors, the delivery of the product or service consists, in whole or in part, of an interaction between the employee/ member and the customer/ beneficiary. This is the case with many parts of the public sector – especially those at the local authority level. It is also the case in many knowledge-economy service businesses, such as accounting or consulting.

Second, most jobs in the modern labour economy require employees to contribute their own intellectual effort and creativity in order for successful execution of the required tasks. The success of the job is a result of investment of intellectual energy, creativity and intelligence. The willingness and ability to do this successfully is, as discussed in Section 4.3, tied to well-being.

Thirdly, the reason why effort is invested in the activity – the intrinsic motivation – can be different in different sectors of the economy. For example, some sectors, such as the public sector or the creative industries, might attract people who are strongly intrinsically motivated, working for reasons other than the financial rewards for their efforts.

6.2 Well-being can capture more types of innovation

NESTA has indicated that the Index needs to capture non-linear innovation and other forms of innovation that have been understated in the economy, such as open innovation and user-led innovation. Well-being measures have particular application in these circumstances.

First, as we have shown, well-being-based innovation measures can both augment expenditure and productivity-based innovation measures, and also be the primary measures in situations where economic innovation measures are inappropriate. Secondly, the circumstances under which open and user-led innovation or co-creation will flourish would be expected, in light of the research discussed in Section 4.3, to be ones in which there would be positive states of well-being.

Furthermore, one might expect the well-being inside an organisation to be important to the adoption and diffusion of innovation. We suspect well-being increases a company's absorptive capacity.

6.3 Well-being can capture 'softer' factors

Well-being-based innovation measures have the potential to capture those factors that are generally agreed to be very important to innovation, but are hard to measure. These include the culture or climate of an organisation and the quality of management. These and similar factors can be crucially important to the well-being of organisational members, and to their effectiveness, but are acknowledged as being difficult to capture.

Organisations could potentially benefit from creating systematic methodologies for assessing the well-being of their employees; the development of standardised well-being-at-work audit tools would allow for comparisons between organisations as well as providing benchmarks for the organisations themselves. In this way well-being-based measures might be particularly effective in evaluating innovations that fail – with 'stupid failure' being due to a lack of organisational well-being and 'intelligent failure' being a symptom of healthy risk-taking.⁵²

6.4 Collecting the right well-being measures

We have suggested that well-being at three levels is appropriate in light of our input/ innovation/outcome model: well-being at work, well-being of beneficiaries (of products and services), and well-being of the general population.

The fact that data on life satisfaction is regularly collected in the UK provides a relatively simple way in which well-being data at the general population level could be used for well-being-based innovation measures, using key summary statistics, such as the mean score and distribution of life satisfaction. A more fine-grained and thorough approach could be achieved by carrying out regular surveys using measures such as those included in the ESS. The resulting data would be compiled into a number of indices

representing different well-being components, such as feeling good and functioning well.⁵³ These would allow a more textured analysis of the different aspects of people's subjective well-being.

Conducting specifically designed well-being surveys could also allow targeted measurement of the well-being of particular groups of identified beneficiaries of particular products and services at a level below that of the general population, by over-sampling specific groups of interest. There is also the significant likelihood that it would be of interest to a number of government departments for which well-being is playing an increasing role in their work programmes, and could therefore be a joint-funded venture.

Alternatively, working with local authorities to encourage well-being data to be collected within local, place-based surveys would provide a wealth of data at a high geographical resolution which, if gathered on the basis of a standard template, would provide very rich data at the national level. An intermediate approach would be to develop a reduced set of well-being indicators than extended beyond life satisfaction, but that was concise enough to be inserted into one of a number of the omnibus surveys regularly conducted on a national basis. This would provide more detailed population-level well-being data at a significantly reduced cost compared to a bespoke well-being survey.

6.5 How well-being could be incorporated into an Index

Being able to isolate the innovation-related aspects of well-being is a key issue in attempts to include well-being measures in the Innovation Index. By analogy with the way in which TFP identifies the elements of productivity not accounted for by labour and capital, which allows it to be used as an outcome proxy for innovation, the question here is whether particular aspects of well-being can be identified which would allow them to be used as indicators within the Innovation Index.

As detailed in Appendix D, well-being accounts are at an early stage of their development, and no well-being equivalent to TFP currently exists. (It is also worth noting that TFP itself is not uncontested as a measure of innovation – within the mature discipline of economics.) The extent to which it is possible to identify the innovation-related aspects of well-being will also vary with the different levels of well-being measurement that we have identified: well-being at work, well-being outcomes for identified beneficiaries, and general well-being outcomes.

As this paper has demonstrated, there are now established tools for measuring general population well-being. However there are reasons to doubt whether it would be possible to identify the specific impact of innovation on general well-being. Given the diffuse effects of innovation, and its indirect relationship with general well-being through multiple intermediary processes, it is unlikely that a component of well-being clearly attributable to innovation will arise through measurements and analysis of general well-being. While there might be some scope for macro-level analysis to compare the effects of different innovation policies on well-being at regional or national level, there would be a number of challenges to be overcome,

including the large number of other explanatory factors which would need to be held constant in any model.

Furthermore, the relationship between innovation and well-being is not unidirectional and unlikely to be linear, given that the direction of causation is two-way, and we know that, for conceptual reasons, that not all types of innovation will lead to well-being. This is not, however, to deflect from our central argument that successful innovations will very often have genuine well-being outcomes. Our recommended approach is therefore to use a detailed indicator of general well-being as an ultimate outcome measure which is used to help assess the overall impact of innovative activity in the UK. Time series data, general well-being and Innovation Index data accumulated over time will eventually allow a more detailed analysis of the precise relationship between innovation and well-being to be explored.

However at the entity level, with a focus on well-being at work and well-being of identified beneficiaries, it will be possible to do more fine-grained analysis to identify those aspects of innovation most closely linked to innovation. Section 7 sets out an indicative development plan for the future research required to pursue this approach.

7. Indicative development plan for future research

This section sets out the research required to develop well-being-based measures for use as part of the Innovation Index. This focuses on developing measures of, first, innovation-related well-being at work, and second, the changes in the well-being of beneficiaries attributable to innovation. In addition, a further strand of research further exploring the policy linkages between well-being and innovation is proposed.

7.1 Well-being at work

The aim of this research strand would be to identify those aspects of well-being at work most closely associated with innovation, and to generate a well-being measure of the innovation of that entity. The idea would be to test whether a meaningful well-being based innovation measure could be created at the entity level, by attempting to single out those elements of well-being attributable to innovation.

The methodology would involve entity-level research, using a blend of qualitative and quantitative methodologies. We would initially seek to create a classification system that would enable entities to be described as high, medium or low in innovation. This system might make use of existing innovation measures as well as other data collected from stakeholders of the entity and beneficiaries of its products and services. Following this, a detailed assessment of the different components of well-being at work will be carried out by doing a well-being audit of the organisation. This will produce measurements of the different facets of well-being at work, such as details of people's actual experience of their work (is it interesting, stressful, do they feel creative etc), how teams function within the organisation, the levels of autonomy and so on.

The analysis phase will then seek to identify those elements of well-being at work which appear to be most strongly linked to innovation within entities, and separate them from those well-being at work elements explained more by other factors such as job security, pay levels or the job design. The elements closely associated with innovation would then be used to produce a composite indicator of innovation-focused well-being at work. While our

model suggests that the primary direction of causation is from well-being at work to innovation, and therefore that a well-being-at-work indicator would be used as a measure of input to innovation, we have also noted that innovation is likely to have impacts on well-being at work. The research would therefore also consider how this could be taken account of in the indicator produced.

7.2 Well-being outcomes for identified beneficiaries

At the level of identified beneficiaries, research would be carried out in order to measure the well-being outcomes of specific innovative interventions (products or services). It would be necessary to focus at the level of specific interventions with clearly defined beneficiaries, in order to minimise the potentially confounding effects of the numerous innovations which impact on any individual within different life domains. A longitudinal approach, however, would attempt to identify changes in levels of beneficiaries' well-being over the time period of their exposure to a particular intervention. By measuring the well-being of beneficiaries immediately prior to their contact with the intervention (at $t-1$), and then again afterwards (at t), it would be possible to identify the degree of change in well-being attributable to the intervention. The well-being at T_1 would therefore be represented by an equation of the form:

$$W_{b,t} = W_{b,t-1} + D_{b,i}M_i + \varepsilon$$

where the well-being, W , of a beneficiary, b , at time t , is described as a function of the beneficiary's well-being at $t-1$, the product of the dosage, D , of the innovative intervention, i , received by the beneficiary and the well-being impact, M , of the intervention, and an error term ε . An early phase of the research would need to consider issues of definition for the terms used here, including how to define an 'innovative intervention' and how D and M would be quantified.

The resulting well-being outcome measurements could be used to compare the well-being impacts of specific innovations, with different scales of innovations determining the scope of their potential influence. This might range from a small, geographically defined group in receipt of a particular local intervention to the general population in the case of nationally available interventions. A further element of this research would consider how well-being beneficiary impacts for separate innovative interventions could be built up into an aggregate score.

7.3 Investigating policy linkages

The third research strand, complementing the measurement-focused strands, would be a programme of consultation and research to investigate policy linkages. As summarised in Appendix B, the concept of well-being has penetrated far into a broad range of government policies. It has also been taken on board by international agencies including the OECD.

We would conduct an in depth programme of desk research and consultation – both in the UK and internationally – to take advantage of knowledge that exists in these and related areas, and also to make the contacts that will be useful in taking forward the concept of well-being measures for innovation and business performance. In addition, there were many individuals that we were not able to consult during the work for this paper because of summer scheduling issues and the limited budget of the mini-project. We would like to take advantage of their insight for a fuller research project.

In the UK, there is an infrastructure of interdepartmental cooperation which could be utilised in this regard. Accordingly, we would expect that these issues could be pursued in a reconstituted Whitehall Well-being Working Group (W3G) or Well-being Indicators Group. We would also conduct directly a programme of consultation with key government departments including the Treasury, the Department for Communities and Local Government (DCLG), the Department for Children, Schools and Families (DCSF) and the Department for Culture, Media and Sport (DCMS).

8. Conclusion

Admittedly, there is little existing research directly linking innovation and well-being. However, the idea of well-being as both an input to and outcome from innovation is both naturally appealing, and supported by a great deal of indirect evidence. Furthermore, well-being-based innovation measures have the potential to help address many of the challenges involved in creating an Innovation Index with relevance to broad segments of the economy and society. If the definition of innovation itself is to be broadened to encompass developments that are beyond the strictly economic, it seems inevitable that measurement must also move beyond the strictly economic.

Therefore, as policy-makers in the UK and internationally continue their interest in well-being and their efforts to measure it, consideration of well-being as a potential element of an Innovation Index seems to merit further investigation.

Appendix A. Strengths and weaknesses of well-being

NESTA's brief for this paper requires that it contain a strengths and weaknesses analysis against overall Index objectives. This strengths and weaknesses analysis of using well-being-based measures has informed all aspects of our paper, but is here summarised for the purpose of clarity.

Strengths

A coherent model

- A coherent model, which relates and pulls together inputs and outcomes.
- More meaningful outcome (than purely financial metrics).
- Meaning and significance beyond its application to innovation.
- A way to measure intangible and hard-to-measure criteria like organisational culture (similar to skills).

Policy relevance

- Accessible to the public and the media – it is a well-understood concept.
- People-focused – in line with the Audit Commission's recommendations to local government.
- Taken on board as a policy goal by many arms of government.
- Social, economic and environmental trends indicate that this approach is the way of the future; it addresses a number of crucial issues in a world which is suffering from the 'failure of neo-classical economics'.⁵⁴ In that way it is itself, innovative.

Broad, flexible context

- Broad applicability across private, public and third sectors, including situations where economic indicators are not appropriate measures.
- A flexible concept which can be applied on a broad or specific basis – with meaning at the level of the entity and society.

Evidence-based

- Comparability between people, across time and between nations.
- Evidence-based analyses with existing measurement approaches.
- While productivity-based indicators can fluctuate considerably in reaction to temporary changes in the economic system, data series based on well-being indicators suggest that they are better placed to measure longer-term societal trends.

Weaknesses

Conceptual doubts about well-being

- Susceptible to scepticism regarding the degree to which well-being is measurable.
- The unit of measurement tends to the individual, so conclusions may be too individual-focused – not sufficiently collective societal or inter-dependent.
- The science of well-being is still an emerging field – there is no unified theory.

Policy relevance

- It is contested as to whether well-being should actually be a goal of public policy.
- It is not yet completely proven that well-being can be improved through policy and other interventions.
- Some currents run counter to economic orthodoxy and orthodox metrics.

Context

- The link to innovation has conceptual appeal, but is not self-evident (cf capital investment).

Measurement issues

- Measurement approaches are still being developed, so there is not yet a single uncontested measurement philosophy.
- Not yet enough longitudinal data for rigorous analysis.
- Most entities do not currently collect data, so this would be a new cost, requiring new standards.

Appendix B. Well-being and policy

Over the last ten years, the concept of well-being has become the focus of growing interest among policy-makers and governments. It has become a widely used term, featuring as a central element of policy initiatives across a number of government departments. In addition to maintaining sound public finances, HM Treasury's second of two departmental strategic objectives is 'ensuring high and sustainable levels of economic growth, well-being and prosperity for all'.⁵⁵

Thanks to the Local Government Act 2000, local authorities now have a new power to act to promote the economic, social or environmental well-being of an area.⁵⁶ Every Child Matters, a national framework setting the direction of provision of children's services, defines the well-being of children and young people in terms of five key outcomes and places this at the heart of service delivery.⁵⁷ Well-being has also featured in policy papers published by the Department of Work and Pensions^{58,59} and the Department of Health.⁶⁰

Significant contributions to the ongoing discussions around the conceptualisation and definition of well-being have been made by the UK Government. The cross-departmental Whitehall Well-Being Working Group (W3G) aimed to explore issues relating to well-being in a policy context. Seeking to develop a 'shared understanding', in 2006 it provided a description of well-being covering both objective and subjective elements:

*'a positive physical, social and mental state; it is not just the absence of pain, discomfort and incapacity. It requires that basic needs are met, that individuals have a sense of purpose, that they feel able to achieve important personal goals and participate in society. It is enhanced by conditions that include supportive personal relationships, strong and inclusive communities, good health, financial and personal security, rewarding employment, and a healthy attractive environment.'*⁶¹

Since then, there has been considerable well-being-related activity in the policy arena. Well-being measures have been included in national indicator sets published by Defra and DCLG, as summarised in Section 5.3 and detailed in Appendix C. Other work being carried out in the field includes a major programme of research looking at ways to promote well-being in a local context. This is being carried out by the Young Foundation in collaboration with the Improvement and Development Agency (IDeA) and three partner local authorities, with funding from various central government

departments.⁶² The Audit Commission is planning to use work jointly carried out by **nef** as part of this programme to advise local authorities across the UK on how to bring together data from the new national indicators to form a coherent picture of well-being.

Looking forward, October 2008 will see the publication of evidence from a major review by the government Foresight Project on Mental Capital and Well-being, which aims to develop a long-term vision for maximising mental capital and well-being in the UK. In the slightly longer term, ONS is expected to continue its work examining how societal well-being might be measured better than currently. NESTA is also taking forward research in the field of well-being, and plans to commission a piece of work exploring the innovation system in relation to health well-being, encompassing both physical and mental health.

Appendix C. Well-being indicators: examples and data

Individual-level objective indicators

- Income: according to the preference satisfaction account of well-being, an individual's income can be used as a direct proxy for their well-being. This assumption is challenged by the criticisms of income-based measures of progress (see Section 4).
- Basic needs/objective list approaches.
 - Rawls' index of primary goods, which includes rights, liberties and opportunities, income and wealth, opportunities and the bases of self-respect.
 - Max Neef's matrix of nine fundamental human needs (subsistence, protection, affection, understanding, participation, idleness, creation, identity and freedom), across four different levels of activity: being, having, doing and interacting.

Aggregate-level objective indicators

- The Index of Sustainable Economic Welfare (ISEW), adjusts GDP for a wide range of economic, social, and environment factors. Adopted by emda for its Regional Economic Strategy, by Regional Development Agencies in the English regions of the South East and Yorkshire and the Humber, as well as in Scotland.
- Genuine Savings Index (World Bank) (GSI) is now adjusted net saving. Adjusted net saving measures the true rate of saving in an economy after taking into account investments in human capital, depletion of natural resources and damages caused by pollution. Adjusted net saving, known informally as genuine saving, is an indicator aiming at assessing an economy's sustainability based on the concepts of extended national accounts.
- UN Development Programme's Human Development Index (HDI) combines GDP data with objective measures of life expectancy and education levels. Index is reported annually for 177 countries.

Individual-level subjective indicators

- Cognitive assessment – the most widely used measure is a single question on life satisfaction, with wording a variation on ‘All things considered, how satisfied are you with your life as a whole nowadays’.
- Feelings-based measures – mental state and affective symptoms:
 - Center for Epidemiological Studies Depression Scale (CES-D) 20-item/8-item scale for measuring depressive symptoms.
 - The Warwick-Edinburgh Mental Well-being Scale (WEMWBS): 14-item scale measuring recent positive affect.
- Functioning approaches:
 - ESS Round 3 (2006): well-being module containing 50 items, taking a multidimensional approach to measuring well-being, based on a framework of feeling/functioning and personal/interpersonal measures.
 - European Foundation for Improvement of Living and Working Conditions – European Quality of Life Survey – measures level of ‘deficit’ across Europe (having deficits, loving deficits, being deficits, time deficits) – some issues with aggregation.

Aggregate-level subjective indicators

- For the UK, aggregations of individual-level personal well-being measures are available from surveys such as the Eurobarometer series and British Household Panel Survey.
- Indicators which measure broader social and societal well-being are included in the ESS well-being module and the regular government-sponsored Citizenship Survey.

Blended/extended indicators

- Defra's Sustainable Development Indicator set includes measures of pollution, consumption, objective well-being (e.g. poverty levels, and life expectancy), and, as of 2007, subjective well-being (single measure life satisfaction).
- In 2009 the Audit Commission, based on work by the Young Foundation and **nef**, will be advising UK local authorities on how to bring together data from the new 198 national indicators which underpin the performance framework for local government to form a coherent picture of well-being.
- The Economist Magazine Quality of Life Index: uses objective data (GDP per capita, life expectancy, political stability, family life, community life, climate, job security, political freedom and gender equality), but combines them in a unique methodology that draws on subjective data.
- Happy Life Years is a model which combines longevity and

subjective life satisfaction, designed to measure 'the degree to which people live long and happily in a country at a certain time'. Calculated from life satisfaction ratings multiplied by mean life expectancy at birth.

- The Happy Planet Index measures the ecological efficiency with which, country by country, people achieve long and happy lives. It uses measures of life expectancy, life satisfaction and ecological footprint and therefore blends objective and subjective measures.

Availability of well-being indicators

The most established indicator of subjective well-being is life satisfaction, which has been collected regularly in the United States since 1946.⁶³ In the UK it has been collected since 1973 as part of the Eurobarometer survey. Surveys which regularly collect life satisfaction data include the following:

- World Values Survey: repeated measures across 81 countries between 1990 and 2007.
- Pew global attitudes survey: 44 countries in 2002.
- Gallup World Poll: 130 countries on a continuous basis since 2005, data available on commercial basis only.
- Eurobarometer – biannually since 1970s across EU countries, including the UK.
- Also measured in the ESS (three rounds so far since 2002).
- Latinobarometer – annual time series from 1997 in Latin American countries.

There is some availability in the UK for other subjective measures of well-being, for example since 1997 the Health Survey for England has collected the 12-item version of the General Health Questionnaire.⁶⁴ At the cross-national level, the European Quality of Life Survey, carried out in 2003 and 2007, measures level of 'deficit' across Europe (having deficits, loving deficits, being deficits, time deficits), and also includes measures of happiness and life satisfaction. The ESS well-being module provides detailed well-being data for 25 European countries.

Appendix D. Towards national accounts of well-being

Politicians, policy-makers and researchers have been questioning the use of purely economic accounts for many years. Calls are increasing for the creation of sets of national accounts of well-being.

Well-being accounts

'Gross National Product counts air pollution and cigarette advertising, and ambulances to clear our highways of carnage. It counts special locks for our doors and the jails for the people who break them. It counts the destruction of the redwood and the loss of our natural wonder in chaotic sprawl. . . . Yet the gross national product does not allow for the health of our children, the quality of their education or the joy of their play. It does not include the beauty of our poetry or the strength of our marriages, the intelligence of our public debate or the integrity of our public officials. It measures neither our wit nor our courage, neither our wisdom nor our learning, neither our compassion nor our devotion to our country. It measures everything, in short, except that which makes life worthwhile.'

Robert Kennedy, 1968

'Policy decisions at the organisational, corporate and government levels should be more heavily influenced by issues relating to well-being... For example, although economic output has risen steeply over the past decades, there has been no rise in life satisfaction during this period, and there has been a substantial increase in depression and distrust... [however] ... a major problem with using current findings on well-being to guide policy is that they derive from diverse and incommensurable measures of different concepts, in a haphazard mix of respondents... Periodic, systematic assessment of well-being will offer policymakers a much stronger set of findings to use in policy making decisions.'

Leading academics Ed Diener and Martin Seligman
in their influential 2004 paper
Beyond Money: toward an economy of well-being

'It is not enough for us to talk about freedom, climate change, health, security and the environment. We need widely accepted communication tools that show progress in these fields. And that progress can only be measured with suitable indicators. So it's time to go beyond the tools developed for the very different world of the 1930s. It's time to go beyond today's confusing surfeit of unorganised data. It's time to go beyond GDP.'

José Manuel Barroso
President of the European Commission, 2007

In addition:

- Kahneman, Krueger, Schkade, Schwarz and Stone (2004) have also argued that we should develop national accounts of well-being. As an alternative to 'standard' approaches based on life satisfaction they suggest measures 'based on time budgets and affective ratings of experience'.⁶⁵
- The consortium of academics who designed the well-being module of the ESS did so with the explicit aim of using the resulting data to work towards creating National Accounts of Well-being. Work on this project is being taken forward by researchers at Cambridge University and at **nef**.

Economic national accounts

We are in the very early stages of creating reliable well-being accounts. It is worth noting that economic national accounts required many decades before their broad acceptance.

- First proposed by German economist Wagemann in the 1920s, initially due to concern about unemployment and then aimed at increasing productivity.
- Proposed in the UK by Keynes in 1940, and then taken forward by James Meade and Richard Stone in context of World War II.
- First international guidelines for National Accounting published in 1947.
- United Nations System of National Accounts (UNSNA) – recognisable from today's national accounts structure – were first published in 1953.

Appendix E. Consultation List

Our thanks to the following for their time and insight:

- Paul Allin, ONS
- Steve Dahlberg, Applied Imagination (USA)
- Arik Dondi, Defra
- Ruth Flood, Design Council
- Irene Lucas, South Tyneside Council
- Richard Reeves, Demos
- Jonny Tinsley, Defra

Endnotes

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