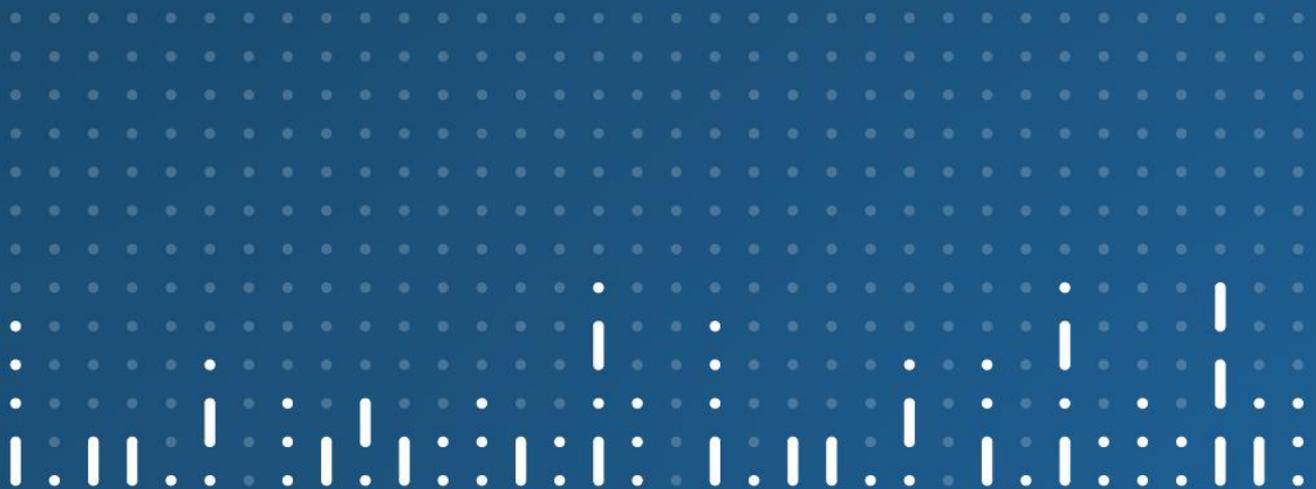


Consultation response: Indicator-based approach to measuring human capital

10 March 2020



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Accessibility

All material relating to this consultation can be provided in braille, large print or audio formats on request. British Sign Language interpreters can also be requested for any supporting events.

Quality assurance

This consultation has been carried out in accordance with the government's consultation principles, available here <https://www.gov.uk/government/publications/consultation-principles-guidance>.

If you have any complaints about the way this consultation has been conducted, please email: ons.communications@ons.gov.uk.

Executive summary

Human capital is a measure of the “knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being”, as defined by [The Well-being of Nations: The Role of Human and Social Capital](#).

The human capital consultation run by the Office for National Statistics (ONS) between 3 September 2019 and 20 December 2019 attempted to address some of the main issues inherent in the current [Human Capital stock method](#). In 2018, the ONS published a [human capital workplan](#) that set out the actions that the ONS believes, based on current academic evidence, are needed to improve the measurement of human capital in the UK. A central part of this workplan was to publish a consultation proposing an indicator-based decomposition of human capital.

The main elements of the consultation were developing a new lifetime measurement, indicator-based framework, which complements the current human capital stock measure. In practice, this means we will aim to produce a suite of indicators (data summarising the population that can be tracked over time) based on the themes set out in the consultation. The indicators are designed to work together to help everyone from the policymaker to the citizen understand the elements that can enhance an individual’s and the country’s human capital. This will help with making important decisions on investing in people at the right time and in the right place.

The consultation drew in over 130 formal responses from a range of organisations and individuals, and over 40 people attended an engagement day during the consultation. The vast majority of respondents supported the vision of a complementary indicator-based approach. Respondents were also keen that any new approach should support and enhance the current human capital stock measure. It is also important to highlight that this work complements other developments outlined in our workplan. For example, human capital is considered by macroeconomists as one of a number of resources not currently captured in the national accounts framework measuring gross domestic product (GDP). These are referred to as “missing capitals”, and we hope this consultation helps us understand which resources relating to human capital are important to measure in such an extended framework in the future.

The ONS will now look to take forward the work on developing the indicators and the framework to support this new approach, which will also include working with stakeholders and experts nationally and internationally. This work and any new outputs will be

approached iteratively, looking to deliver the first iteration of new measures within the first year of development. The focus will initially be on those themes and indicators that had the greatest degree of consensus and data availability. The iterative approach will allow measures to be adapted and to change priorities as the indicators evolve to meet the emerging needs of stakeholders and other customers over a number of years of iterated developments, as suggested in the rest of the document.

Initially, themes around health, education, work, and family and home will be prioritised as they were the areas where respondents agreed with the approach being proposed. This will also allow for the other proposed themes, including crime, personality traits and independent learning, to be further investigated alongside other suggested factors to be considered. Additionally, the data gaps can be fully assessed for their contribution to the overall human capital framework in order to consider the priority of which gaps to fill first.

As highlighted below, human capital is important for allowing people to fulfil their potential. We will look to begin developing these measures iteratively, and hope to continue to receive useful feedback from users on this work to make sure the ONS is adding value to citizens and policy makers at every stage.

Document structure

The rest of the response document is structured as follows. First, we provide some information on the background and context to our consultation for reference. We then outline the other developments of our human capital work and the connections between them and the indicator-based approach, which was the focus of this consultation. A summary of the responses and our proposed next steps to take on these responses is provided next, before going into the response detail on every question asked, which is the body of the document. We have grouped our plans for actions arising from responses at each section of the consultation rather than pertaining to every response of each question, as there is a lot of related feedback to consider. Finally, we summarise all organisations whose responses have been taken into account and present a wider list of suggested new factors to consider into our framework as two annexes.

Background

We are reviewing how we measure human capital in the UK. Human capital is a measure of the skills, knowledge and experience of an individual or population that can be applied to

the economy or to society at large. It is widely recognised as a driver of productivity, and it helps people achieve their needs and wants and improve their well-being. The ONS currently measures human capital stock in monetary terms as the discounted lifetime earnings of the working age population.

In the [Spring Statement 2018](#), the then Chancellor of the Exchequer asked the ONS to develop a more sophisticated measure of human capital. From this, we have considered how to both improve our current measures and develop complementary additional estimates to meet a wider set of users' needs. The focus of this consultation was to gather views on our plans for a new indicator-based approach to measuring human capital, which would supplement our existing human capital measures. To develop this indicator-based approach, the ONS plans to:

- measure human capital across the whole lifetime of an individual (rather than focus solely on the working-age population)
- expand the scope of our analysis, focusing on a series of themes and mechanisms
- focus on specific mechanisms that influence a person's human capital (rather than wider associations)
- present a series of indicators, grouped into three types

We asked for your views on our plans for a new indicator-based approach presented as a dashboard of indicators. We received a wide variety of responses, from individuals and organisations and from public, private and third sectors, with a large proportion expressing their interest in wanting to continue further engagement with this topic. Alongside the consultation, we ran an engagement event and benefited from an opportunity to discuss some of our topics in more detail.

We would like to thank everyone who took part in either submitting a formal or informal response, who came along to the engagement event, or who held various informal conversations and discussions to help us shape and modify our proposals to make sure it is meeting users' needs.

Context of this work

Although not part of this consultation, we want to reflect that this indicator-based approach is part of a [wider workplan of developments that we proposed in 2018](#). The workplan set out

our plans to improve and expand our human capital estimates, under three broad workstreams: developing and expanding the current methodology; exploring alternative approaches to measuring human capital; and delivering wider, one-off analyses on specific topics of interest.

Developing and expanding the current methodology

We have already made substantive progress on this workstream through our [latest human capital stock publication](#), where we introduced the Törnqvist index, which takes into account the different lifetime earnings of people with varying ages, qualifications and sex and how the demography of the population changes over time. We also treated lifetime earnings of those with a Master's degree and those with a PhD degree separately, which allowed us to investigate the premium associated with these qualifications.

Further developments for this workstream include expanding our estimates to account for further earnings premium differences, other education levels and the effect of in-work training. Longer term, the scope of what we should include in this methodology can be informed by the themes we work on in our indicator-based approach.

Exploring alternative approaches to measuring human capital

As well as the indicator-based approach that we proposed in this consultation, we are also investigating how we could create a skills hierarchy by categorising skills from job descriptions and linking them to salaries to determine the return of those skills on human capital. Additionally, this work may allow us to create a satellite account of skills supply and demand as well as consider new options for collection of data on skills and knowledge. This should accompany the filling of data gaps identified within the indicator-based approach as outlined in the following. Finally, there is a lot of complementarity between our health theme and any work we do to develop the relationship between human capital and health.

Delivering wider, one-off analyses on specific topics of interest

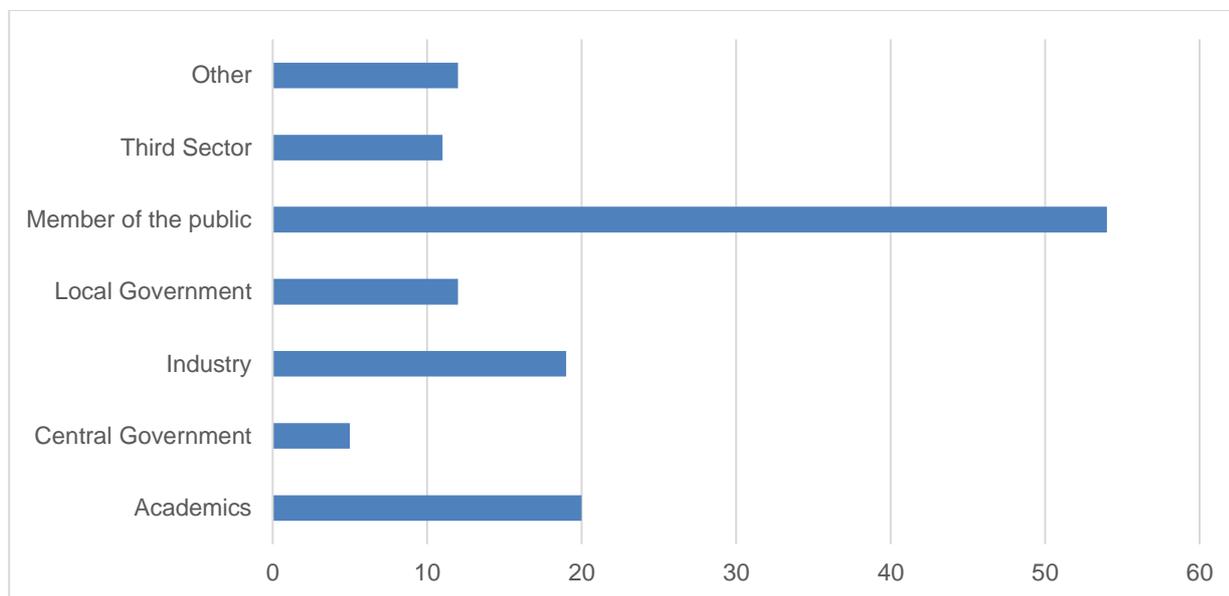
Given the user interest in human capital, we have identified several areas for investigation that could lead to specific stand-alone publications. We have already published the impacts on people's earnings from in-work training. Further analyses could include exploring how current and future earnings are impacted by different backgrounds; investigations into the relationship between skills and earnings outcomes; and producing a more granular regional disaggregation of human capital.

Although we expect to focus our resources on developing an indicator-based approach to measuring human capital, we are also committed to continuing to develop these wider workstreams. Following the publication of this consultation response, we will be engaging heavily with our users to understand the priority of the indicator-based approach relative to the other areas of development that were outlined in our 2018 workplan.

Summary of responses

We ran a public consultation on the indicator-based approach to measuring human capital from 3 September to 20 December 2019. We received 118 formal online responses and 15 offline responses to the consultation from a wide range of users, including central government departments, local government, industry organisations, academics, third-sector organisations, trade unions, public corporations and individuals (see Figure 1). We also held an engagement day with over 40 people attending and providing feedback on our proposals. As there are such a wide range of respondent user types, we will report on responses by the different types in the rest of the report.

Figure 1: Breakdown of the type of users who responded to the consultation



Source: Office for National Statistics – Human capital public consultation

1. The Other category represents responses from NHS local departments, public corporations, trade unions or associations, and other statistical institutes.

2. This breakdown does not include the users who attended the engagement day, which were mainly from academia, third-sector organisations and think tanks.

We have summarised the feedback that respondents have provided and translated this into a potential list of next steps that we are looking to carry out.

Next steps

1. Begin to develop an indicator-based approach to measuring human capital (which would aim to take a lifetime acquisition approach), and, where possible, have a broadened definition that includes impacts on personal and social well-being

We received positive support to go ahead with developing and producing an indicator-based approach. This means that in addition to producing an annual measure of human capital stock in monetary terms, we will aim to produce a suite of indicators (data summarising the population that can be tracked over time) based on the themes set out in the consultation. These indicators will allow us to monitor and report on the wider factors that impact on human capital.

Respondents from all user types were also particularly in favour of us expanding our measures to consider the full lifetime of individuals, beyond the economically active population. This means that we would publish the three types of indicators for each life stage where factors are appropriate for highlighting and developing human capital in that stage. Respondents said they would like us to expand our measure to consider the impact on personal and social well-being as well as retain some priority on the economic well-being impacts, which we will aim to incorporate in subsequent iterations.

2. Develop this indicator-based approach iteratively, focusing on the health, family and home; work; and compulsory, further and higher education themes first

Owing to the variety of queries and potential complexities raised by our proposal, we think the best approach in the future is to derive the indicator-based approach iteratively, continuing to get feedback from users on how to continue adding value and providing what data and information people can use to make better decisions.

In practice, this means we will attempt to structure our work across four distinct iterations. The first iteration will aim to focus on the themes outlined earlier, group some life stages together, and prioritise one indicator for each life stage and theme combination, in order to create a less complex and smaller set of measures first. The second iteration would then consider each theme and life stage separately. Both of these iterations are likely to only use readily available data, and we would aim to produce these within one year of development. The third iteration would then consider incorporating newly acquired administrative and commercial data to fill data gaps where possible. We expect the biggest benefit would be

for the education, health and work themes. This iteration would occur after, with the intention to develop within two years of development. The final iteration would then look to combine measures from any new data collection, both from existing or new surveys, and this should look to fill remaining data gaps identified in previous iterations. The goal is to create these estimates within three years of development.

Our plans for developing our iterations, which we would expect to deliver improved statistics, are based on our long-term strategic aims. They do not pre-judge future funding settlements. Rather, the plan set out here illustrates what would be possible if the resources and data are available and aims to provide users with a credible, staged approach to meeting our objectives. We will need to review these timescales in light of the outcome of future Spending Reviews.

As there was a broad consensus from respondents that the health; family and home; work; and compulsory, further and higher education themes were the most relevant and important, we plan to prioritise these themes when producing our first iteration of the indicator-based measure. We also plan to initially give more weight to choosing indicators that have an impact on labour market outcomes to address clear user feedback obtained through the consultation. We will also consider data availability with the first iteration only including data that are readily available to the ONS. Additionally, where we can, we would look to provide these indicators disaggregated by region and by people's protected characteristics as well as more specific disaggregations relevant to some indicators, such as by different occupations or industries.

Taking this iterative approach will allow us to gather feedback from users and adapt our approach to address changing priorities. Another way we plan to continue to get feedback is through the technical panel in which a lot of respondents expressed interest in continuing to be involved.

3. Aim to first derive indicators where we have data available, but use proxy measures where this is not possible while looking to fill gaps in the medium to longer term

Respondents said they would find filling data gaps more important for the ONS to prioritise. However, they also recognised the value of deriving proxy indicators in order to get some measures derived sooner while filling gaps in the longer run. With this in mind, we will aim to derive the proposed indicators where we can. Where we cannot derive the proposed indicators, we can report on why we have chosen proxy indicators. Alongside this, we aim to look at collecting appropriate sources for the specific indicators through administrative and commercial data and even through making changes to existing surveys and designing new survey sources.

4. Carry out further work on the personality traits and crime themes

We plan to modify the personality traits theme to reflect the concerns people had around its use and terminology, clarify the definitions of the individual qualities based on best practice on how to measure them, and consider impacts from differences in personal well-being impacting on human capital acquisition. We may choose a more appropriate name for this theme or explore how to incorporate it alongside the other themes. We will also conduct significant further research on the crime theme to use more appropriate indicators relating to identified users' needs.

5. Consider how to incorporate suggested new factors

As well as the many smaller suggestions, respondents said there were factors that did not fit within the proposed theme structure. With this in mind, we will aim to consider how to incorporate these new factors. This includes exploring how they may fit alongside the existing independent learning into an amended theme, to reflect the importance lots of users give to how we spend our time outside of work, school or the home. Whether it is forming social connections, taking part in hobbies and other cultural activities or doing unpaid work such as volunteering, what we choose to do has been highlighted by users as important for us to capture. We also plan to disaggregate the indicators by protected characteristics where possible to reflect user requirements for these data.

6. Consider how to incorporate additional types of indicators

The consultation also asked for additional types of indicators, other than the three types suggested. We will therefore consider how we can incorporate wider background indicators that may give more context for the mechanisms we are reporting on. These wider indicators may relate to other frameworks such as the ONS Measuring National Well-being programme and/or Sustainable Development Goals initiative.

7. Engage more widely with different types of stakeholders

In terms of the details of the proposals, there were a lot of useful suggestions for further investigations that we will look to engage with other suggested parties on, such as further engagement with academia, industry and head-hunters, as well as other relevant agreed classifications. At the same time, we will aim to further research the academic literature to inform the new areas and factors that have been highlighted, after which they may then be prioritised alongside the original proposed indicators based on their level of user interest, availability and other factors we will consider.

We would like to thank all respondents for taking the time to respond to the consultation and provide feedback on our proposals.

Detailed responses

Proposing an indicator-based approach to measure human capital – You said

In this section of the consultation, we outlined how we planned to take an indicator-based approach to measuring human capital, supplementing our existing human capital estimates with a wider suite of indicators. We asked respondents three questions; if they agreed with the proposal, if they would find an indicator-based measure of human capital useful for their work and if they would recommend any alternative approaches that would be useful for their work.

Question 1: Do you agree with ONS taking forward an indicator-based approach to go alongside other areas of work in the ONS human capital workplan?

Overall response

We received 126 responses to this question. Most respondents (109 respondents i.e. 87%) agreed with ONS taking forward an indicator-based approach to measuring human capital, as they felt it would be useful and ‘provide a more holistic overview’ than the current income-based approach. Respondents from central government, local government and industry were clear, however, that this should exist alongside the existing ONS measures of human capital, and not be a substitute. 12 respondents were unsure about ONS taking forward an indicator-based approach and 5 respondents disagreed with the approach.

Response by user type

All central government respondents supported an indicator-based approach because they felt it would be useful and they supported ‘the inclusion of looking at Outcomes such as wellbeing in addition to the financial element’. However, multiple departments requested that we work closely with wider areas of ONS who publish existing measures such as [Measures of National Wellbeing](#), [Personal & Economic Wellbeing](#) and the [Sustainable Development Goals](#) to ensure there is no duplication of work, and to ensure the messaging is clear for users. At the same time, there were some mixed views from central government respondents regarding using a dashboard to display the data with some supporting this idea as it would be useful and allow for relevant data to be easily located/analysed, but others felt it could be a low-impact product which is confusing for users.

Central government also requested that we consider the following points when developing an indicator-based measure of human capital:

- it would be useful for users if we were to devise a ‘theory of change’ framework which provides more detail on how our proposed indicators impact human capital and estimates the interaction between the indicators
- the limited impact on decision-making from such an approach if the indicators are unable to be monetised

Most local government respondents supported an indicator-based approach because they felt that ‘human capital should be viewed as greater than the financial value over a lifetime’ by including wider measures such as the impact which volunteering and caring can have on human capital. They were positive about having a more balanced picture of human capital.

All industry organisation respondents also supported an indicator-based approach because it would provide a more comprehensive measure that would allow new analysis and insight to be gained.

All respondents from the third sector also expressed agreement with the proposed approach as it would be beneficial to capture the wider factors of human capital.

Most academics also agreed with taking forward an indicator-based approach as they felt measuring human capital through income only could narrow the concept of human capital and may involve bias towards certain groups of people.

Most other responses from the general public, NHS Local departments, public corporations, trade unions/associations and other statistical institutes agreed with taking forward an indicator-based approach to measuring human capital as it could ‘give a truer reflection of human capital’ and improve equality in society, efficiency, employment and well-being of the workforce. These respondents also regarded presenting the indicators in a dashboard format useful ‘as they show whether things are moving in the right direction’.

12 respondents (10%) who represented academia, NHS local and the general public were unsure about ONS taking forward an indicator-based approach. There were several reasons for this including:

- concerns around the usability of the measure i.e. would it become “another tick-box exercise” and that it would be difficult to collect data for so many indicators
- suggestions that we align our approach to International Standards
- more clarity was required on which indicators would be used and how easy they would be to record

5 respondents did not agree with ONS taking forward an indicator-based approach to measuring human capital.

Two of these respondents represented local government and felt that the approach was too complex to be useful. They also had concerns around the resource required to collect data for the list of indicators proposed.

Another respondent who was a member of the general public disagreed with the terminology used and objected to the use of the word's human capital and stock.

The remaining respondents who did not agree with ONS taking forward an indicator-based approach to measure human capital did not provide any comments on their reasoning.

Question 2: Would the proposed indicator approach be useful for the work you are planning to do?

Overall response

We received 122 responses to this question. Half of respondents agreed it would be useful for the work that they are planning to do. 30 respondents (or 25%) stated it would not be useful for their work since they were retired or did not use statistical data at work. 31 respondents were unsure whether the proposed indicator-based approach would be useful for their work. This reflects the wide range of backgrounds of respondents, for some of whom they do not use data on a day-to-day basis but are still interested in its use for others. For those who would find it useful, a wide range of uses were identified which varied by different types of users:

Response by type of user

There were mixed responses from central government as to whether an indicator-based measure of human capital would be useful for the work they are planning to do. Some departments highlighted potential uses including:

- “It may provide some comparisons” for existing indicators and work.
- “Using this data alongside the work we already do to examine, analyse and understand skills gaps”.
- ‘Having a clear set of indicators which relate to the government interventions to enhance the development of the human capital stock could make it easier to establish a relationship between activities undertaken’ by the department and human capital acquisition.

Other departments felt the approach could be useful in the future if there were further information on the impact which the various input and enabling factor indicators had on overall human capital and if ONS could analyse the interactions between the indicators.

Additionally, a focus on those mechanisms which highlighted market failure would be more helpful for policymakers in understanding where they can apply interventions.

Most local government respondents also agreed that the proposed indicator approach would be useful for their work, although a common dependency across departments was to have data available at a local level (NUTS 2, Local Authority - LA, Local Enterprise Level – LEL were requested).

Common uses identified across the different industry respondents included informing workforce planning strategies and identifying skill gaps.

The majority of respondents from the third sector thought the approach would be useful for their work although one respondent raised a concern that the present indicators are too generalised to be of use for them.

Most respondents from academia thought that the approach would be useful for the work they are planning to do because it would allow them to carry out further analysis in their various fields. However, one academic expressed concern that the approach was too generalised. Another highlighted a further concern that it could be interpreted as a set of criteria for success, which would not be helpful in certain proposed themes, i.e. family and home.

30 respondents stated it would not be useful for their work. 83% of these respondents represented views from the general public. They did not think the approach would be useful for the work they are planning to do as in most cases, the respondent was retired and thus not 'planning' to do any work or the respondent did not use statistics in their current role.

31 respondents were unsure whether the proposed indicator-based approach would be useful (25%).

Question 3: Would you recommend any alternative approaches that would be useful for you and your work?

Overall response

We received 118 responses to this question. There were 37 respondents (or 31%) who suggested alternative approaches. 39 respondents (or 33%) did not suggest any alternative approaches and 42 respondents (or 36%) were unsure of alternative approaches.

The alternative approaches suggested varied by user type, as outlined below.

Responses by user type

Four central government respondents suggested alternative approaches, all of which were different:

- investigating methods of combining indicators or of using the enabling factor indicators to disaggregate the proposed input indicators, just like they can be disaggregated by sex, ethnicity etc, so as to reduce the number of overall indicators
- expanding the final indicator set to capture any prevention of human capital depreciation
- developing a theoretical framework which outlines the interaction between indicators and the measure of human capital, the strength of these interactions, how the feedback loops work and how amenable the indicators are to policy
- focus on having a better understanding of human capital for growth accounting. which is a priority for some departments

Local government respondents also had different ideas of alternative approaches that we should consider:

- focusing on making improvements to the existing estimates that are published instead of undertaking an indicator-based approach measurement
- investigate how bringing the educational attainment of children in deprived backgrounds and children in advantaged backgrounds in line with each other impacts the local economy
- including a ranking measure for local-level geographies

We received four different suggestions of alternative approaches from industry respondents:

- conducting wider engagement across government, business and academia
- considering wider disruptive technologies and the associated opportunities/threats to human capital
- deriving the data on as lower-level geography as possible
- providing analysis for the government and UK business, rather than focusing on 'secondary wider social dimensions' (e.g. well-being) in the early stages

Responses from the third sector also suggested different alternative approaches:

- using qualitative data to interpret the 'subjective nature of human experience'

- the approach be informed by policy and existing classifications such as the WHO ICD-10 and developments of the ICD-11 well-being and mental health scaling initiative
- investigate potential evidence on 'carry over' programs from workplace to other parts of life, and their effects.

Alternative approaches suggested by academia were more aligned, with most respondents asking us to consider additional measures:

- considering additional measures such as child temperament, psychological capital, well-being, potential and talent - we will include detailed feedback on additional indicators which have been suggested by respondents in the themes to measure human capital section of this response document
- there were also some suggestions for further focus on the existing income-based approach to measuring human capital as the lifetime earnings of individuals

Some additional suggestions were received from respondents representing the general public, an NHS Local department and a trade union. Most of these suggestions related to incorporating additional indicators into the framework.

- incorporating additional indicators into the framework – this will be addressed fully in the themes to measure human capital section of this response document
- using International Standards
- incorporating periodic reviews for the indicators so that indicators 'may be added/removed as the understanding of human capital development mechanisms evolve'
- cooperating with academia and professional institutions, as well as headhunters who have 'algorithms to scrutinise prospects'
- calculating the impact of low human capital and the 'negative costs incurred on behalf of society'

Proposing an indicator-based approach to measure human capital – We will do

As the majority of the feedback from respondents was positive, we plan to implement our proposal of developing an indicator-based approach to measuring human capital. However, we acknowledge the important points that have been raised by respondents. We will therefore aim to:

- continue to publish our existing measure of human capital and continue to work on the other development workstreams that we published in our [October 2018 forward workplan](#)
- collaborate within the ONS to ensure our approach to measuring human capital complements existing data published by other ONS teams
- continue to explore different mechanisms of presenting these indicators that offer an alternative to an interactive dashboard; we will run extensive user engagement sessions before introducing any new product to ensure it is user friendly and meets the requirements of our wide range of stakeholders
- publish a conceptual framework alongside the indicator-based approach, to aid user interpretation of our indicators and their relationship with human capital acquisition; this is to action the feedback on creating a theory of change, more explicitly highlighting our assumptions about interactions and mechanisms to influence human capital (as feedback around the following themes highlight, we would look to define the boundaries between different themes within this conceptual framework)

As there were some concerns around the potential use of such an approach in decision-making, as well as a need for clarity on which indicators we plan to use, we will look to publish iterations of the indicator-based approach. We hope this allows users to see the benefits of collating such data as well as to give us more frequent feedback along the way, so we can target our approach based on changing needs.

There were mixed responses to whether the approach would be useful, which was heavily dependent on the type of user. In order to maximise the usefulness for our wide-ranging stakeholders, we plan to:

- obtain as granular data as possible with regards to geography; this will be heavily dependent on the data sources we can acquire but, where possible, we will look to obtain data that can be used at a local level
- be clear in our messaging when publishing any indicator-based approach to ensure the indicators are not interpreted incorrectly by users

- engage further with the respondents who felt the approach was “too complex” to determine what actions we can take to address this (for example, one respondent linked the complexity to the number of indicators; to address this, we plan for our first iteration of the indicator-based measure to merge some of the proposed theme and life stage combinations together and only use readily available data sources); we hope this initial product will allow users to better understand how they can interact with the data and allow them to provide further feedback on our approach

We received many suggestions for alternative approaches from our respondents. We have begun to consider each of these, and the alternative approaches that we will aim to take forward immediately and have not been mentioned earlier are:

- investigate methods of combining indicators – we have already considered how we could do this, and we plan to publish multiple iterations of our indicator-based measurement of human capital; each iteration will expand on the previous
- expanding the final indicator set – we recognise that many respondents have suggested additional indicators for us to consider; our plan to address this feedback is discussed fully in the Themes to measure human capital sections of this report
- reviewing and making use of existing policy, classifications and international standards to inform our approach
- cooperating with stakeholders outside of the ONS including in academic, industry and professional institutions to make use of their expertise

Expanding our scope and definition of human capital – You said

In this part of the consultation we outlined plans to apply a lifetime acquisition framework to measuring human capital, proposing to look at what factors improve people’s knowledge, skills, competencies and attributes throughout their lives, from their birth till the end of their life. We also proposed to broaden the definition of human capital by considering the impact on an individuals’ personal and social well-being in addition to their economic well-being.

Question 4: Do you agree with taking a lifetime acquisition approach to measuring human capital?

Overall response

We received 118 responses to this question. There was broad support for this approach with 102 respondents (86%) agreeing with taking a lifetime acquisition approach to measuring

human capital. This means considering factors relevant to improving human capital for people within each specific life stage and deriving indicators by these age-cohorts. The support for this approach was due to respondents feeling that it 'will provide an understanding of the skills and knowledge people have and how they changed over time'. It was also well received because it will take account of the retired population which was highlighted as an increasingly important area.

Responses by user type

All central government respondents supported taking a lifetime acquisition approach because it ensures that parts of the population who were not previously captured within the human capital framework are now brought into scope. However, it was highlighted that ONS must be clear in their messaging if we were to adopt this approach and ensure that any inflation to the existing human capital estimates, which is due to a larger lifespan being used, is communicated appropriately.

Local government respondents also agreed with taking a lifetime acquisition approach to measuring human capital. One department suggested extending the approach to beyond one lifetime to reflect the impact of interventions on future generations.

Industry respondents also supported taking a lifetime acquisition approach and they echoed the feedback from central government respondents on how this change is likely to increase human capital overall and we will need to communicate this in a clear and transparent way. Industry respondents raised specific requests such as the ability to break the total lifetime value down into stages where value is created. Another request was to consider whether there are negative impacts of older people staying in the job market longer, such as decreased opportunity for younger people.

Respondents from academia broadly agreed on the benefits of using a lifetime acquisition approach. It was thought this was a good idea as it was an intuitive approach which would be useful to policy makers especially surrounding adult education. This reflects the multi-disciplinary nature of considering human capital across the lifetime, considering developmental psychology approaches to human development in life stages, as well as human anatomy and developmental neuroscience evidence on the biological changes that occur in normative growth, among other scientific fields.

The majority of third sector respondents agreed with taking a lifetime acquisition approach as inputs can affect outcomes throughout an individual's life, not only their working life.

Other respondents representing views from the general public, public corporations, NHS Local departments and trade unions mostly agreed with this approach. They felt 'lifelong learning is key to understand how, and why, people prosper' and they also highlighted the importance of capturing the ageing population.

Three respondents disagreed with this approach. One respondent felt that focusing on acquisitions did not consider what an individual 'gives back' in terms of supporting the country.

13 respondents (11%) representing academia and the general public were unsure about the approach. Those who had concerns related to:

- the measure of lifetime acquisition being 'very subjective'
- the complexity of 'linking data through the education system and then into work'
- potential misuse of the measure as it could 'be a tool for those who care most about financial value and gives them another reason to degrade the worth of individuals', perhaps by only seeing their worth through the factors highlighted

Question 5: Do you agree with broadening our definition to include impacts on personal and social well-being (in addition to economic well-being)?

Overall response

We received 120 responses to this question with 109 respondents agreeing that we should broaden our definition of human capital to include impacts on personal and social well-being. Well-being was recognised as having a broad impact on many factors including work and health which also impact on human capital. Some respondents expressed concerns around broadening the definition but keeping the same name, which could cause confusion for users.

Response by user type

Most central government respondents agreed with broadening the definition as they believed this approach would be more reflective of human capital and would provide a more coherent picture of the drivers and influences on people's skills. They thought it would be interesting to further understand the impact which human capital has on personal and social wellbeing, and the impact which personal and social wellbeing has on human capital (as well as interaction with other themes such as health).

There was broad agreement from local government respondents on the benefits of including impacts on personal and social well-being as it was highlighted that the importance of wellbeing is reflected in policy and strategy across local government departments.

Industry respondents also supported the proposal, but also raised a concern that the current definition of human capital is well understood internationally, so when expanding we should name it something else to avoid confusion.

All third sector respondents agreed with broadening the definition.

Respondents representing the general public, trade unions and NHS Local departments supported broadening the definition because:

- it impacts on the workplace and economic success
- only using economic indicators like GDP is 'distorting and damaging' as people are more than their 'economic worth'
- including 'non-economic impacts' would enable decision-makers to 'prevent work-related harm'

4 respondents disagreed with broadening the definition, and 7 were unsure.

Of the four respondents who disagreed with the proposal, one industry respondent thought that the proposal is too ambitious and stated they would prefer us to focus on delivering areas associated with labour market outcomes first. The other respondents had concerns relating to the subjective measure of personal and social well-being as a measure.

Of the seven respondents who were unsure about broadening the definition, one central government respondent explained that although they recognised the wider importance of having a broader definition of human capital in government policy making, their specific outcomes were mainly aligned with economic wellbeing.

Expanding our scope and definition of human capital – We will do:

We will implement a lifetime acquisition approach meaning we will look at what factors improve people's knowledge, skills, competencies and attributes throughout their lives, from their birth till the end of their life. In practice, this means that we will include distinct outcome indicators for individuals at each life stage, and ones that are more appropriate at those stages, such as educational attainment in earlier life stages, labour market outcomes in later life stages, and impacts on appropriate health aspects across the varying stages. This was broadly supported by respondents, although a key message in the feedback was a requirement for us to be clear about our messaging when implementing this change. This is because our current measure of human capital stock refers to lifetime earnings, but only captures those between 16 and 65. As a result, when publishing human capital estimates under a lifetime acquisition approach, we will be sure to be open and transparent about any differences in definitions between our two measures.

We plan to broaden our definition of human capital due to the majority of respondents agreeing with this proposal. This means that when defining which skills, knowledge, competencies and attributes are relevant, including in any potential future data collections,

we will also consider which skills help people in their relationships, their sense of life satisfaction and happiness, and other aspects of individual well-being. For example, this may mean specific communication skills, being able to compromise and personal time management. In addition, expanding our definition would mean capturing personal well-being as a secondary outcome indicator to the inputs proposed. For example, for one of our proposed mechanisms in the family and home theme, we suggested an input indicator to measure whether children had experienced any traumatic experiences in relation to their primary care-givers, such as death. Along with measuring impacts on educational attainment from such a traumatic event, we would look to measure the impact on the child's personal well-being as a result. As outlined in other parts of the response, however, we will first prioritise creating indicators relating to labour market outcomes, and then in subsequent iterations of these mechanisms, capture these wider impacts.

However, we also appreciate that some respondents have expressed concerns which we will try to address here:

- Terminology

Some respondents expressed concern that by broadening the definition of human capital, but not changing the name we could risk confusing users. We have always defined the term as a measure of “the skills, knowledge competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being” in line with the [international definition set out by OECD](#). Although we are proposing to change how we measure human capital, the concept remains the same, hence we will continue to use the term human capital, though may label the new measures with a distinct name.

- Prioritisation

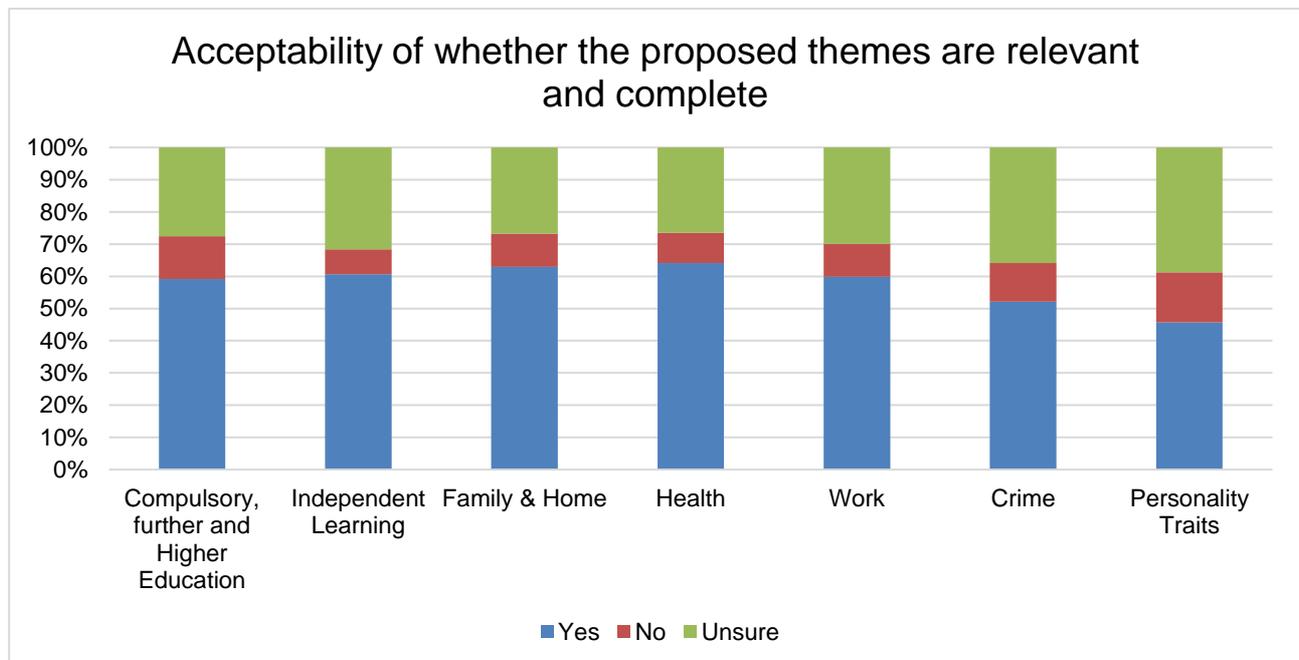
Although there was broad support for broadening the definition, some respondents stated that they would like our priority to be developing indicators which can be linked to labour market outcomes. We have therefore devised a strategy for prioritising which indicators to derive first which includes applying particular weight where there is a clear user requirement for each indicator. At the same time, the strategy will put more priority to those factors where there is existing evidence for labour market outcomes, whether that is on earnings, hourly pay, earnings or career progression, getting a job or retaining it in the future. As stated in the above section, we will also derive our indicators iteratively allowing users to provide feedback at each stage.

Themes to measure human capital – You Said

The next section of questions included in our consultation were around our proposal to focus on several broad themes when considering the most appropriate indicators to be used in measuring human capital. Each theme was proposed with various indirect mechanisms beneath it, and we asked whether the theme was relevant and appropriate, as well as complete, in our proposals. At the same time, an initial proposed list of indicators was also attached, and we got some specific indicator feedback.

As shown in Figure 2, the proposed themes received broad support from respondents, although respondents were slightly less confident about the Crime and Personality Traits themes.

Figure 2: Acceptability of whether the proposed themes are relevant and complete



Source: Office for National Statistics – Human capital public consultation

Question 6: Do you agree the Compulsory, further and higher education theme and its proposed mechanisms are complete and relevant?

There were 120 responses to this question. Most respondents (71) who filled in the online consultation, agreed that the compulsory, further and higher education theme and its proposed mechanisms were complete and relevant. Respondents believed this theme is 'well-defined' and 'extensive'. In addition to online responses, the education session in the engagement day was best represented across all themes considered.

Only 16 online respondents disagreed and 33 were unsure that the theme was complete or relevant. Of those that disagreed, this was mostly due to concerns that the theme was incomplete. Two respondents mentioned that the 'theme should be completed by including a reference to and an indicator on language proficiency', with other respondents questioning the importance and 'relevance of formal education' over other areas of life.

A small number of these respondents had concerns about relevance focused on how each indicator would be weighted – as a higher weighting applied to one indicator may over-estimate its importance relative to other indicators. There were also concerns around the measurement of 'quality' within some proposed indicators, for example, quality of teaching - given this is still an active research area.

For a more complete list on the proposed indicators suggested by respondents, please see Annex B.

Responses by type of user:

All central government departments agreed with the relevance of the theme, but some believed the theme to be incomplete. Some respondents mentioned that we should capture the 'degree of cross-over between themes, such as education and health' and we should consider a wider set of indicators to also include other 'mental health conditions' than anxiety, and 'learning difficulties'. Concerns were also raised about the proposal being 'too broad'.

The majority of local government responses (9 out of 12) agreed with the relevance of the education theme. Among those that agreed, one suggestion was to include more indicators on 'pre-school development'.

Industry respondents gave a more mixed response on agreement about the education theme. 9 respondents agreed about the relevance of the theme and its proposed mechanisms, while only one respondent disagreed and six were unsure. Of those that agreed with the relevance of the theme, one respondent believed that 'education will be a useful addition' and that the 'themes seem very sensible'. There were some suggestions to focus on the 'uptake of learning opportunities rather than availability'. Of those that did not agree or were unsure, there was only one respondent who raised a specific concern on the 'methodology and direction' of the theme, as 'there is and will never be a one size fits all solution'. The rest of those who disagreed/were unsure highlighted that they did 'not have enough knowledge to make any comments'.

There were 12 academics who responded, with 6 academics believing that the theme and its proposed mechanisms are relevant. Respondents believed that education was the 'primary factor in development'. Six respondents said no or were unsure – which were more related to the completeness of the theme. A common view was that education is not

synonymous with schooling, for example, 'formal schooling is only one of many inputs to learning', and that some mechanisms are 'possibly subject to more importance than is warranted'. In the engagement day, it was highlighted that we need to consider the breadth this theme entails to make sure enough weight is given to further and higher education as well, as all the learning opportunities provided within such institutions, beyond the most common routes taken.

11 third sector organisations responded to the question, with the majority (7) believing the theme to be relevant. Of those that believed the theme was relevant, there were concerns that the theme was incomplete, with most suggestions for additional indicators being focused on 'arts, education, and cultural and heritage', expanding learning disabilities to include 'sensory disabilities', and 'language proficiency'. There were some concerns around 'too much weight' being applied to certain indicators, which could overstate the importance of some indicators over others.

Question 7: Do you agree that the Independent learning theme and its proposed mechanisms are complete and relevant?

There were 117 responses to this question. 71 online respondents agreed that the independent learning theme was relevant. Respondents mentioned the theme was a 'useful addition to the current human capital model' and measuring this theme can have a 'direct impact and produce actionable policies'. This theme was discussed as part of the education session on the engagement day, and was the best represented in terms of attendance.

Only 8 online respondents disagreed and 37 were unsure with this theme being complete or relevant. Those respondents generally had concerns with the completeness of the theme. For example, some asked for us to expand the indicators being considered, such as taking part in activities which prompt 'reflection and learning and associated growth', 'the wider culture', and 'social skills', among others. Some concerns were also raised in the measurement of the indicators within this theme, including the scope and definition of independent learning.

For a more complete list on the proposed indicators suggested by respondents, please see Annex B.

Responses by type of user:

From central government respondents, there was broad consensus on the relevance of the theme, however, some considerations to the completeness of the theme. One respondent suggested 'distinguishing independent learning that is complement or substitute to formal learning and the reasons for pursuing independent learning'.

Most local government responses supported the independent learning theme, with eight (out of 12) respondents agreeing with the relevance of the theme. Respondents also suggested we include indicators and factors such as 'discreet learning – both level and volume of learning', 'travel time', and the 'learning environment'.

There were 19 online responses from industry with nine respondents agreeing that the theme was relevant and complete. There were some concerns about how to measure independent learning and what would be included in the scope. In addition, some respondents believed that the theme lacked 'social inputs such as "experiences and club membership"'.

Many academics were unsure about the relevance of the theme (five out of 10). There was a broad range of views from academics on how to improve this theme, with respondents believing this theme should be 'elaborated and its relevance made clearer'. The concerns were mostly focused on our approach to measuring informal learning, with one respondent mentioning that the theme "does not address the fact that children especially learn 'by default', rather than assuming 'learning' is something actively sought out", which we will take under consideration.

There was also a mixed response from third sector respondents, with just under half believing the theme was relevant (5 out of 11). Among the five organisations that responded yes, respondents agreed with the 'proposed themes and mechanisms' and believed it reflects 'thinking on empowering people to learn and share across their life course'. Where respondents did not agree, they gave recommendations around including additional indicators on accessibility of learning, the factor of 'accessing youth work provision for informal learning', among other specific suggestions. A useful comment also highlighted the mode of independent, if increasingly people 'move to e-learning there is still the issue of digital literacy'.

Trade union respondents thought this theme was relevant as it can illuminate the decline in 'quality of in-work training'.

Question 8: Do you agree that the Family and home theme and its proposed mechanisms are complete and relevant?

There were 116 responses to this question. Overall, the response was positive with 73 respondents agreeing that the family and home theme was important to capture and that 'a great deal of thought has been applied in this area'. Although they supported the theme, respondents thought that it would be 'incredibly hard' to efficiently define and measure. We also received many suggestions for additional indicators to consider, which could make the theme more complete.

12 respondents disagreed with the theme and 31 respondents were unsure. Common views across these respondents were that we needed to change some of the terminology that we have used, and these respondents also echoed the thoughts of those who agreed with the theme, by suggesting additional indicators.

Although support for the theme was broad, it did differ slightly by type of user.

Responses by type of user:

Most central government departments agreed with the family and home theme being relevant but incomplete. Central government respondents suggested we expand the proposed indicators to include more on parental and family income, household decision making, parental conflict, pregnancy, and others. They also felt that while some proposed indicators within this theme capture the role of health within the family, such as maternal health, more indicators should be included to capture family health and parents' health education /awareness, which has an impact on the child's ability to stay healthy and learn.

There was unanimous support for the family and home theme from local government departments as they felt that it could help inform the debate on social mobility and the effect of parental inputs.

Most respondents from industry considered this theme and its proposed mechanisms to be complete and relevant. Some suggestions to improve upon this theme involved the consideration of the environment the family live in and different family configurations such as homelessness. Concerns around the difficulty in measuring the proposed indicators in this theme was also mentioned by a few respondents.

There were mixed views from the third sector as to whether the family and home theme was relevant and complete. Those who supported the theme felt it would allow 'early support and evidence-based intervention', while those who did not agree generally didn't elaborate on why. One helpful comment highlighted the importance of 'including grandparental engagement' and this does support developmental psychology's focus on the primary and secondary caregivers, rather than the family relationship. Other respondents from the third sector felt that the theme was relevant, but we were missing some indicators, such as adverse childhood experiences and considering 'how the inequalities in the distribution of caring work within families' impact on human capital. A full list of additional indicators suggested for this theme is included in Annex B.

Again, academics held mixed views about whether the family and home theme were relevant and complete. Some academics supported the theme with one referring to it as 'a primary theme, key to development'. They generally agreed on its relevance, but several respondents needed clarification on aspects of the theme. The suggestions mainly related to not including all relevant indicators and that our terminology should be improved. In

particular, it was raised that we should define 'parental inputs' more clearly and ensure that we use the word 'quality' appropriately in relation to what parents do. Finally, some highlighted that the suggested indicators within this theme would be 'incredibly hard to define and measure'.

Most other respondents who represented views from the general public, trade unions and public corporations supported the family and home theme with respondents describing the theme as 'most important', with family and home providing your 'prime role models and 'a point of reference for you throughout your life'. Those respondents who were unsure about the theme raised questions about some of the terminology used such as 'child looked after' and questioned the relevance of some indicators such as 'health of the mother'. Again, additional indicators were suggested by these respondents which are included in Annex B.

Question 9: Do you agree that the Health, including ageing theme and its proposed mechanisms are complete and relevant?

There were 117 responses to this question. The great majority of respondents agreed with the importance of the health theme, while 11 disagreed and 31 were unsure. It was highlighted that the health theme 'can inform policy to help people take responsibility for their health' and reduce 'dependency' on the state. Additionally, it was recognised that mental health is a 'growing problem' and is important as 'provision is weak'. Where people were unsure or disagreed with the theme, this was generally with the proposal being incomplete and not capturing the extent to which physical and mental health affect and are affected by human capital development. Several respondents also considered the health theme to encompass social and emotional health, rather than the personality traits theme.

Responses by type of user

All central government departments thought the health theme was relevant, and at the same time all thought it was incomplete. One respondent highlighted 'this theme is likely to be of particular relevance' to their work, but the proposal showed 'incomplete consideration'. Several suggestions for more widely capturing the impact of health on human capital acquisition related to permanent conditions, long-term conditions, various health initiatives in the workplace and school, as well as interaction between health of other family members and the child's development. Health was raised as being important across all life stages and having different impacts within them. Several respondents highlighted the effect health has on the number of hours that can be spent productively, either at school, work, or in other ways that can improve an individual's human capital, which are currently not considered in the framework. Finally, several specific indicators were suggested, as well as feedback given on the ambiguity of some of the proposed factors, which would require further refinement.

Local government respondents were in large agreement with both the relevance and completeness of the health theme. Of the 10 responses, 9 local councils reported that the health theme captured all the mechanisms relevant on impacting human capital. The one respondent who wasn't sure suggested additional indicators on availability and ease of access to healthcare which meets health needs, as well as meeting lifelong health education needs.

Most industry respondents agreed with the use of the health theme, with 12 of the 16 reporting 'the proposed mechanisms are reasonable and relevant to identify the majority of the health areas to be examined'. One interesting suggestion refers to the missing effect social connections have on keeping people healthy, which was not in the proposal.

Academic respondents gave mixed responses, with only half of them agreeing with the proposal as relevant and complete. However, the other half thought health was 'important to include but not sure if [the proposal is] complete'. Academics said the theme should additionally cover 'Functional capability' (i.e. the extent a workplace can make reasonable adjustments to enable people to work), which was raised in the engagement day and supported by other participants. Interestingly, they also noted that although health is an important topic, we should not allow it to dominate the project.

Third sector respondents broadly agreed with the theme of health, as it was proposed in the consultation. The consensus amongst the organisations was that they wanted to shine a light on the relationship between health and work, i.e. how someone's health relates to being work-ready, and the choices individuals are making with respect to that relationship. In addition, successful workplaces seen as 'healthy workplaces' were mentioned, similar to academic respondents' reference to functional capability at work. One respondent also mentioned the potentially preventative role social engagement may play on an individual's health.

Trade unions highlighted the importance of measuring work-related injuries, which crosses over between the health and work themes. This is likely to have a much bigger impact on several occupations than others.

A new domain within the health theme was suggested by several types of users, relating to environmental factors, including air pollution, housing quality and climate change, where in the short term, individuals do not have as much control over the impact as opposed to their lifestyle choices.

Question 10: Do you agree that the Work theme and its proposed mechanisms are complete and relevant?

There were 117 responses to this question. Most respondents (70) who filled in the online consultation agreed that the work theme and its proposed mechanisms were complete and relevant. Respondents believed the mechanisms reflected 'much of the research in this area'

and that the theme was important, as work is a 'main driver in financial reward'. In addition to online responses, the work session in the engagement day was well represented across all the mechanisms considered in this theme.

Only 12 online respondents disagreed and 35 were unsure with this theme being complete or relevant. Of those that disagreed, most respondents had concerns with the completeness of the theme, though without an overall consensus on which aspects of the theme were incomplete. One respondent mentioned that 'the geographical location of work and commuting time' could be included. Another respondent mentioned investment into and 'the effect of in-work training'. There was also the suggestion to include how 'personal and family circumstances' may impact upon job mobility. There were a couple of recommendations to include ISO standards to ensure completeness of the theme.

There were also several queries about how unpaid work such as volunteering could be incorporated into the theme. There were also concerns around how the patterns of work are changing, such as the growing gig economy, and how this will be included.

For a more complete list on the proposed indicators suggested by respondents, please see Annex B.

Responses by type of user:

While central government departments agreed with the relevance of the theme, they believed the theme to be incomplete. Of those that believe the theme to be incomplete, respondents mentioned that we should 'include a measure of hours worked' and a "measure of the time/expense employees, employers and government 'invest' in finding the best candidate to fill posts or promote". Other specific suggestions were given by individual departments.

11 local governments responded to the online consultation, with the majority (8) agreeing with the relevance of the work theme. Some suggestions raised to complete the theme were given. For example, one respondent thought we should include 'commuting time'. There was a query from another respondent over whether the indicators capture the self-employed and finally whether 'work-life balance includes all aspects such as maternity, childcare and colleagues'.

There were 17 responses from industry, with most respondents (10) who filled in the online consultation agreeing about the relevance of the theme and its proposed mechanisms, while only one respondent disagreed and six were unsure or did not answer. Of those that agreed, one respondent believed the 'work is clearly another important category as a primary driver of financial reward' and that 'the range of mechanisms (direct and indirect) will provide a good basis of analysis'. Suggestions to include 'alternatives to work, such as volunteering' were made, as well as factoring in how 'culture' and 'behaviour' affects work.

Most academic respondents agreed with the relevance of the theme and its proposed mechanisms as they believed that a work theme was 'important to include'. Five online respondents were unsure – which were related to concerns around the completeness of the theme. Therefore, it was suggested to include 'meaningful work', 'technostress', and 'bullying in the workplace'. There was also a concern from one respondent regarding whether 'job-security' exists and the measurability of this mechanism.

The majority of third sector respondents agreed with both the relevance and completeness of the work theme. There was only one respondent who disagreed with the completeness of theme, and four who were unsure. One respondent stated that the mechanisms we proposed reflected 'much of the research in this area'. However, there was a suggestion to include 'volunteering work as a direct mechanism'. A concern was also raised over how disability needs to be factored into the work theme due to this being a driver of unemployment. A factor suggested for us to investigate was to measure 'whether an employer is a member of the Disability Confident Scheme'.

Question 11: Do you agree that the Crime theme and its proposed mechanisms are complete and relevant?

There were 118 responses to this question. There was less support for this theme compared to others, with only 61 respondents agreeing with the theme. 12 respondents disagreed with the theme, while 41 respondents were unsure. Respondents who found this theme useful pointed out that the theme is 'very important' and that we have done well to propose capturing the family background mechanism. Despite their overall support some respondents thought that the mechanisms are vague, further explaining that the rehabilitation mechanism should include the outcome of rehabilitation and that we should look at the exposure to the criminal justice system from a victim and offender standpoint.

On the other hand, the 12 respondents who disagreed with the theme expressed a range of views. There was no clear consensus with varying concerns among these respondents including that the theme entails 'incomplete consideration' and that the theme is 'very divisive – not all criminals come from a criminal background'. Moreover, some respondents were unclear about the relevance of the crime theme and its mechanisms in its entirety, with one respondent stating they 'do not believe that the impact of crime, across the population, has sufficient impact to be worth studying in this context'. Many respondents who were unsure about the approach stated that they have little or no knowledge on criminology, and therefore could not provide a well-founded response. Moreover, some respondents argued that the theme is not complete or relevant, 'Not sure how relevant family background is', 'this theme seems less important than the previous ones' and 'there is nothing giving an indicator of what is helping them step away from crime', were among the responses we received.

Responses by type of user:

There were mixed views from central government on this theme. One respondent disagreed with the completeness of the crime theme and its mechanisms, stating 'There is incomplete consideration. We recommend the inclusion of a measurement of the type of conviction where past crimes are present (e.g. years in prison), as this determines to what extent an individual has been out of the labour market, and thus influences the likelihood of getting a job'. Another respondent agreed with the crime theme and its mechanisms being complete and relevant, whilst another department highlighted how the evidence review does indeed demonstrate why this theme is relevant to measure.

We received 11 responses from local government on this question. The majority (8) of these respondents agreed with the proposed crime theme and its mechanisms, and provided no further comments, except one, who stated that 'Exposure to crime is vague [and we] could look at exposure to the criminal justice system as a victim and as a criminal'.

We received 17 responses from industry on this question. 7 respondents agreed with the inclusion of this theme and provided no further comment, except one individual who suggested that the theme is 'more complicated' than it is portrayed in the proposed representation. Of the total respondents, 7 answered that they were 'unsure' with the common theme being that respondents felt crime was not their 'area of expertise'. Moreover, those respondents were unclear on what the mechanisms meant and therefore could not provide a judgement.

We received 10 responses from the third sector on the crime theme. Half of respondents agreed with the crime theme and its mechanisms, saying that 'the crime theme and its proposed mechanisms are complete and relevant'. The one respondent who disagreed stated that 'there should be a focus on whether youth or adult [are] offending, [the] length of interventions/sentences and a consideration of desistance factors'. The remaining 4 respondents were unsure about the theme, with one respondent noting that 'there is nothing giving an indicator of what is helping [people] step away from crime. What provisions of (demographic and psychographic) groups/clubs/outreach work is available in the local area'.

We received a total of 12 responses from academics. Similar to industry, the responses were predominantly split between 'yes' and 'unsure'. Of the total respondents, 6 agreed with the theme and its mechanisms. One respondent commented that they felt the theme was relevant but were unsure if it was complete. A suggestion involved the impact of living in a high-crime area e.g. feelings of insecurity/anxiety could prevent participation in education or

the labour market, which impacts on human capital development. Contrastingly, only one respondent disagreed that the theme was relevant and complete. This respondent argues that the crime theme and its mechanisms is 'very divisive' as not all criminals come from a criminal background. A total of 5 respondents answered the question as 'unsure', the common theme was that they did not feel they had the expertise to comment on the crime theme. One respondent stated, 'This theme seems less important than the previous ones'.

Question 12: Do you agree that the Personality traits theme and its proposed mechanisms are complete and relevant?

There were 116 responses to this question. Again, this theme received less support with just under half of respondents (53) who filled in the online consultation agreed that the personality traits theme and its proposed mechanisms were complete and relevant. Respondents who supported the theme mentioned that personality traits are 'critical to understanding society' – having an impact on labour market and education outcomes. It can also inform the 'discussion on the development and training of personality traits', how employers should manage all personality types at work, and how to capture the 'right environment' to encourage learning.

18 respondents disagreed and 45 were unsure with the personality traits theme. Most of these respondents were concerned around the terminology proposed including the inherent aspect of the theme, highlighting that personality traits are 'NOT innate' but 'learned behaviours'. One respondent referred to the personality traits as defined within the proposal as too 'deterministic' and 'subjective'.

Responses by type of user:

Most central government departments found this theme to be relevant. Respondents considered the indicators in this theme 'to be well-reflected in which personality traits can impact lifelong human capital accumulation' and reported the indicators as 'influencing the acquisition of human capital through their impact on other activities'. There were some suggestions to expand on the proposed indicators to include indicators to help assess 'job readiness', alongside the current proposed indicators of 'motivation', 'confidence', and 'resilience'. Concerns about completeness focused on the drivers behind these personality traits and how the ONS will quantify some of the proposed indicators within this theme such as 'self-control' and 'emotional intelligence'.

Out of the ten responses from local government, the majority (8) agreed with the personality traits theme being relevant and complete, while two were unsure. Additional factors to consider were suggested by one respondent, around self-reflection, the attitude to reward, and emotional intelligence.

Among respondents from industry, there were mixed thoughts about the relevance of the theme. Out of 19 responses, most of the respondents believed the theme to be relevant, highlighting the importance around personality type and progression within the firm. Some industry respondents were unsure about this theme, stating some concerns around the clarification of the proposed indicators, with one respondent mentioning 'if by personality traits you mean character strengths and assets... [the theme] misses the point'. Furthermore, another respondent believed that these indicators are a 'broad area with many factors that make generalisations' difficult to make, and they would be 'difficult to measure'.

While many respondents found the theme to be relevant, five out of 10 academics responded did not think that the theme was complete. The overall message from respondents is that more work should be done to clarify the indicators we have proposed. Some suggestions were raised to expand the proposed indicators to account for 'very early child development' and the 'interaction of parenting with child temperament'. Another respondent mentioned the 'development and training of personality traits needs to be considered in more detail'. Concerns were mainly focused on the indicators being labelled as 'innate individual behaviours and qualities such as attitudes', where their traits can be learned, while another respondent mentioned these indicators as being referred to as 'too deterministic'.

Respondents from the third sector had mixed views on the relevance of this theme. Among those that agreed with the relevance of this theme (four out of 11), it was recognised that personality traits as a theme is 'welcome and highly relevant'. Concerns around this theme generally focused on clarification, with one respondent stating that people's attitudes are socially shaped and including this theme altogether could be 'dangerous'.

Question 13: Are there any other themes that should be included?

We received 111 responses to this question, with 45 respondents confirming that they felt there should be other themes included when considering the indicator-based measures of human capital. The suggestions were generally not whole new themes, but a wide range of factors. Common topics included volunteering and caring, the impacts of well-being on human capital development, capturing the indicators across protected characteristics such as gender, disabilities and ethnicities, and social connections and networks. The full breadth of suggestions varied across respondent type and thus have been set out this way below, although we have not included an exhaustive list of suggestions.

There were mixed responses from central government departments with regards to including additional themes. Some departments suggested including subjective well-being and minority status. Another department did not suggest additional themes but did suggest implementing increased flexibility between the themes, recognising the cross-over between them.

Additional themes suggested by multiple local government departments were voluntary work and community engagement. Other themes suggested by individual departments included travel and homelessness.

There were several other themes suggested by industry respondents. Common themes requested by multiple respondents were geography breakdowns and well-being (including happiness and life satisfaction).

Additional themes suggested by individual academics were varied but included topics such as social networks.

Additional suggestions by the third sector included protected characteristics, cultural engagement, immigration and volunteering.

Themes to measure human capital – We will do

After reflecting on the useful feedback received by respondents across user types, we have identified several key actions which we plan to take to address this feedback:

1. We plan to take forward the health, family and home, work, and compulsory, further and higher education themes forward, and prioritise the first iterations of our new measures based on these themes, given the wider user interest in them.
2. Review terminology used across the health, family and home, compulsory, further and higher education and independent learning and work themes.

We will look to further clarify the terminology used within the themes and indicators to minimise misinterpretation by the user. We found that some respondents who were unsure about the completeness of the theme, expressed concern due to the terminology used.

Some examples across the themes included:

- we will look to clarify the definition of formal education as respondents were unsure whether this captured 'vocational training e.g. apprenticeships
- many respondents needed further clarification surrounding the definition of a parent and whether this considers non-biological parents such as a parent's partner, adoptive parent or foster care
- whether "learning disability' is the most appropriate use of language" as some respondents felt conversation around this topic could be 'accentuating positives'

- we will look to clarify what it means to have had ‘previous experience with crime’ and ‘exposure’ to crime.

3. Amend and rename the proposed Personality Traits theme

While the responses we received highlighted the importance of personality traits as a theme, there were some concerns raised in relation to communication and purpose of the theme. In part, respondents were concerned with the wording used in the human capital consultation, where we mentioned: ‘Innate individual behaviours and qualities such as attitudes, ways of approaching work, school, and interacting in social situations. We will look to remove the term innate – which is a trait or characteristic that is present at birth – and focus on learned behaviours and qualities – which is a trait or characteristic that is learned through experience. As a result of this, we will look to identify a new name for the theme which focusses on how these qualities can be learned.

Respondents also wanted more indicators to understand the qualities or non-cognitive skills relevant in society, to help inform discussions on the development of the qualities outlined in this theme. Separately, they wanted to understand how we are going to measure these qualities. From this, we will aim to do further research on learned psychological behaviours, engaging with academics and other experts to ensure we produce a more comprehensive set of indicators. We will also look to investigate new and existing data sources, both survey and administrative, to produce these indicators, as discussed in our proposal. We plan to research current best practice in measuring and defining the specific psychological abilities, as we recognise the difficulty in highlighting the benefit to some of those proposed if they are not formally defined.

4. Amend the proposed Crime theme:

The crime theme proposal was less consistently accepted as both complete and relevant than most other themes from our consultation. For those who saw it as relevant, they expressed that it was an important set of factors to measure. For other responses, people were unclear on the detailed proposed indicators and mechanisms, which were seen as incomplete or unclear, and whether there was enough of an impact from the theme onto the population at large. To tackle this, we will look to work with experts in the field of crime and its relationships to other themes to more robustly test out what factors are most relevant for impacting on an individual’s development, or their opportunity for development. At the moment, we will not look to expand the outcome indicators to capture crime as an outcome

but may show wider background contextual indicators that may be more appropriate (see types of indicators section for respondents' call for this type of measures).

5. Review additional indicators suggested for originally proposed themes

Through the breadth of suggestions across the themes provided, it is clear that although generally the themes were seen as relevant, in several areas our proposals were incomplete. From specific indicator suggestions, to wider factors and mechanisms that we did not explore, we will aim to investigate all suggested new measures, by first clarifying with the users who would be willing to discuss where appropriate on their suggestions. We will then look to conduct further evidence reviews of the current academic literature, by focusing on UK analysis and articles published in the last ten years as much as possible. This ensures that the context and timeliness of the literature remains more appropriate to current needs. From this wider evidence review, we hope to have a clearer picture of how to derive and measure the suggested indicators, as well as which mechanisms they fit into within the themes.

6. Consider the expansion of the Independent Learning theme

It is clear from the feedback that we received from our respondents that they did not consider the themes which we proposed to be complete. As well as suggesting additional indicators for existing themes, we received suggestions for new themes.

We received consistent suggestions from respondents of different types of indicators which can be grouped into the following three areas:

- Unpaid work (including volunteering and caring responsibilities)
- Social networks (including friendships, personal and professional networks)
- Hobbies and involvement in groups/clubs/societies

We recognise that these are important factors to consider, but they do not align with any of the proposed themes within the framework. As the three areas relate to activities undertaken outside of work and compulsory education, we felt there was a commonality with the independent learning theme, (which we have currently defined as learning outside of the formal environment of schooling and work throughout life). We are therefore considering creating a new theme which could include the three new areas outlined above, as well as

the original independent learning theme, but we have not yet identified a name for this new theme

7. Disaggregate indicators

Another common suggestion across respondents was to create a new theme which considers the impact which protected characteristics, such as gender, ethnicity and religion have on human capital. Although we recognise that this is an important area for users, we did not feel it was appropriate to include these as a standalone theme within the framework. Instead, we will try and provide this information through data breakdowns for all our indicators. This will be heavily dependent on the data sources which we use but where possible, we will make this data available.

Types of Indicators – You Said

In this part of the consultation, we asked respondents if they agreed with our approach of using three broad categories of indicators, namely inputs, outcomes and enabling factors. In our proposal, we highlighted that inputs could lead to an improvement or deterioration in outcomes, and around this input/outcome relationship, enabling factors would support the accumulation of human capital. Overall, support for the three indicator-types was very large, with some suggestions given for considering ‘disabling’ factors as well as enabling, clarifying the difference between inputs and enablers, and deriving wider contextual indicators too.

Question 14: Do you agree with the approach of having input indicators?

We received 121 responses to this question with broad support from most respondents as 103 agreed with the approach of having input indicators. Respondents stated that the input indicators ‘capture the main determinants’ and give a broader capture of ‘human life’.

There were two respondents who disagreed with the approach of having input indicators and 16 who were unsure. Of the 16 respondents who were unsure, 69% represented views from members of the public, 25% represented views from academia and 6% represented views of industry respondents. The concerns highlighted by these respondents relate to the choice and presentation of indicators, their possible use, and lack of clarity between direct and indirect measures.

Responses by type of user:

All but one of the central government respondents was in favour of having input indicators. They mention how they are ‘interested in highlighting key drivers and impacts on human capital’. The one concern expressed was relating to categorising factors into 3 types altogether, which is discussed in question 17.

Every local government respondent agreed on having input indicators.

There was broad support from industry for us to derive input indicators, though multiple respondents highlighted that there should not be too much emphasis on some indicators over others, e.g. on parental income rather than other factors such as parental education/role in society/occupation seen as more relevant.

There was broad support from academics to derive inputs, with a noticeable highlight stating how it is a 'complex model but can be broken down into more simple components – this makes it flexible'. At the same time, a few respondents noted that the model seemed 'mechanical', should be more complex and there was a concern raised by one respondent that the indicators may 'become a set of standards, rather than indicators'.

Third sector, public and other respondents said:

- Some respondents also highlighted inputs which were missing such as 'the measurement of personal satisfaction'.
- Another respondent was 'unsure about the relationship between direct and indirect measures as they were unsure about how they feed into one another'.
- Another concern highlighted by an additional respondent was around the classification of our proposed indicators. Specifically, it was highlighted that 'technology in the classroom' is identified as an enabler but 'technology provided to the child by the family' is an input. The respondent was concerned that this could be confusing for users.

Question 15: Do you agree with the approach of having outcome indicators?

We received 115 responses to this question, of which the large majority, 102 respondents, agreed with the approach of having outcome indicators. Although there was one respondent who disagreed with the approach and 12 respondents who were unsure, no detail was provided for why people disagreed with using outcome indicators. Hence the summary below is not captured by type of user.

The general reasons that respondents agreed with the approach of using outcome indicators were because of the different uses they could apply these indicators to:

- the range of outputs allows for making 'more informed choices'
- indicators can be used to 'build a prediction/modelling tool'
- to inform people on what has the biggest impact to improve their own human capital.

There was also broad agreement on having primary and secondary outcomes, as this would enable analysis to:

- interpret secondary outcome indicators as being ‘inputs for the next generation’ and could stop ‘cyclical problems’
- ‘sometimes outcomes are contrary to what we expect’ where a primary outcome may be positive while a secondary outcome may not (e.g. improved logical thinking skills, but not leading to any impact on labour market outcomes such as earnings)
- splitting outcomes will allow ‘difference to be established between the primary and secondary outcomes and how the overall value of obtaining this outcome is measured’.

In addition to feedback from this question, some responses mentioned suggestions on what else we should capture as outcome indicators. In the proposal, outcome indicators relate to either explicit impacts on human capital measures, or on proxies of human capital. We suggested primary outcome indicators to refer to the impact from the various input indicators onto skills, knowledge, competencies and attributes, which we would be looking to define as one of our next steps. These primary outcomes will be defined to help people to improve their economic, personal and social well-being. They should contain cognitive and non-cognitive skills, which include physical skills and attributes, as well as others like creativity and social skills.

Then, the secondary outcomes proposed within the consultation captured impacts from the input indicators onto:

- labour market outcomes, such as on earnings and/or hourly pay, the chance of getting a job or retaining a job in the future, as well as social mobility measures such as pay and career progression
- health outcomes, whether objective or subjective measures of individual physical and mental health
- personal well-being outcomes, such as on life satisfaction, happiness, anxiety and the feeling that the things you do in life are worthwhile

We recognise there are also wider impacts from a change in human capital, both at the individual and societal level. We have had feedback across the various themes that it is important to capture not just paid work, but also unpaid work, particularly the impacts on volunteering and informal caring. Additionally, some suggestions wanted to capture reoffending and rehabilitation success after crime as outcome indicators.

At a macroeconomic level, there is also a recognised impact from a more skilled and motivated workforce on UK's productivity, and knock-on impacts to the demand for public service provision such as the health, social care and justice systems. There is good academic literature on these relationships, but no agreement on methods and sources to capture these impacts regularly and robustly, so will be a consideration for future work. It is worth noting that in the absence of such information, we would recommend the use of indicators relating to individual labour market outcomes, particularly impacts on earnings, earnings and career progression, and the likelihood of gaining a job in the future if one is unemployed.

Question 16: Do you agree with the approach of having enabling factor indicators?

We received 116 responses to this question. 95 respondents agreed with the approach of having enabling factor indicators. 21 respondents were unsure about the approach, but no respondents disagreed.

Respondents were positive about including enabling factor indicators because that would mean the collection of 'richer data' and indicate 'drivers of success'. Central government respondents said that it would be useful to understand enabling factors as they can have an effect on people's skills. Where there were some concerns, there was consensus on the lack of clarity as to whether negative influences, so-called 'disablers', would also be included. Some more isolated feedback related to the potentially subjective nature of some of the indicators, which may cause measurement issues. There was also some clarity requested from other responses about specific indicators being categorised as inputs rather than enablers, and vice versa.

Responses by type of user:

Almost all central government departments who responded viewed enabling indicators as important, and as key to understanding the impact on people's skills. One respondent raised concerns about enabling factors adding complexity to the methodology.

There was majority support from local government which responded on using enabling indicators, with one respondent wanting clarification on whether they can have a negative as well as a positive influence.

Broad support for enablers was given from industry respondents, as it was seen to be a key output for this work for policy decisions. One point around terminology was raised in relation to enablers, as some factors can have a negative impact on the ability to accumulate human capital.

Although there was broad support for enabling factors from academics, think tanks, the third sector and the public (79% of respondents in this group agreed with including enabling factor indicators), respondents echoed previously highlighted concerns around terminology as ‘enabling is limited; for instance there may be hindrances’ so we need to be clear what we mean by enablers.

Question 17: Is there another approach or type of indicator which would be useful (not input, enabler or outcome)?

We received 112 responses to this question. The majority of responses did not consider any other potential indicator types as useful to incorporate within this framework.

Most central government respondents did not have other suggestions. However, one response reflected capturing wider indicators to provide more background and context. Additionally, there was a concern raised about the potential increase to response burden from extra data collection to capture the suggested number of indicators.

In addition, one important set of feedback we received from one respondent from a central government department did not agree with the overall categorisation of three types of indicators, as they thought the interaction between factors would be missed or more difficult to expose if factors are only categorised into one of the 3 types. Additionally, the same response highlighted how the terminology used may confuse some analysts working on specific themes, where the outcomes measured for different analysis, are seen to be inputs in this framework. Finally, one suggestion was given to categorise indicators based on how possible they were to be influenced by individuals or government policies, as well as the time scales the impact has.

The only suggestion given from one local government respondent was relating to capturing ‘disabling’ factors, covered in the question above. All other responses either thought the three types were sufficient, or there were no other suggestions given.

There was general support for the three types suggested from the third sector. One alternative approach suggested considering a human capital satellite account to help link with the system of national accounts, which may provide consistency to other measures.

One helpful suggestion from academics related to also deriving or linking to wider macro contextual indicators.

Industry respondents had no other suggested types.

Alternative approaches suggested by the public, think tanks and research institutes, and others are included below:

- including a 'disabling' factor which 'allows for a potential negative influence'. Related to this, another suggestion was to consider measures of discrimination which could be 'a significant disabler'.
- several mentions were made for us to link further with the sustainable development goals framework and use or reference these indicators where appropriate.

Types of Indicators – We will do

To address the feedback from the 4 questions above, we plan to continue to use the framework of 3 types of indicators. However, we will aim to incorporate disabling factors within the enabling indicator-type definition, and re-label at as a 'mediating' indicator to represent the potentially positive or negative impact different ones may have.

At the same time, we will look to investigate appropriate contextual or background indicators, some of which may be incorporated as mediating indicators if they relate to specific mechanisms of development., Others may be provided alongside as wider cultural or macroeconomic contexts, such as links to the Measuring National Well-being dashboard and the Sustainable Development Goals.

Additionally, for the outcome indicators, we will look to capture volunteering and caring as other secondary outcomes in later iterations. Although important for several users, we will keep wider impacts on productivity as well as societal benefits, we will keep this out of scope for this framework for now, while review this decision once we have started to iterate the measures. To tackle the possible confusion about the use of the terminology of the three types, we will aim to highlight which input and mediating indicators are being reflected as an input e.g. into social skills development, physical strength development, into numeracy development etc.

Feedback also given from other questions in the consultation related to how we would consider interactions and feedback loops between different factors or inputs. It is really useful to get feedback on the specific methodologies we are looking to apply. We aim to investigate our outcome methodologies further, as outlined in the consultation annex, and we look to consider using appropriate methods to incorporate these highlighted concerns. For example, we may consider the use of interaction terms, investigate the possibility of deriving outcome indicators by several protected characteristics, and where possible focus on using longitudinal analysis. Longitudinal analysis may allow us to control for chronologically distinct events e.g. whether a health condition for certain children impacts on educational outcomes later in life, which then may have a feedback loop back on to other health conditions for the child, even when they are older. Note, we would also look to measure these in separate life stages if that is when they occur. Note, some of this information may be more appropriate as data tables than as interactive indicators.

The important point around capturing discrimination was raised. We will aim to research to understand agreed methods for measuring discrimination and how these may be incorporated within the existing framework, e.g. such as mediators.

Finally, as we start to derive the indicators, we will try to consider how to tag individual indicators so they can be easily found and filtered by different users. Tagging with more metadata associated with each indicator would allow categorisation of indicators by different dimensions beyond the themes they belong to. User feedback on this will also be critical. For example, some indicators, across multiple themes, may have a 'social' tag to indicate there is an element of social interaction the mechanism relies on. Similarly, there may be tags for factors that have a short-term impact, say less than a year, a long-term impact, say over 5 years from the factor's influence, or something in between, as a medium-term impact.

How we plan to derive these indicators – You said

In this section, we asked 3 questions to understand how to prioritise the derivation of the proposed indicators in the previous sections. As the consultation focused on the 'conceptual' mechanisms and factors rather than which ones could be derived with existing sources, we wanted to understand which expected data gaps would be higher priority for us to focus on. Additionally, we wanted to see whether respondents would rather us fill these and other data gaps or focus on deriving measures through proxy indicators.

A proxy indicator is a measure used to quantify a certain variable of interest, and is beneficial when the variable of interest cannot be measured directly. Although the measure is not explicitly measuring the variable of interest, there should be a correlational link to that particular concept to some degree, in order to provide a meaningful measure. In the proposed framework of this consultation, a proxy indicator may try to measure the 'indirect mechanism' identified through the literature, rather than the direct mechanism. A simple example from our proposed list is rather than the difficulty of measuring the number of children who have undergone a school move as an input indicator, we could more easily measure whether children have moved house into a different local authority, since they would likely have moved schools in that case. If conditions allow, a good proxy measure can provide a robust indicator of the particular variable which is to be measured, which can in turn help its users monitor and track changes and developments in the outcome.

Finally, we wanted to see what level of engagement we may continue in developing our work after the consultation through a technical panel, to help give us frequent feedback.

Question 18: Which anticipated data gaps are you more interested in us filling and why?

We received 87 responses to this question. Despite the wide range of proposed themes and indicators, there were various common factors that were consistently highlighted as data gaps to fill. These include:

- outcomes on skills, knowledge, competencies and attributes, while outcome indicators more generally were also highlighted.
- health, education and work themes were consistently mentioned, with a lot of responses relating to independent learning being an important data gap to fill.
- life stages highlighted tended to relate to young adults and children, or the other end of the spectrum on those nearing or in retirement.

Responses by type of user:

A wide range of topics was suggested by different central government departments. However, some commonality was highlighted with respect to skills, particularly non-cognitive skills and other personality traits (attitudes and behaviours). Additionally, there was quite a strong interest in prioritising gaps around younger life stages, for children and young people, and the resulting indicators around education, learning and skills, as well as these interactions and impacts from the health of the parents and the children. Finally, there was more interest relating to monetised indicators, relating to labour market returns, including being in stable employment, progression, and hours lost.

Local government raised several different factors, though the common strand related to measuring skills, including non-formal skills acquisition. Other topics of wider interest from individual responses ranged from housing status and crime data to personal information on health, disability, well-being and behaviours and attitudes.

Multiple industry respondents were interested in data gaps relating to 'life skills' and 'societal/club participation'. Other suggested priorities were learning at home and pre-school development.

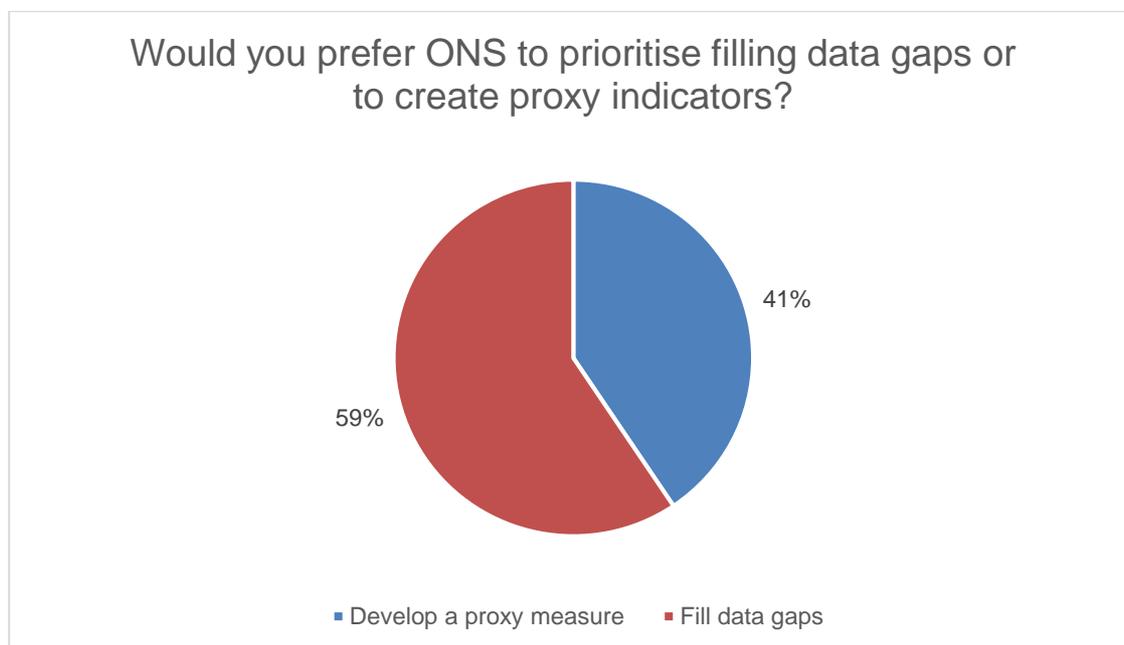
Respondents representing the third sector, academia, think tanks and research institutes, general public and others held a wide range of interests in relation to data gaps. Common priorities across respondents were focussed on 'early years' with parental engagement, early years education and factors relating to home input during childhood being cited as important. Other key areas identified as important to fill were health, wellbeing and skills data gaps.

Question 19: Would you prefer ONS to prioritise filling data gaps or to create proxy indicators?

We received 101 responses to this question. As shown in Figure 3, most respondents (60) would prefer us to prioritise filling data gaps as opposed to creating proxy measures. For example, respondents stated ‘Real data’ was preferable to proxies as it is ‘better to be accurate’, Proxies ‘attract risk and error’ and don’t always measure ‘what you think they are’, and they do not identify unusual trends ‘worthy of investigation’. Finally, it was stated that if proxies become the ‘norm for investigating harder-to-fill-gaps’ it may result in less effort to fill these gaps.

At the same time, there were some who thought using proxy indicators until gaps were filled with a longer time-scale was a useful way to proceed to allow the work to begin sooner. A proxy indicator would be identified to closely resemble the originally proposed indicator in a conceptual sense, relating to the same mechanism identified in the literature where it can, as well as in the coverage of the target population, but where data currently exists for it. As respondents stated, proxies allow a ‘a fuller picture sooner’ as data gaps can be difficult to fill in the short-term. Those who thought we should prioritise proxies highlighted they are a ‘good starting point’ and could provide ‘an alternative perspective’. It was also mentioned that it may be better than trying to inadequately fill data gaps – which could be ‘difficult’ and ‘invasive’. Additionally, it would be more helpful to users if documentation was provided on what the proxy shows.

Figure 3: Responses to Question 19



Source: Office for National Statistics – Human capital public consultation

Responses by type of user:

All central government departments who responded wanted the focus to be on filling data gaps, while some acknowledged that deriving proxies while new collection takes place was useful. Priority on filling gaps should also relate to where there can be policy interventions and a policy context, in some respondents' opinions.

Most local government responses supported focusing on filling data gaps. This was due to the fact proxy indicators were seen to be of limited use to local councils, and that measuring things that have the highest impact directly rather than through proxies should be the priority, "as investment [and] intervention here" have the highest "rate of return".

The majority of responses from industry also supported focussing on filling data gaps. For example, they highlighted how, 'whilst data collection will be a challenge, the cumulative impact is likely to give a more accurate result'.

A third of industry respondents still saw the value of prioritising proxy indicators. One useful response highlighted the benefit of deriving measures iteratively, and how proxy indicators 'can then inform how to prioritise filling data gaps', 'based on the most material impacts'.

A small majority (55%) of respondents representing the third sector, academia, think tanks and research institutes, and the general public felt it was more important to fill data gaps. Those who felt it was more important to use proxy measures highlighted that we should 'provide better information with the data that is available first'.

Question 20: Would you be interested in joining a technical panel to help oversee the development of the indicators, methods and data sources to measure human capital?

Over 50 responses highlighted that they would be interested in helping us develop our measures through a technical panel, with several others also mentioning they might be, depending on the detail the panel would get involved in, and availability. These positive responses ranged across all of our types of users who responded, highlighting the breadth and depth of expertise relating to these topics.

How we plan to derive these indicators – We will do

To take on what is summarised from people's responses outlined earlier, we will aim to derive specific indicators where we can, rather than proxies.

We have begun some initial work to look at our proposed indicator list to identify which can be met by existing datasets. The work, health, and family and home themes can be filled the most by existing datasets directly. For example, whether an employer provides remote or flexible working can be produced using the Labour Force Survey (LFS).

An example of an indicator that may be produced using proxy data is on the size of the population eating the appropriate level of nutrition, for which we have not been able to find an explicit source. To fill this gap in the short term, we can try and derive a proxy indicator either through imputing the level of nutrition through food spending patterns from the Living Costs and Food Survey (LCF) or by the share of the population within a recommended range of calorie intake. Alternatively, we can use data from the National Diet and Nutrition Survey (NDNS) on people's intake of their five-a-day and not an excessive amount of fat and sugar.

We have also identified indicators that we know will not be met by existing datasets. These include several for the education theme, such as the amount of time spent on collaborative learning. An important gap we have identified is a comprehensive measure of skills and knowledge impacts, which is another reason why we are looking to focus on labour market outcomes in the first instance.

At the same time, we plan to look to derive the indicator-based measures iteratively to highlight the benefits of this overall approach. These iterations will in the first instance only contain data that are readily available to the ONS or to other partners to which we can validate the quality of sources, so we may need to derive proxy indicators. The first iteration would also look to group life stages and themes, if useful, and pick one indicator for each life stage and theme combination, in order to create a less complex and smaller set of measures first. The second iteration would still be based on readily available data but will cover each theme and life stage, while still only prioritising one indicator per theme and life stage combination. In the long run, we plan to investigate how to fill data gaps, looking to use administrative and commercial data where possible to avoid increasing respondent burden. This would reflect the third iteration and should capture most input and enabling factors, with some continued expected gaps in outcome indicators. Finally, we will aim to consider how we may fill remaining data gaps through adding questions to existing survey sources as well as creating a new survey to fulfil this in a more targeted approach in the future. This would be the ideal scenario for the fourth and final iteration.

To give an indication for possible timings and priorities, we hope to be able to deliver the first two iterations within the first year of starting to derive the indicators, which would include also considering all new suggested factors to incorporate where data are readily available. Within the second year, we aim to consider the use of newly acquired administrative data into the ONS, where we expect the biggest benefit would be for education, health and work themes. The first two iterations should clarify which data gaps need supplementing with any new data collection to incorporate into the fourth stage, and this may be considered for the third year of development. We expect this to highlight and spur further research into missing factors of human capital development, which we could then consider incorporating in the longer term. This would be alongside delivering other aspects of our overall workplan, such as aiming to deliver more timely, granular human capital stock estimates with the use of administrative data within two years of development; developing a satellite account on supply and demand within three years of development; and creating [experimental estimates](#)

of investments and stocks of human capital with other capitals in an expanded satellite account to the national accounts framework within at least four years of development.

We expect budgets for 2021 to 2022 and later years to be set in future Spending Reviews. Our plans for developing our measurement and understanding of human capital, and in particular the timings on which we would expect to deliver improved statistics, are based on our long-term strategic aims as developed through the consultation; these do not pre-judge future funding settlements. Rather, the plan set out earlier illustrates what would be possible if the resources and data are available, and it aims to provide users with a credible, staged approach to meeting our objectives. We will need to review these timescales in light of the outcome of future Spending Reviews. To incorporate the wide interest in the technical panel, we will look to set up agreed roles and terms of reference for each interested member and will contact them to clarify their level of engagement. For those who continue to have an interest, we plan to engage frequently with proposals and suggestions and seek advice on every aspect highlighted in our actions to the earlier questions. This ranges from the appropriate choices of deriving indicators, to the sources and methods we should use to derive them where this decision needs wider discussion, to confirming potential ways to present and visualise the derived indicators.

Annex A – List of organisations that responded

The following is the list of organisations which were happy to be identified in this response:

- ACAS
- American Consulting
- Bedford Hospital
- Bell Foundation
- Central University of Finance and Economics
- Chartered Institute of Personnel and Development (CIPD)
- Cheshire East Council
- Cornwall Council
- Department for Work and Pensions
- Energy Consultancy
- Essex County Council
- For a Good Deal More Ltd
- Global Water Solutions
- Historic England
- Human Capital Standards Committee
- Imperial College London
- Institution of Occupational Safety and Health
- International Movement for Advancement of Education Culture Social and Economic Development (IMAECSED)
- IORMA – The Global Consumer Commerce Centre
- LocatED
- MIC Customs Solutions
- NHS Tower Hamlets
- One Church
- Pembrokeshire Youth Services
- Robin Hood Health Foundation
- Royal Association for Deaf People
- S.M.A.R.T Foundation
- Sheffield City Council
- Silver Kettle Foundation
- Society of Occupational Medicine
- SSE PLC

- Swansea University
- The Royal Society for the Prevention of Accidents
- Union of Shop, Distributive and Allied Workers
- University of Exeter
- University of South Wales
- Visioning our Futures
- Wilkins Kennedy Accounts
- Writing Services

Additionally, the list of organisations that attended the engagement day or fed back through informal discussions include:

- Birmingham Business School
- British Chambers of Commerce
- Chartered Institute of Personnel and Development
- City and Guilds
- Department for Business, Energy and Industrial Strategy
- Department for Education
- Department for Environment, Food & Rural Affairs
- Education Endowment Foundation
- Greater London Authority
- Health Foundation
- HM Treasury
- Joseph Rowntree Foundation
- King's College London
- Lancaster University
- London Economics
- McKinsey and Company
- Ministry of Justice
- National Institute for Economic and Social Research
- Northern Ireland Statistics and Research Agency
- National Foundation for Educational Research
- Office for Budget Responsibility (OBR)
- Organisation for Economic Co-operation and Development
- Resolution Foundation
- Scottish Government
- University College London
- Universities UK
- University of Cambridge
- University of Manchester
- University of Oxford

- University of York
- Welsh Government

Annex B – List of additional indicators suggested by respondents

As mentioned in the Themes to measure human capital – You said subsection, there were many suggestions from respondents for additional indicators that should be included in the proposed themes. An inexhaustive list of these indicators is included in the following table.

Theme	Additional indicators suggested
Crime	Respondents suggested additional crime indicators including type of crime, length of sentence, and number of police in an individuals' area.
Compulsory, higher and further education	Respondents suggested including vocational training, digital literacy, life skills and informal mentorship, and language acquisition.
Family and home	Respondents suggested additional family and home indicators including family structure, grandparent engagement, childcare, parenting style, parent support in learning and adverse childhood experiences.
Work	Respondents suggested additional work indicators including job autonomy, number of hours worked, job security, commute time, automation and technostress. Also, respondents suggested a measure of "good work" meaning whether individuals had meaningful or good quality work.
Health	Respondents suggested additional health indicators including substance addiction, waiting times, patient experience with consultations, number of physicians or nurses in a given population, specific health conditions, life expectancy, and some health-related lifestyle indicators.
Personality traits	Respondents suggested including early child temperament, attitude to reward, self-reflection and ability to learn from experience.

Independent learning	Respondents suggested additional independent learning indicators including discreet learning, the effect of accessing youth work provision for informal learning, experiential learning, digital literacy and the general accessibility of learning.
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Additionally, respondents also suggested indicators that do not fit within the proposed themes. An inexhaustive list of these indicators is included in the following table.

Proposed additional indicators to consider	Definition	Number of respondents who suggested
Unpaid work	Most of these suggestions related to voluntary work, but caring responsibilities were also mentioned.	19
Protected characteristics	Disability, gender, ethnicity and religion were explicitly mentioned.	16
Hobbies and involvement in groups, clubs or societies	As well as involvement in skilled hobbies, sport participation clubs and societies, TV habits and social media use were mentioned.	10
Well-being	Respondents suggested general well-being measures such as happiness, life satisfaction and whether the workplace had well-being initiatives.	10

Environment	Respondents suggested including environmental factors such as air pollution, climate change and resource depletion.	9
Arts, culture and heritage	Respondents suggested including measures of creativity, cultural engagement and engagement with the arts.	7
Wealth	Respondents suggested wider measures of wealth including land ownership and financial well-being as an influencer.	7



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