

## Economy 2030: A Consultation on an Industrial Strategy for Northern Ireland



# Response from Ulster University

## Summary

This is a good time to up-date the Economic Strategy which was published in 2012. The last five years have seen a substantial though still incomplete recovery in the Northern Ireland (NI) economy. We have moved on somewhat from the depths of the 2008-9 banking crisis and recession. Moreover, the last ten months have been marked by the Brexit vote, a new Prime Minister, the start of a new Administration in the USA and publication of a draft UK Industrial Strategy.

**Particularly when considered alongside its predecessor, there is much to commend in this draft Strategy. In particular:**

- The five Pillars probably do provide an appropriate and aspirational picture of what the NI economy and society could and should look like by 2030.
- The emphasis on comparators (usually international) to benchmark against best or better practice is very useful.
- Much more than in the previous Strategy, or the 2011-15 Programme for Government, there is recognition that NI does have a major problem in terms of falling short of UK and international standards of competitiveness- particularly in terms of relatively low levels of productivity.
- To borrow the phrase from medical ethics, this Strategy will probably “Do no harm” and could even, to the extent it is implemented in detail,<sup>i</sup> help to narrow the performance gap between NI and other regions/countries.

**At the same time, there may be a range of shortcomings relating to this Strategy.**

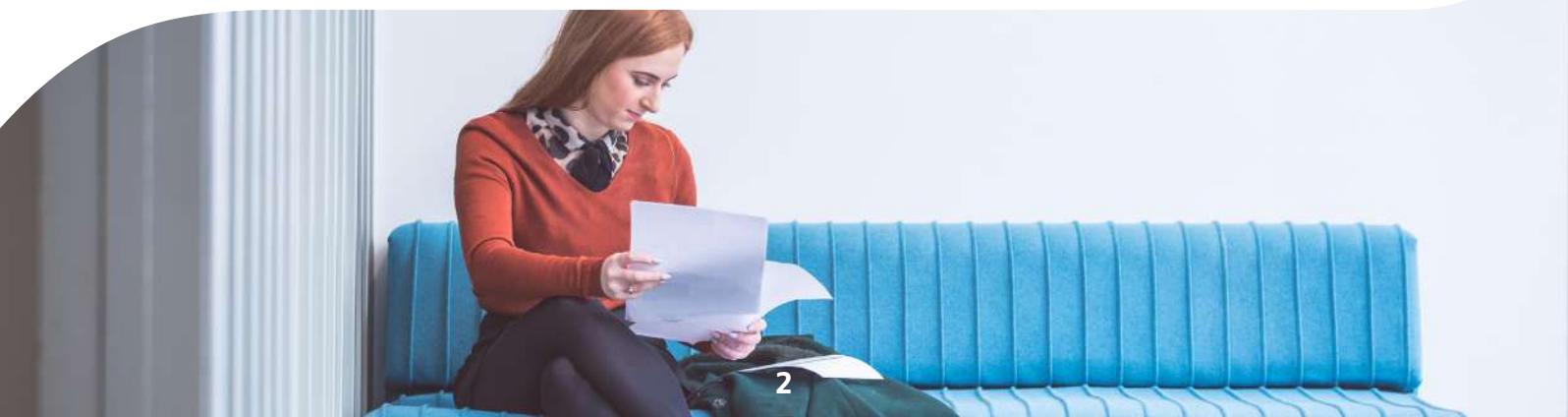
**Notably, and in summary:**

- Whilst the five Pillars may be a broad and accurate picture of a successful and inclusive economy/society, it is much less clear they work in a conceptual sense. Sometimes it is unclear whether a pillar is a driver or explanation of good performance or is itself something of an outcome measure. For example, Pillars 1, 2 and 5 could probably be considered as drivers whereas Pillars 3 and 4 are desirable outcomes.
- No explanation is provided as to how the chosen Milestones are related to the five Pillars.
- There is also a lack of clarity about how the “small advanced economies” are defined. Seven of these are sovereign countries but one UK region (Scotland) is also included. If Scotland is in the list why not include other relatively successful *regions*; Baden-Württemberg, North Carolina etc.?
- In proposing that the emphasis should now switch to “re-balancing” that concept is not really defined and it is implied that the objective of re-building has been realised. In reality, it has not. The NI Composite Economic Index (NICEI) shows that the total volume of output in the NI economy remains 7% lower than its peak level in mid-2007.
- The Strategy contains little or no assessment of risks and associated sensitivity of outcomes. Both Corporation Tax change and Brexit (see para 5.42) are hardly mentioned.

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## Summary

- The focus on external sales is appropriate, but there is no recognition of the importance of Higher Education as a potential source of export revenue growth.<sup>ii</sup> For historical reasons the HE sector has struggled to attract overseas students to NI, but more recently this trend has changed and the HE institutions have been successful in growing foreign student numbers. There are also ambitious plans to grow foreign student numbers further (and hence export revenues). However, a cap on immigration and free movement of people could restrict and/ or discourage EU students from studying in NI.
- Whilst para 1.6 may be included as some sort of attempted psychological fillip to the NI population, is it really worth asserting that we are being envied by people in the South East and London because of NI's measured high level of wellbeing? There is no evidence of a strong migratory flow from the South East to NI. Neither is there much evidence that people in NI are prepared to accept a lower level of consumption and material standard of living because of perceived wellbeing.<sup>iii</sup>
- The Pillar Best Economic Infrastructure represents a worthy aspiration but is question-begging- how might such infrastructure be funded?
- There is the broader question, which is difficult to answer in the absence of an agreed Budget for 2017-18 or later years, as to how the proposed policy programmes are to be funded.
- Some of the Milestones are drafted using confusing language- for example, are the 80,000 jobs in the knowledge economy a total *level* in 2030 or the net addition during 2017-30 (and, if the latter, why is the gain in the knowledge economy and the overall NI private sector the same?).
- There are questions around the appropriateness of each of the chosen Milestones and then the broader point as to whether the various Milestones are consistent with each other.
- The rationale or evidence for the identification of the six (world class) sectors is not spelt out in detail, there are always risks when government attempts to pick winners. Some questions arise; why are pharmaceuticals not included in life sciences? Is construction a natural fit with materials handling? Why is tourism not included? Large areas of the public and private services (such as, retail, health and social care) are barely mentioned in this document. There should be some recognition that these sectors do contribute to quality of life and may even, in some cases, have scope to earn export and external sales revenues.



## Turning to the seven areas of questions in the Strategy:

### 1. The Vision

We agree the vision is good – stretching but not entirely unrealistic. It is almost self-evident that we need to be globally competitive and inclusion is the right thing to do. There is, for example, a strongly developed international literature on the importance of competitiveness.<sup>iv</sup> The target being set for the NI economy and society is ambitious but probably it needs to be so.

Whilst the Strategy can point to some of the recent literature which has stressed how inclusion can contribute to growth and competitiveness (for example, from the IMF, OECD and Scottish Government), the Strategy would gain in robustness if there was recognition that *some* trade-offs may still exist. For example;

- A “social policy” objective of bringing the hardest to reach into the active labour market (which we would support) may require the promotion of some very low productivity jobs.
- To the extent that business competitiveness and FDI flows are somewhat influenced by agglomeration economies, that is, the advantages of clustering, then *some* sub-regional disparities are likely to persist. Policy should try to avoid imbalances but some may be inherent in the growth process and growth may be the best platform to facilitate and fund greater inclusion in the long run.



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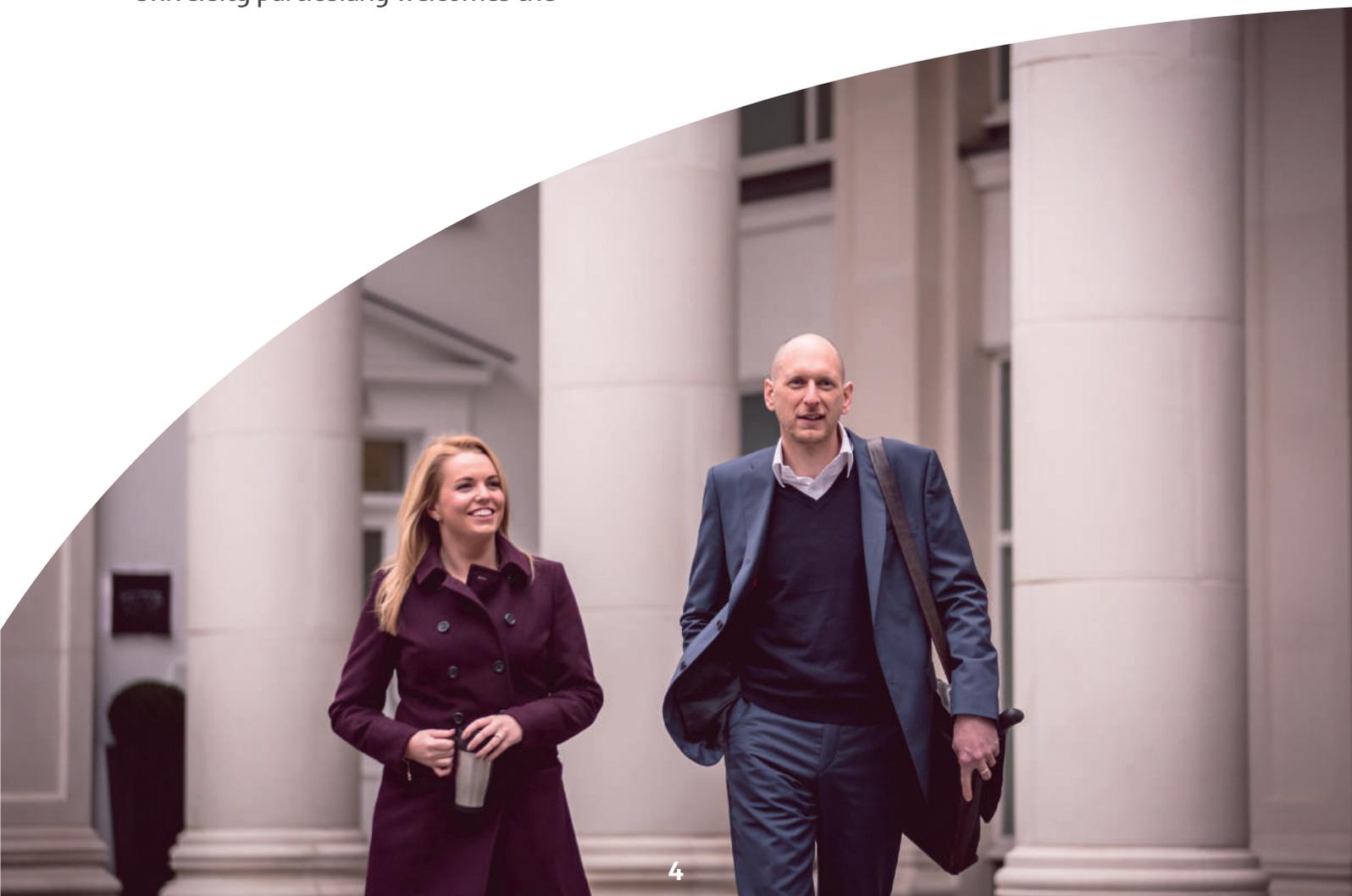
## 2. The Five Pillars

These provide a good descriptive summary of an ideal or aspirational NI economy and society in 2030. It is probably best to see Pillars 1, 2 and 5 as drivers and Pillars 3 and 4 as the desirable outcomes. By comparison, the Whitehall Green Paper Industrial Strategy had 10 pillars. To an extent, each of the NI Pillars are combinations of several pillars in the UK draft Strategy. That said, the UK Strategy includes a pillar on public procurement and that subject does not figure in the NI document.<sup>v</sup>

The higher and further education sectors provide much of the infrastructure to help ensure that Pillars 1 and 2 can be attained. In terms of Pillar 1, a difficult balance has to be preserved between supporting some research which has immediate (commercial) pay off and also some research which is truly “blue sky”. The University particularly welcomes the

emphasis on agile government under Pillar 1 and on employability within Pillar 2. In terms of Pillar 2, the University is involved with an interesting model of delivery- the Industrial Academy whereby PhD students are sponsored by NI businesses (e.g. for biomedicine by Randox). In general, most of the increase in the number of our PhD students has been funded by businesses; notably in medical sciences, life and health sciences, renewables, data analytics and legal services. Importantly, not only is there a funding connection between businesses and the University but the PhDs are each very aligned to the future skills needs of industries.

Overall, we need more champions of business/FE/HE/government partnership and collaboration. In Pillar 2 there should be some emphasis on how best to ensure talent retention within NI.



### 3. The Economic Milestones

A general point could be made that is not clear how these milestones align with the two over-arching (vision) objectives- competitiveness and inclusion- or how the Milestones match up to the 5 Pillars.

In most cases, the target level is plausible given previous growth performance or available forecasts. However, revision to

some targets may be appropriate as they are either not sufficiently stretching- inactivity and qualifications- or more aspirational than achievable- external sales (there is also the general point that there is little or no allowance for risk especially in terms of the impact of external events):

Milestone	Comment on plausibility and extent to which it is sufficiently stretching
<p><b>By 2021 50,000 jobs created (we are assuming this refers to workforce jobs)<sup>vi</sup></b></p>	<p>About 10,000 p.a. which would be lower than the growth achieved during 2012-16; 62,000 total, or 15,000 annually. A case could therefore be made for a higher figure <i>if</i> immediate past performance is considered. However, UUEPC’s baseline forecast for 2017-21 is a total gain of 15,000 and the more optimistic upper scenario is a gain of 43,000. Some narrative explaining why the milestone is more modest than the 2012-16 performance could be helpful; a table of risks such as Brexit, US policy, Eurozone recession etc.</p> <p>Particularly given emphasis in the draft Programme for Government on “good jobs”, it may be appropriate to include some indication of how far the growth in employment will be of full-time employment. During 12 months to August- October 2016 all of the growth in job numbers was in fact in part-time and self-employment.<sup>vii</sup> During 1992-2016 the share of part-timers in total employment actually increased from about 25% to about 45%. What we have seen in the recent past is that growth in the NI labour market has been increasingly weighted towards the forms of employment which are, arguably, more precarious.</p>

### 3. The Economic Milestones

Milestone	Comment on plausibility and extent to which it is sufficiently stretching
<p><b>By 2021 18,000 moved out of inactivity into economic activity (we are assuming this is economically inactive excluding students)</b></p>	<p>This is an area where previous policy has not necessarily been very successful and so a challenging target would be welcome.</p> <p>The total gap in economic inactivity rates (excluding students) between NI and the UK average is 3.5% points. Moving 18,000 people out of inactivity would narrow that gap to 2.7% points. By implication, this Milestone looks too modest.</p>
<p><b>By 2021 the number 1 region outside of London for FDI (we are assuming this is in terms of the rate of FDI employment per 1000 population)</b></p>	<p>NI did occupy this position or close to it in some years since the early 2000s.</p> <p>Using the figures from the EY Attractiveness Survey, for the rate of FDI jobs NI was first in 2014 and 2013, second in 2012 and fourth in 2011.</p> <p>This Milestone is plausible. By 2021, NI <i>may</i> have had the benefit of three years of a relatively low Corporation Tax rate.</p>
<p><b>By 2025 380,000 qualifications at Level 3 (we are assuming that this figure is the total number with that level of qualification, not the addition during 2016-25, there is also ambiguity as to which “population” this qualification relates to)</b></p>	<p>Whether we take 16-64 year olds, 16-64 in employment, 16+ or 16+ in employment, using Labour Force Survey data we can establish this target has already been surpassed.</p> <p>This Milestone therefore needs to be redefined.<sup>viii</sup> It is also rather broad-brush - for example, what about subject areas of university degrees etc.? As a general point, the availability of higher skills in particular will influence the ability to grow exports and R&amp;D activity.</p>

### 3. The Economic Milestones

Milestone	Comment on plausibility and extent to which it is sufficiently stretching
<p><b>By 2025 80% growth in external sales<sup>ix</sup> (we are assuming this is the Broad Economy Export measure, and in nominal terms)</b></p>	<p>That is, 6% p.a. growth (compound nominal, 2015-25), how does this compare to recent growth? During 2011-2015 (the limits of the available BEE data) actual growth was 2.9% annually. That would imply if it repeats over the ten year forecast period a total gain of only one-third rather than 80%.</p> <p>So, in this case, we have an extremely stretching target. It is also worth considering that during c. 1950-2010 the annual growth of world trade was about 7% p.a. but the rate of growth of world exports is now about half that level. The chosen growth path of external sales also looks ambitious when compared to the much lower growth assumed for output (35% in the private sector, see below)</p>
<p><b>By 2025 double spend by external tourists (we are assuming this is in nominal terms)</b></p>	<p>That is, doubling over about 9 years whereas the (provisional because never approved) Tourist Strategy of 2010 envisaged a doubling over the ten years 2010-20. So, this milestone is plausible (provided, of course, there is no major turbulence in global tourism source markets).</p> <p>A further demonstration of this is as follows. In 2015 total tourist spend was £764m of which £545m was attributable to external visitors. During 2010-15 annual growth in external visitors was 4.5% and if we assume spend per head in real terms is constant but also 3.3% annual inflation (as in UUEPC forecasts) then it implies spend by external visitors would read £1.3bn by 2025. Using an alternative, lower, forecast of inflation (2.5% as in Office for Budget Responsibility) produces a similar conclusion. So, NI would more than achieve the milestone provided existing, recent trends continue.</p>

### 3. The Economic Milestones

Milestone	Comment on plausibility and extent to which it is sufficiently stretching
<p><b>By 2030 35% private sector output growth (we are assuming this is volume of growth as measured by the NICEI)</b></p>	<p>That is, 2.2% p.a. compound growth. Compared to 2012-16 when the actual NICEI private sector growth was 1.5%. This Milestone would be stretching.</p> <p>It is also possible to examine the consistency (or otherwise) of this Milestone with the Milestone of 80,000 extra private sector jobs in 2030. Existing private sector employment is 682,000. By implication, 35% growth in output would be associated with a 21% gain in productivity or 1.3% annually (compound). Whilst it is true that this would be consistent with the average productivity growth achieved over the last twenty years which was 1.2%, during 2009-16 NI's annual average productivity growth was only 0.4%. So, whilst not spelling this out, this Milestone implies a step change in NI's productivity growth performance. Of course, elsewhere in the Strategy document it is implied that such an outcome would be very good thing to achieve. A question might be raised as to the consistency of projecting 35% (private sector) output growth compared to a 80% growth in external sales (see above).</p>
<p><b>By 2030 80,000 jobs created (we are assuming this is the net addition to total private sector employment)</b></p>	<p>That is, about 5,700 p.a. Whether this is modest or stretching depends on which baseline period is used as the comparator.</p> <p>During 1998-2016 average annual private sector employment growth was 5,400. However, during 1998-2008 the average was 10,000 and since 2013 the average has been 13,000. The Milestone is well above the UUEPC central or baseline forecast of 47,000 by 2030 although similar to the (optimistic) upper forecast of 78,000.</p> <p>Once again, some narrative explaining the rationale for the figures would be helpful. In particular, why is the pace of employment gain expected to <i>slow down</i> after 2021?</p>

### 3. The Economic Milestones

Milestone	Comment on plausibility and extent to which it is sufficiently stretching
<p><b>By 2030 80,000 jobs created in the Knowledge Economy (we are assuming this is actually the total level of KE direct employment in 2030)</b></p>	<p>The 2015 level of employment in the KE was 39,500 and between 2010 and 2015 annual (compound) growth was 2.7%. This Milestone assumes that growth rate can be accelerated to 4.3%.</p> <p>This is aspirational but perhaps appropriately so given the broader desire to emphasise certain priority sectors (most of which are in, or partly in, the KE). If, this Milestone implies a 40,000 jobs gain in KE that would imply that one-half of total jobs gain was in that part of the economy; is that realistic?</p>
<p><b>By 2030 R&amp;D spend of £1.5bn (we are assuming this is the total level of R&amp;D, i.e. BERD plus all the rest, and measured in real terms)</b></p>	<p>The level of spend in 2015 was £750m. Doubling (real terms) over 15 years would require an annual compound growth of 4.6% (real). (Obviously, if the £1.5bn target is set in nominal terms then the required real terms growth is smaller.)</p> <p>This looks attainable given that over the ten years up to 2015 growth was 7% annually (real) and 9% (nominal) but it is worth remembering that this growth was from a very low absolute base so the gains over the next decade or so may be harder to achieve. Once again, there is also the question of the consistency with the projected private sector growth rate of barely 2%, see above.</p>

### 3. The Economic Milestones

Milestone	Comment on plausibility and extent to which it is sufficiently stretching
<p><b>By 2030 Maintain the highest level of wellbeing in the UK</b></p>	<p>Whilst it is very understandable the aim should be that this indicator at least stays the same whilst the range of “economic” indicators improve, the important question is whether all the other milestones are consistent with this one? For example, a strong emphasis on improving skills and growth FDI and the KE might imply that some low skill groups/hard to reach groups in labour market terms are left behind. More positively, if Brexit implies a reduction in (low wage) migrant labour could this imply upwards pressure on wages at the lower end of the distribution- thereby improving wellbeing scores?</p>
<p><b>By 2030 put NI into the top three of the 9 small advanced economies</b></p>	<p>That is, an improvement from ninth to third (or better). This target is clearly somewhat aspirational but perhaps appropriately so.</p> <p>At the same time, there is the important question as to whether even if all the other Milestones were achieved would that imply such a strong upwards movement in the rankings? UUEPC would be willing to conduct research to consider how far the various Milestones are consistent.</p> <p>There is an implicit assumption that the other eight comparators will remain successful economies through to 2030 and so it will remain appropriate to use these countries as a benchmark. The Scottish Government uses a contrasting approach for their national performance target relating to comparative productivity- Scotland is to move up into the top quartile of OECD countries. In other words, the comparator is not a fixed sample of countries but whichever group happens to be the top performers.</p>

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## 4. Benchmarking to small advanced economies



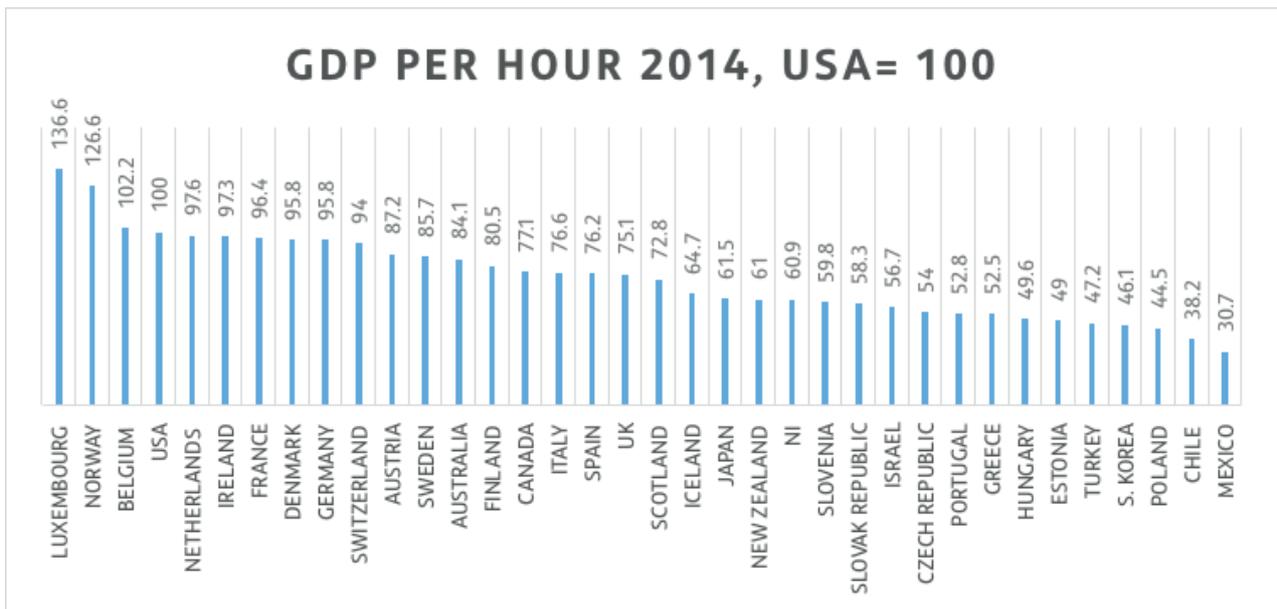
We agree this approach is worthwhile. Indeed, it has been used several times in the past. The Independent Review of Economic Policy (IREP) in 2009 which in turn provided the backdrop to the Economic Strategy of 2012 included a substantial research programme which considered the application to NI of international case studies such as Finland, Sweden, Estonia, Republic of Ireland and New Zealand. Similarly, the NI competitiveness strategy published 1990 (*Competing in the 1990s*) quoted matched plant comparisons between NI and (the then) West Germany as supporting evidence.

The eight chosen comparator economies are all plausible. None are quite as small as NI in population terms, but none are many times larger. Admittedly, there is a lack of clarity implied by comparing a UK region (NI) with seven sovereign countries and one other UK region (Scotland). Countries have more powers and policy levers than

regions so in some sense it might be “fairer” to compare NI to other regions. As the Strategy document argues, each of the eight comparators has some areas of economic strength.<sup>x</sup> The following data illustrates that some of the comparators have higher productivity levels than NI though some have lower levels.

In 2014, NI’s level of Gross Value Added per hour worked was 81% of the UK average. Taken together with the data for Scotland that implies NI was ranked towards the bottom of the OECD with 21 of the 34 OECD members having higher levels (see diagram below). Output per hour in NI was similar to that in New Zealand, Slovenia and the Slovak Republic. Note that Singapore is not an OECD member and so does not appear in this data set. Comparable data for 2013 (i.e. GDP per hour worked on a purchasing power parity basis) implies that Singapore’s productivity level was about 62% of the US level; very similar to that of NI.

## 4. Benchmarking to small advanced economies



Source: 2014 productivity statistics from OECD statistics portal- 16 Feb. 2016. Scottish output per hour from *Scottish Labour Productivity*- 20 January 2016. The NI figure taken from Office for National Statistics 26 August 2016, *Sub-regional Productivity Datasets*.

Over and above the eight comparators chosen, some other potential comparators could be considered:

- Sweden, included in some of the IREP research but arguably a “too big” economy.
- Austria (which may also have an interesting “political economy” similarity to NI in terms of the two-Party power sharing which existed for about four decades after the Second World War).
- Iceland, broadly similar GDP per hour and interesting because so small (similar to Belfast’s population). Perhaps, the experience of the 2007-8 banking crisis makes it too unusual.
- A cohort of former planned economies which may be catching up on NI; Slovenia, Slovak Republic and Czech Republic.<sup>xi</sup>

The approach taken in the NI Strategy is to compare performance against a fixed set of comparators throughout the period 2017 to 2030. Perhaps consideration should be given to the Scottish governments of moving Scotland up into the top quartile of OECD countries. As a result, the comparator countries/ regions are not necessarily fixed.

Apart from the question of whether the document has the right comparators, there probably needs to be some more reflection as to what the comparator countries/regions actually *did*. For example, what difficult policy choices did they make and how realistic is it to assume NI could imitate them? For example, a “Danish” approach to welfare and active labour market intervention may require a Danish level of personal taxation.

## 5. Re-balancing

Whilst there might be close to universal agreement for the proposition that NI should have a world competitive private sector, there may be less consensus on what re-balancing between the private and public sectors actually means and how it can best be achieved. The Strategy does not provide a detailed definition and neither does it say very much about how government itself is going to be reformed.

In addition, the Strategy seems to imply that the job of ‘re-building’ is complete. As per the NICEI, total volume of output in Quarter 3 2016 was still 7% lower than the pre-crisis peak (in Quarter 2 2007), indicating the re-building phase is not complete.<sup>xii</sup> Whilst it may be time for a change in the NI economy we cannot forget that both now and for the foreseeable future the public sector will remain a very important employer (and creator of spending power) in the NI economy.

Powerful and sustained private sector growth may require targeted intervention relating to particular firms (e.g. in terms of FDI promotion or expanding certain areas of research and innovation) in order to encourage clustering (this leads on to the next question area, relating to priority sectors).





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## 6. Sectors

The Strategy's assertion that NI, especially as a small economy, cannot be world class at everything sounds plausible. Six sectors are identified. These are said to display *existing* world class ability. It is less clear where the potential to *become* world class has been identified as existing. Whilst the logical development of this approach would be to say that some elements of *universal* support and policy are going to be withdrawn in the future, the draft Industrial Strategy gives no indication as to what NI government is going to *stop* doing. By comparison, the UK draft Industrial Strategy does not seem to envisage priority sectors- all sectors should try to be excellent.

Whilst there is some read across from the earlier (2008) MATRIX exercises and so many of the six sectors look plausible, there are some questions which deserve consideration:

- Is there sufficient allowance for the transformative and, indeed, disruptive power of technologies- the key sectors might look different in a decade.
- The connections between pharma and life and health sciences are so strong, therefore should the former be included with the latter?
- Inclusion of materials handling is very plausible (the very successful cluster of firms in Mid Ulster sub-region) but why is this combined with "construction" ?
- Are digital and creative always a good match?
- What could be done to ensure that success in the aerospace cluster extends beyond the one predominant employer in this sector to include the entire supply chain?
- Why was tourism excluded? Do some of the other services have export potential- e.g. export of health and educational services?
- What about the renewable sector and technologies?
- We may in fact need to go down under the broad sectors into the underlying technologies and key activities, e.g. to connected health or data analytics (the Strategy document hints at this). We should also be realistic, NI is not currently world class across all activities within each broad sector, e.g. we are not world class in all aspects of life and health sciences but some of these.

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## 7. Operationalising the Strategy

In terms of what is said about actual implementation, for Pillar 1 (innovation), the University particularly welcomes the commitment to more agile government, policy proposals such as an Office of Chief Scientific and Technical Advisor and a permanent Innovate UK presence and the particular indicators which have been chosen (although it would be useful to have more detail about how we stand in terms of the indicators in a comparative sense and what the targets are for improvement over time). One point which is worth adding is that there will need to be a lot of emphasis on NI entering into collaboration with UK and international best practice research partners. In terms particularly of Pillar 2, the University recommends some attention to the challenge of talent retention within NI.

For each of the Milestones the question has to be asked whether we have sufficient leverage in terms of policy instruments to secure the required delivery.

# Conclusions

Implementation of the Strategy is always going to be the hard part. The introduction of clear and measurable Milestones would be very helpful. More work is required to develop the Milestones.

This Strategy also needs to be more strongly related to the whole family of Executive Strategies. The use of priority sectors and comparators brings benefits but the emphasis upon a more selective and priorities based approach to government intervention also implies some

risk. There will be many difficult balances to be struck- e.g. between the Universities or, notably, in terms of sub-regional geography.<sup>xiii</sup> Also, if this Strategy is to be real and to avoid simply rolling on with the status quo there have to be some tough decisions about things NI government stops supporting or doing. There is the obvious but important point that this Strategy includes the important “ask” of a much more agile government but the recent record in NI has been of a “stop-start” government.

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<sup>i</sup> Depending on how a “strategy” or “review” is defined there have been about 18 major economic policy documents in NI between Isles and Cuthbert’s study in the 1950s and this latest Strategy in January 2017. The fact that some of the fundamental analysis from the documents produced in the 1950s, 1960s and 1970s is still very relevant today suggests that the earlier strategies were unable to change outturns to a very great extent; E. Birnie and D. Hitchens 2001, “Chasing the wind: Half a century of economic strategy documents in Northern Ireland”, *Irish Political Studies*, vol. 16, no. 1, pp. 1-27.

<sup>ii</sup> A recent Oxford Economics study (March 2017) indicated the total economic gain resulting from international students in the UK was equivalent to about £26bn annually.

<sup>iii</sup> Arguably, our “good wellbeing” is being propped up through the £10bn subvention or Fiscal Transfer from HM Treasury to the NI Executive. Is this position something to laud and is it really sustainable?

<sup>iv</sup> Notably, the work of Michael Porter at the Harvard Business School. The current draft UK Industrial Strategy similarly places very strong emphasis on competitiveness.

<sup>v</sup> In general, the NI Strategy reads as emphasising the things which the private sector has to do with much less emphasis on modernisation and reform in the NI public sector.

<sup>vi</sup> That is, including the self-employed. As a general point, the final version of this Strategy should include a full definition of the statistics used to measure each Milestone and the related data source.

<sup>vii</sup> The number of full-time employees actually fell.

<sup>viii</sup> In so doing, the ambiguity implied by counting “qualifications” should be removed. A count of qualifications would mean that one person would be included multiple times if he/she acquired a range of

qualifications during the time period. It is probably better therefore to count the number of individuals who are qualified to at least, say, level 3.

<sup>ix</sup> It may be worth noting that this is a gross sales measure and would not necessarily reflect change in value added. In theory, NI could attempt to meet this target by importing considerable quantities of goods and materials and then sell these on with minimal processing- this could meet the target but would not necessarily deliver a high level of income and employment within NI.

<sup>x</sup> For example, in the case of Scotland, the Scottish government often points to how the country has more “world class universities” per head than anywhere else (presumably, number of entries in, say, the world’s top 200 using one of the available rankings such as the Times Higher World University Rankings 2016-17).

<sup>xi</sup> A matched firm comparison of NI with the Czech Republic, Hungary and the former East Germany argued that the “former Communist” economies were advantaged relative to NI given the fact that their strengths in engineering and apprenticeships had survived during the 1945-89 period and to this advantage was added relatively low labour costs and closeness to the Germany economy; D.M.W.N. Hitchens, J.E Birnie, K. Wagner, J. Hamar, A. Zemplerova 1995, *Competitiveness of Industry in the Czech Republic and Hungary*, Avebury, Aldershot.

<sup>xii</sup> Admittedly, some of the 2007 peak may have been “artificially” boosted by the speculative bubble in housing and construction but it is notable how far, say, output in total manufacturing; food, drink and tobacco and engineering remains below the pre-crisis peak.

<sup>xiii</sup> Including how much emphasis on greater Belfast and Derry/Londonderry and the North-West.