

# Do firms really learn from failure? The dynamics of abandoned innovation

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Abandoned and failed innovations can be regarded as a part of the natural process of experimentation by firms, which can lead to important lessons being learned. Here, we think for the first time, we use panel data on Spanish manufacturing firms from 2008-2016 and show that innovation failure in one period leads to more successful innovation in future periods. This provides strong evidence of 'learning-from-failure'. In addition, we find evidence that in addition to enabling cumulative learning processes, abandoning innovation may also act as a dynamic corrective mechanism preventing firms carrying weaker innovation portfolios through from one period to the next.

## Key findings

Our empirical analysis suggests three key findings and suggests for the first time the dynamic and causal nature of the linkage between abandoned innovation and subsequent innovation outcomes:

- We show that abandoned innovation can contribute to enhanced innovation performance in subsequent periods. This effect is evident both for the probability that a firm will undertake product/service, process and organisational innovation but also for the share of new to the market innovation in firms' sales.
- This learning effect is cumulative: the benefits to firms' innovation are strongest where firms benefit from the cumulative learning from abandoned innovation undertaken during the two previous periods .
- Learning effects from abandoning innovation are also stronger where firms engaged in no prior R&D or training in the previous period. This effect may be linked to the strength of firms' portfolios of innovation.

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## Learning from failure

Failure is a natural part of any business. By definition all businesses must make future investment plans, not all of which will end profitably. In the case of innovation, a process the outcomes of which are inherently uncertain, failure may not merely be commonplace but ubiquitous. Studies estimate the proportion of innovation projects failing wholly or in part to be between 40% and 90%. While failure and abandonment is costly, it need not be entirely wasted. If lessons can be learned from failed and abandoned projects which may either encourage better selection of innovative projects in the future or allow more of them to be managed to fruition, then an apparently wasteful element of corporate activity can, at least in part, be turned into something beneficial for the firm concerned.

Some studies have attempted to capture this by considering the link between abandoned innovation and successful innovation, and find a positive association in the context of a cross-sectional analysis. However, the key dimension of learning is that it takes time to absorb and implement new knowledge. Our contribution lies in showing for the first time the dynamic and causal nature of the linkage between abandoned innovation and subsequent innovation outcomes. There are indeed learning effects but these are complex and depend on cumulative as well as current episodes of failure. The effectiveness of this cumulative learning process, and therefore the strength of its beneficial effects on innovation outcomes, proves strongly conditional on firms' past activities.

## Policy implications

Our analysis points to the value of learning from abandoned or failed innovations for future innovation success. Supporting firms to develop managerial mechanisms or routines which can systematically capture these lessons has significant potential (private) benefits. There may also be broader social benefits from understanding and sharing knowledge about innovation failures, something which could be enabled by public agencies operating as an honest broker. Such an understanding could help to avoid repeating failed experiments and enable resources to be directed towards more positive innovation opportunities.

**Full paper link:**

<https://www.enterpriseresearch.ac.uk/our-work/publications/?type=research-paper>