

University of Wales Trinity Saint David

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Prifysgol Cymru

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**Management Innovation and Sustainability – Technical
Report**

Approaches to Innovation and Organisational Change

ACMA5007

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Executive Summary

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Table of Contents

Executive Summary	ii
1 Introduction	1
2 Main Findings.....	2
2.1 Overview of the Change	2
2.2 Assessment of the Effectiveness.....	3
2.3 Leadership and Management	4
3 Conclusion.....	5
4 Bibliography (SO FAR).....	6

1 Introduction

The Diamond Centre of Wales (DCW) is a limited company which specialises in the creation of bespoke jewellery for its consumers. Consumers have an initial consultation with designers where they collaborate on creating a unique design. The Computer-Aided-Design team create a digital rendering of the design to send to the customer. After approval, a wax model is produced using a 3D printer, to be sent to Weston Beamor where they use the wax models to cast the designs in the required precious metal via a process called 'lost wax' casting (Weston Beamor). The casting is sent back to DCW for completion in the on-site workshop, where the castings are cleaned and polished before the setting of any gemstones. The final piece is then collected by the consumer (Diamond Centre Wales).

The change that was implemented at DCW was where a ProJet 2500MJP 3D printer (3D Systems, 2017) was procured by members of the CAD team, to enhance the efficiency and operations of the whole process. The previous 3D printer was a SolidScape 3ZPro (Newman, J 2012). Change can be brought to an organisation through the appropriate use of leadership. Leaders with strong leadership skills can motivate employees of the organisation to apply changes which will have positive effects on the company (Hao and Yazdanifard, 2015) – or in this case, motivating the employers as this is a 'bottom-up change', where the change is initiated by the employees (Heyden et al. 2017). Change management is very key in the current day with how rapidly the world of business is changing, with the introduction of new and advanced technologies. Organisations must adapt and alter current procedures to achieve long term sustainability and growth (Kumarasinghe and Dilan, 2021)

2 Main Findings

2.1 Overview of the Change

Rapid prototyping is an essential part of the process in the jewellery industry, allowing for rapid production of 3D models for precious metal casting. Modern printers provide extreme intricacy and speedy printing, which improves the production time and quality of the final piece (Wannarumon and Bohez, 2004). 3D printers are constantly improving, so, it is vital that organisations consider upgrading their technology to keep ahead or at least keep on the same level as their competitors. They are required to act swiftly to deliver unprecedented quality in their service and products (Onuh and Yusuf, 1999).

The changing of 3D printers for rapid prototyping was initiated by operators of the machines with firsthand experience of the frequent failures, slow output and limited capabilities of the old 3ZPro printer. With the 3ZPro seemingly coming to an end of its life – this presented an opportunity to search the market for an improved machine. After a discussion with the employers about their concerns, the operators were given the green light, after some resistance, to procure a new advanced 3D printer which would help to improve the efficiency of the department. After researching the market, it was decided by the operators that the ProJet2500W Plus was the best fit for the company due to its extreme speed and precision whilst having a much larger print bed than the old printer, which allows for more models to be printed in one go (3dprinting.com).

Lewin's Forcefield Analysis is used below to show the driving forces for the change along with the resisting factors. This tool helps employers analyse a proposed change and helps them to make informed decisions (Dominic, A 2021). Resistance to change is a very common theme in organisations and it generally refers to employees resisting a change from management, 'Top-Down' change. An example of resistance to change could be based on logical analysis that shows the costs required for change are greater than the benefits of the change – or it could be simply down to individuals happy in their current situation, free-riding, not wanting to alter anything in their working life (Damawan and Azizah 2020). Fortunately, in the change at DCW, the resistance to change was very minimal as everyone agreed that the 3D printer needed upgrading. The only resistance was due to the cost of the ProJet2500W – however, a payment plan was agreed with the seller which pleased the employers.

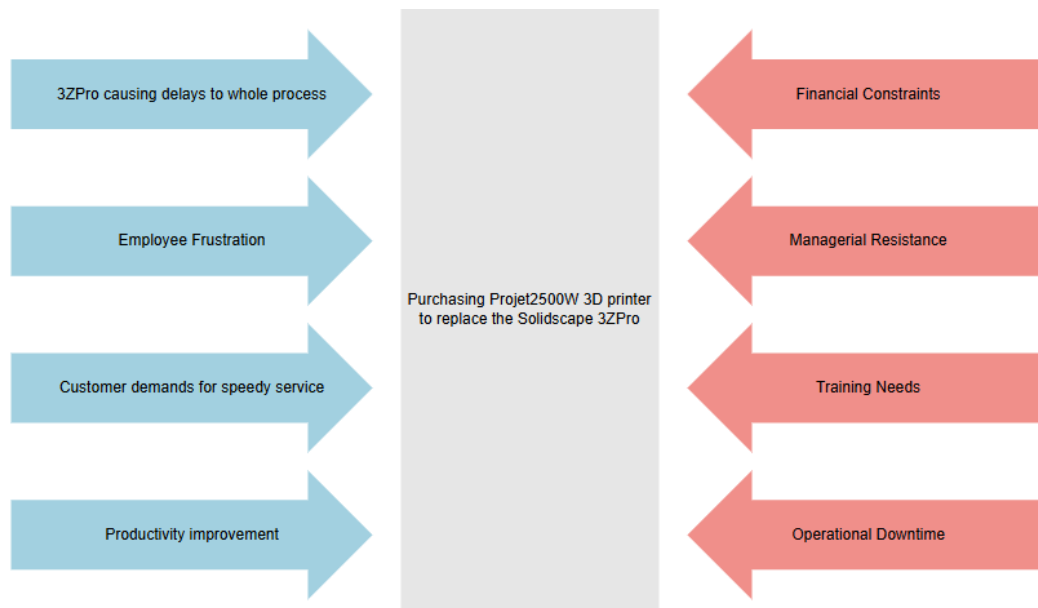


Figure 1 Lewin's Forcefield Analysis used for the changing of 3D printers at DCW (Visual Paradigm Online)

The driving forces clearly outweigh the resisting forces, which led to the employers agreeing to the purchasing of the Projet2500W. The old printer caused delays to the entire process through failed prints and operators spending more time fixing the machines than creating CAD models for customers. This led to jobs being processed into the workshop with little time to spare before completion dates and added stress as there was little to no room for error for the goldsmiths.

2.2 Assessment of the Effectiveness

To assess the effectiveness of the change, Kotter's 8-step model will be used. The 8 stages of the Kotter model are as follows: Create a sense of urgency, build a coalition, form a vision, communicate the vision, remove barriers, generate short-term wins, sustain acceleration and make the change stick. Kotter's model is recognised as one of the best approaches to organisational change management (Pollack and Pollack, 2014). Kotter's model has leadership at the heart of his model, which is split into three different areas – creating the climate for change, making the change happen and sustaining the change (Aldemir, E 2010).

At the DCW, the first step of creating an urgency occurred in the CAD department as operators of the 3ZPro printer all agreed the machine was causing disruptions to the process and nearing a point that the business wouldn't be able to function with the machine faults becoming more frequent. The three operators formed the coalition that would implement the change. There was no formal vision obtained, as the situation was as simple as asking to upgrade the 3D printer. The vision was shared informally to the employers who agreed the printer needed upgrading. The restraining barrier was

that the cost of the new printer was high. The short-term wins were that the new printer was clearly a vast improvement on the previous one due to printing speed and quality. There was no continuous improvement as the machine was one of the best on the market at the time. To anchor the change into the culture of DCW, it was agreed that upgrading would be discussed more regularly than before.

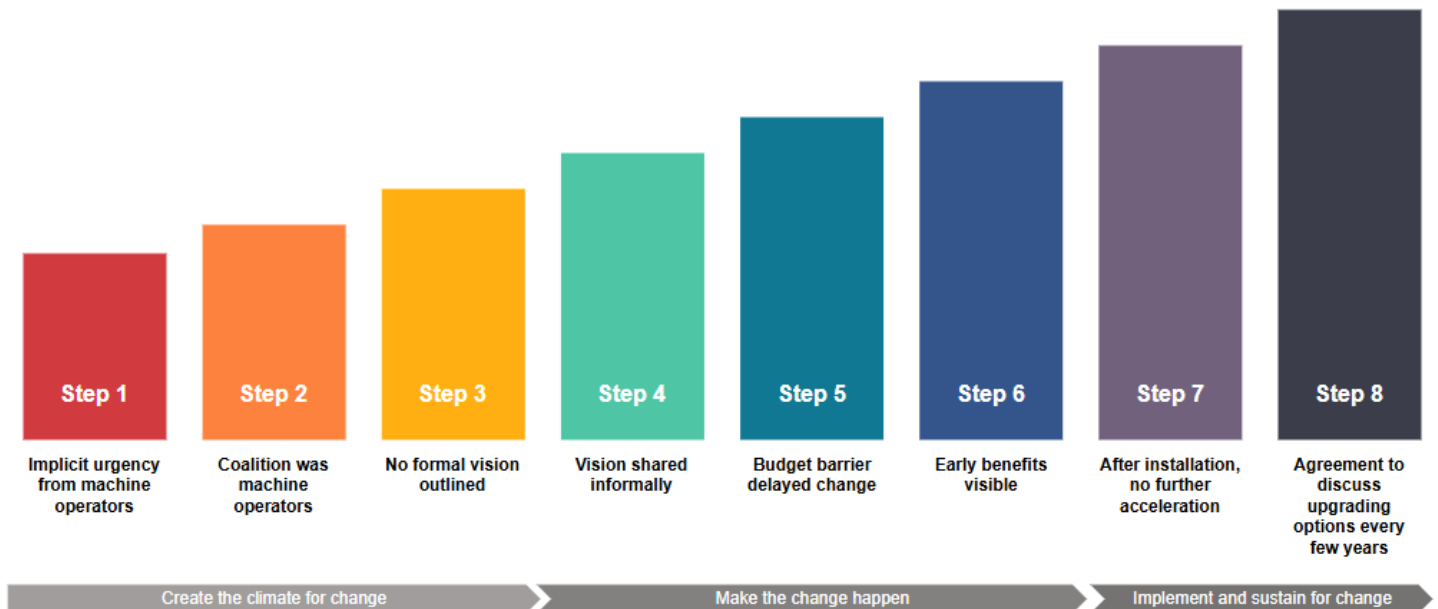


Figure 2 Kotter's 8-Step Model used in showing the change at DCW (Visual Paradigm).

In the future, changes should follow a more formal framework to ensure alignment, clarity and sustainability.

2.3 Leadership and Management

GOING TO TALK ABOUT STYLES OF LEADERSHIP, ACTION-CENTRED LEADERSHIP, QUALITY/TRAITS APPROACH AND LINK IT TO WORK. ALSO, THE HEIRARCHY OF NEEDS AND HERZBERG'S TWO-FACTOR THEORY.

3 Conclusion

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