Institution: Newcastle University

Unit of Assessment: 17 Business and Management Studies

Title of case study: Transformational change through combining Lean process improvement and people management in the manufacturing and service sectors

Period when the underpinning research was undertaken: 2003–2020

Details of staff conducting the underpinning research from the submitting unit:

Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
Christian Hicks	Professor of Operations Management	1987 to date
Tom McGovern	Professor of Business History and Management	1988 to date
Paul Braiden	Professor of Manufacturing Engineering (Emeritus since 2006)	1983 to 2006
Adrian Small	Lecturer in Operations Management	2010 to 2020
Tracy Scurry	Senior Lecturer in Human Resources Management	2005 to date

Period when the claimed impact occurred: 2013–2020

Is this case study continued from a case study submitted in 2014? N

1. Summary of the impact

This case study exemplifies how high-quality research on transformational change has been realised and sustained long term across discrete business contexts. Research interventions in the manufacturing and service sectors have significantly increased competitiveness by improving productivity, operational efficiency, and lead-times. The study highlights two holistic interventions tailored to their organisational contexts, including the competitive environment, processes, human resources, and training needs. Hartlepool Steel Mill represents a long-term collaboration where the development of a Lean capability and an enhanced people management strategy prevented closure in 2017. At Benfield Motors, a Knowledge Transfer Partnership (KTP) undertaken between 2014 and 2016 focused on reducing costs and improving customer experience in aftersales. The KTP resulted in reduced customer waiting times, increased turnover, and improved operational efficiency.

2. Underpinning research

Newcastle has a long track record of interdisciplinary operations management research, particularly relating to the implementation of Lean principles. Newcastle research has identified and addressed key issues associated with transformational change based on Lean principles in the manufacturing, service, and health sectors. A holistic, participative approach has been developed that tailors training and process improvement interventions to the competitive and organisational contexts of the organisation.

Research by Herron and Braiden (PUB1) developed a new diagnostic tool to tailor interventions to the organisational context. This incorporated a Productivity Needs Analysis (PNA), which gives an overview of key productivity measures and current manufacturing performance; a Manufacturing Needs Analysis (MNA), in which the plant processes and problems are defined and are associated with the appropriate tools and metrics; and a Training Needs Analysis, which identifies staff development requirements. The methodology was derived from a Quality Function Deployment (QFD) matrix that used a scoring system to identify priorities. This provided a framework that enabled interventions to be tailored to the local context by only selecting appropriate Lean tools. Subsequent research by Herron and Hicks (PUB2) reported how Lean

could be transferred from an exemplar company (Nissan) to large and medium-sized companies through change agents. Grant 1 extended the methodology to assist small and medium-sized companies in the North Sea Region of Europe; it developed a framework based on Institutional Theory that explained how contextual factors shaped the approach to implementation (PUB3). This further justified the need for the diagnostic tool developed by Herron and Braiden (PUB1) to select Lean approaches according to contextual factors.

Subsequently, the research focus was extended to the healthcare (Grants 2 and 3) and motor distribution sectors (Grant 4). The transformational change approach considered organisations' visions, people, and process improvement based upon Lean principles. The research in the healthcare sector identified that the NHS had adopted a transformational change model, 'the three-legged stool', that comprised 'vision', 'compact' (the psychological contract between staff and organisations), and 'method', based upon the application of Lean tools and techniques (PUB4). This approach was later adopted by the academic team in the KTP at Benfield Motors (Grant 4).

In further research, Hicks et al. (PUB5) analysed the automotive supply chain. This research identified that automotive manufacturers have separate national sales companies that manage dealerships through franchise agreements. This decouples dealerships from the automotive assemblers who have expertise in Lean, leaving the continuous improvement of processes as the responsibility of the automotive franchisees. Further research identified that the politics of the workplace are an important aspect of transformational change/Lean interventions, underscoring how Lean interventions harness the exploitable desire for recognition amongst marginalised workers (PUB6).

3. References to the research

This case is underpinned by a range of publications in international peer-reviewed journals in the fields of operations management, organisation studies, and health services research. It is supplemented by a paper presented at an international management conference.

Publications

1. Herron, C. and **Braiden, P**. (2006) 'A methodology for developing sustainable quantifiable productivity improvement in manufacturing companies', *International Journal of Production Economics*, 104(1), 143–153. http://doi.org/10.1016/j.ijpe.2005.10.004
2. Herron, C. and **Hicks, C.** (2008). 'The transfer of selected Lean manufacturing techniques from Japanese automotive manufacturing into general manufacturing (UK) through change agents', *Robotics and Computer-Integrated Manufacturing*, 24(4), 524–531. https://doi.org/10.1016/j.rcim.2007.07.014
3. **McGovern, T., Small, A.,** and **Hicks, C.** (2017) 'Diffusion of process improvement methods in European SMEs', *International Journal of Operations and Production Management.* 37(5), 607–629. http://doi.org/10.1108/IJOPM-11-2015-0694
4. Hunter, D., Erskine, J., **Hicks, C., McGovern, T., Small, A.,** Lugsden, E., Whitty, P., Steen, I. N., and Eccles, M. (2014), 'A mixed-methods evaluation of transformational change in NHS North East', *Health Services and Delivery Research,* 2 (47) http://doi.org/10.3310/hsdr02470
5. **Hicks, C., Scurry, T., McGovern, T., Small, A.** and Whipp, M. (2014), 'The case for transformational change in the automotive distribution industry', 28th Australian and New Zealand Academy of Management Conference, Reshaping Management for Impact, 3–5 December 2014. (available on request)
6. Mackenzie, E., **McGovern, T., Small, A., Hicks, C.,** and **Scurry, T.** (2020) '"Are they out to get us?" Power and the "recognition" of the subject through a "lean" work regime', *Organization Studies (In Press).* http://doi.org/10.1177/0170840620912708

	Grant Title	Funder/Sponsor	Dates	Amount (GBP)
1	European Regions for Innovative Productivity (ERIP)	EU INTERREG IVB North Sea Region Programme	March 2008 – June 2011	278,368
2.	Evaluation of Lean techniques in the North East Health Authority, a scoping study (50:50 with Durham University)	North East Strategic Health Authority	April 2008 – July 2008	62,000 (amount to Newcastle)
3.	Evaluation of the NHS North East Transformational Change System in NHS North East (50:50 with Durham University)	National Institute for Health Research	February 2009 – May 2013	248,079 (amount to Newcastle)
4.	Benfield KTP (KTP009350)	ESRC/Innovate UK	January 2014 – January 2016	126,000

4. Details of the impact

This section demonstrates how Newcastle research has been mobilised and adopted in two significant organisations in the North East of England: one of the largest private motor dealerships in the UK and the only remaining steel mill producing bespoke steel pipes. The collaborations with both organisations have substantially increased competitiveness by improving productivity, operational efficiency, and lead-times.

Hartlepool Steel Mill

The first example emphasises how a transformational change strategy based on Newcastle research, implemented from 2004, enabled Hartlepool Steel Mill to be saved from closure by its purchase by Liberty Steel in 2017. To set the context, Hartlepool Steel Mill, under various ownerships from British Steel to Corus to Tata Steel, had attempted several turnaround strategies based on Lean methodologies, but none had resulted in a sustained period of improved performance. The Managing Director (MD) of Hartlepool Steel Mill, then under the ownership of Corus, was an early adopter of the research detailed in PUB1 and PUB2. The MD subsequently enrolled in a part-time PhD with Hicks and McGovern to develop a deeper understanding of transformational change. He states in a letter dated 14 January 2021: '*This enabled me to implement a holistic transformational change programme that encompassed an enhanced people strategy in combination with a comprehensive, continuous improvement programme based on the PNA/MNA/TNA analysis'* [IMP1]. He goes on to say that this combined approach enabled Hartlepool Steel Mill to develop a continuous improvement capability under his leadership.

In 2015–16, there was a steep decline in the market for specialised steel pipe caused by a collapse in the oil price from USD120/barrel to USD28/barrel. This precipitated announcements of reductions in UK production capacity from major steel producers. Tata Steel had decided to divest, or if necessary, close the Hartlepool Steel Mill. However, in 2017 Liberty House acquired the Hartlepool Steel Mill. The MD states: '*Liberty House acquired the Hartlepool Steel Mill because they perceived it as a world class asset that could be restored to its former glory. Liberty were inspired by the significant improvement in productivity due to the successful transformational change capability which was embedded in the Company'* [IMP1]. The MD notes that this protected the employment of 200 people in Hartlepool, which is the fourth most employment-deprived local authority in England, according to the English Indices of Deprivation 2019. The MD comments that '*The improvement capability established and sustained through the transformational change programme made the Company sufficiently resilient to survive and compete in a declining and highly competitive market'* [IMP1].

The MD completes his testimonial by stating that '*The Hartlepool Steel Mill is continuing its journey of enhancing its capability in process improvement and transformational change'*, noting that since 2014 productivity has improved by a further 8% [IMP1].

Therefore, during the current REF period the Company was saved from closure, thereby protecting employment, and productivity was improved by a further 8%. This demonstrates that the transformational change strategy informed by the collaboration with Newcastle researchers has had the sustained impact that previous strategies failed to achieve.

Benfield Motor Group

The second example details the significant impact of a transformational change intervention in an automotive dealership. In 2014, Benfield Motor Group had 1,500 staff and was one of the largest and best-known private companies in the motor retailing market, with a chain of 34 franchised dealerships. Strong aftersales performance is a crucial outcome of a successful business model in motor distribution. It provides a stable source of profit and insulates against seasonal and other fluctuations in the car sales market. In line with the sector, the contribution that Benfield enjoyed from this area was falling relative to overall costs. To address this and to increase customer satisfaction, the Company had taken a strategic decision to introduce a programme of transformational change but did not have the expertise in-house. Previous attempts to introduce change with the support of consultants had failed. As noted in Section 2, the automotive manufacturers' national sales organisations decouple distributors from automotive manufacturing expertise in Lean (PUB5). Therefore, Benfield's CEO commissioned the Newcastle team to assist with transformational change. An ESRC/Innovate UK-funded Knowledge Transfer Partnership (KTP) with Benfield (Grant 4), launched in January 2014, increased productivity and improved customer service as part of Benfield's 'Work Smart' programme (detailed in PUB6).

The KTP adopted 'the three-legged-stool' approach to transformational change (PUB4), encompassing, vision, people (role specifications, job design, reward structures, and training), and process improvement. The KTP Associate led teams of technicians to design and implement process improvements in the Aftersales Department. Employees were trained in using problem-solving tools, understanding value streams, and the importance of managing workflow to meet customer requirements. This was based on previous research conducted by Herron and Hicks (PUB2), the ERIP project (Grant 1 and PUB3), and transformational change in the NHS (Grants 2 and 3 and PUB 4). The aftersales work was segmented into a 'green stream' for fully predictable work (such as services for relatively new cars), an 'amber stream' for semi-predictable work (such as servicing slightly older cars), and a 'red stream' for unpredictable, reactive work. Improved efficiency enabled the Company to service more cars with their existing resources.

The KTP was rated as outstanding (the highest possible rating) by Innovate UK [IMP2] and is featured as a case study on the ESRC's website [IMP3]. The 'Company Partner' element of the Final Report [IMP4], which has been independently assessed by Innovate UK, and the case study published on the ESRC website [IMP3] both attribute the following impacts directly to the KTP:

- Increase in the Company's annual sales turnover of GBP720,000;
- Customer waiting time at the dealership for routine services reduced from 2 hours to less than 45 minutes;
- Process improvements reduced booking lead-time from 1–5 days to 1 day;
- Where a courtesy car was requested, lead-time was reduced from 1–15 days to 0–9 days.

Benfield's Strategic Development Director explains in the Final Report [IMP4] that the KTP had been initiated due to the former CEO's view that Lean was the future of aftersales. He comments: '*Over the two-year project, we have developed a clear vision for the transformation of aftersales, and have developed a plan and training package to achieve this'* [IMP4]. In

assessing the impact on the Company, he makes the following comments regarding staff: '*The method of implementation has allowed many individuals across the organisation to have benefited from acquiring knowledge of process improvement tools and techniques that has informed the KTP'; 'Staff have been upskilled and have been able to contribute to making improvements. Communication channels between different departments have been substantially improved'*; and '*Staff have been motivated to identify and continually make improvements to their work areas and help colleagues make improvements in other areas of the business. These improvements have resulted in increased productivity and efficiency throughout the aftersales function'* [IMP4]. In terms of customers, he comments, *'Customers have appreciated the fast service offered by the green lane innovation that the KTP has produced'*, and '*Customers have received a quicker, more efficient service'* [IMP4].

In his concluding remarks to the Final Report, the Strategic Development Director comments, '*Due to the complexities of implementing transformational change, the KTP was vital in developing the strong foundations for what we see as a long journey. The academic team was able to provide guidance to the project owing to their prior experience of, and engagement with, this type of change initiative'* [IMP4].

The significant impacts on both Hartlepool Steel Mill and Benfield Motors are examples of impact arising from Newcastle's long track record of interdisciplinary operations management research combined with extensive collaborations with organisations.

5. Sources to corroborate the impact

IMP1 Testimonial letter from the Managing Director of Liberty Steel (Hartlepool) Ltd, dated 14 January 2021.

IMP2 Assessment of Knowledge Transfer Partnership Final Report. Innovate UK Letter, dated 26 April 2016.

IMP3 ESRC Impact Case Studies: Lean Car Service Boosts Profits https://esrc.ukri.org/news-events-and-publications/impact-case-studies/lean-car-service-boosts-profits/.

IMP4 Knowledge Transfer Partnerships: Partners Final Report Form: Partnership: KTP009350.