**Impact Delivery, Build, Persistence and Decay**

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| **When public sector economic development interventions are implemented their impacts can be affected by, *inter alia,* four temporal factors: the time between resources being spent and benefits arising; the period over which the benefits build before they peak; how long these benefits last, that is their persistence; and the rate at which the benefits decrease, that is decay, over time.** |

**Why is it important?**

When SE intervenes in the market it is important to try to understand the dynamics of these interventions. For example, benefits do not arise instantaneously nor will they last forever. However, the extent to which there is evidence based information on which to base such understanding is limited, with many evaluations and appraisals making no explicit mention of the timing factors that affect impact delivery. However, it is important that these factors should, at a minimum, be recognised as they can have a significant effect on impacts. For example, one of the few evaluations that considered the impact of the timing of the delivery of benefits[[1]](#footnote-1) found that, for Business Development and Competiveness Interventions:-

* Increasing the assumption about the time benefits lasted for individual enterprise and sector/cluster support (their persistence) from three to four years resulted in the Net Present Value (NPV) of the cumulative benefits increasing by 29%; and
* If the rate of decay was assumed to be 0% rather than 10% per year then the NPV of the benefits of individual enterprise and sectior/cluster support increased by 10% and 21% for inward investment.

It would therefore seem that changing these assumptions only slightly can have a considerable effect upon impacts.

**What should be taken account of?**

The meta-evaluation of the Regional Development Agencies (RDA) mentioned above[[2]](#footnote-2) highlights four factors that should be taken into account when looking at the effect that time can have upon the delivery of impacts. These are derived from marketing, being essentially the basic stages in the product life cycle[[3]](#footnote-3). The stages are:-

* The length of time between spending resources and the benefits beginning to appear. For some interventions, especially infrastructure, this could be a lengthy period;
* Once benefits begin to appear then it will take time before they reach their full potential. Using an infrastructure example, once a building is completed then tenants are likely to move in gradually so that it will only be when the building is full that the full economic benefit of the intervention is realised;
* Once this peak is reached then how long will the benefits of the intervention persist? For example, if SE helps a company to develop a new product what is this product’s life cycle, that is the time that it can command a market before new products are introduced that displace it?; and
* Over time various other factors change, for example economic conditions, market demands and changes in competitors. The initial benefits will therefore start to decay over time in so far as the proportion of the benefits that can be attributed to SE’s intervention will gradually decrease.

Thus SE may support a company to develop a new product. This may take a year to get to market. Over this time money is paid out but there are few benefits in terms of the standard impact measures such as GVA. The product then gradually wins market share and after four years this reaches its maximum. Over the intervening period the benefits of the intervention have gradually increased. The life cycle of the product has been assessed as being ten years in total. However, after the five year peak there is a gradual decline in sales (and attributed benefits) that has been forecast (based on experience of other product life cycles) to be 20% a year. At the end of this time (ten years after SE began to support the company) the benefits as a consequence of SE’s interventions are negligible. Thus the profile of costs and benefits lasts for a total of ten years:-

* One year when there are few benefits as the product is being developed;
* A further four years over which time the product increases market share and produces benefits, which peak at the end of this period (year five); and
* A further five years over which time the product gradually loses market share (and economic benefits decrease). At the end of this period (year ten) there are no more impacts as a consequence of the intervention and the product is no longer sold, having been superceded by alternatives.

Interventions that involve helping companies to introduce new products may be relatively easy to profile in terms of the trajectory of impacts in that marketing literature may be able to provide useful indicators of probable life cycles. For example, it is said that technology based products will have a shorter life cycle than more traditional ones. Thus:-

* Computer consoles have a life of six to eight years which is now being forecast to fall to five to six[[4]](#footnote-4); and
* Whilst a video game can take two to four years to develop, once in the market it can have a life as short as six months.[[5]](#footnote-5)

It may be far more difficult to assess the life span of interventions that are not directly product focussed.

**The Process**

When evaluations are undertaken, and the net impacts identified are based on those attained to date, it can be assumed that they include the four stages identified above. The problems arise when, in either an evaluation or an appraisal, the impacts are forecast into the future. There is then a need to factor in these stages. However, the evidence base on which to do this is limited. In some of SE’s recent evaluations questions have been asked about the likely persistence of the impacts consequent upon SE’s interventions. For example:-

* The 2013 evaluation of account management activity[[6]](#footnote-6) asked companies how long they expected the benefits of SE’s support to last. Half said five years or longer. However, the question was a general one, not specifically related to GVA or employment, nor was it factored into the impact calculations; and
* The 2011 evaluation of the Scottish Construction Centre [[7]](#footnote-7) did apply a persistence adjustment to the impacts. However, although a specific question had been asked about this in the evaluation (with 20% of respondents saying that impacts would last four years or more) the adjustment made was based on the RDA evaluation evidence[[8]](#footnote-8), this being 2.9 years. The justification for this was to *“guard against optimism bias”.*

Given the paucity of evidence then the approach suggested is three fold:-

* If there is evidence, for such things as specific product life cycles, then this should be used and clearly sourced;
* In the absence of any such evidence then consideration should be given to using the adjustments that were made as part of the RDAs’ evaluation. These are summarised in Appendix 1. However, these need to be caveated in that the data on which the report was based is now quite old[[9]](#footnote-9). It is also the case that few of the evaluations on which the report drew had actually tried to estimate such things as decay or persistence. Accordingly the consultants developed their own assumptions[[10]](#footnote-10); and
* Regardless of what is done (or not done) this needs to be clearly explained and any assumptions outlined.

**Need more help?**

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**APPENDIX 1 The Life Cycle of Economic Development Interventions on GVA**

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| --- | --- | --- | --- | --- |
| **Type of Intervention** | **Time to deliver (years)** | **Period over which benefits build (years)** | **Persistence of benefits (years)** | **Annual benefit decay (%)** |
| Individual enterprise support | 1 | 1 | 3 | 10 |
| Sector/cluster support | 1 | 1 | 3 | 10 |
| Promotion and development of science, R&D and innovation | 1 | 3 | 3 | 10 |
| Inward investment promotion | 1 | 1 | 5 | 10 |
| Bringing land back into use | 5 | 3 | 10 | 10 |
| Public realm | 3 | 2 | 10 | 10 |
| Image events and tourism | 1 | 1 | 2 | 10 |

**Source:-**

<http://www.berr.gov.uk/files/file50735.pdf>

P. 90, Table 53.

1. <http://www.berr.gov.uk/files/file50735.pdf>

   pp. 30-31. [↑](#footnote-ref-1)
2. Ibid. pp. 89-90. [↑](#footnote-ref-2)
3. In its simplist form this has four stages: development, growth, maturity and decline. [↑](#footnote-ref-3)
4. <http://gamerant.com/ps4-xbox-one-life-cycle/> [↑](#footnote-ref-4)
5. <https://www.boundless.com/marketing/products/product-life-cycles/introduction/> [↑](#footnote-ref-5)
6. <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=530>

   p.85. [↑](#footnote-ref-6)
7. <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=468>

   P. 46, para. 4.23. [↑](#footnote-ref-7)
8. <http://www.berr.gov.uk/files/file50735.pdf> [↑](#footnote-ref-8)
9. For example although the report was publishd in 2009 it is based on an analysis of evaluations undertaken between 2002/03 and 2006/07 when economic conditions were very different. [↑](#footnote-ref-9)
10. <http://www.berr.gov.uk/files/file50735.pdf>

    p.90. [↑](#footnote-ref-10)