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Introduction

This report will outline an process improvement project that is currently being undertaken by William Davies within Norgine Pharmaceuticals Limited. Norgine is a leading European specialist pharmaceutical company that has been bringing transformative products to patients for over a century.

Our commitment to transforming people's lives drives everything we do and our European experience, fully integrated infrastructure and exceptional partnership approach enables us to quickly apply creative solutions to bring life-changing products to patients that they may not otherwise be able to access.

Norgine is proud to have helped 24 million patients around the world in 2021 and generated €505 million in net product sales, a growth of 10% over 2020.

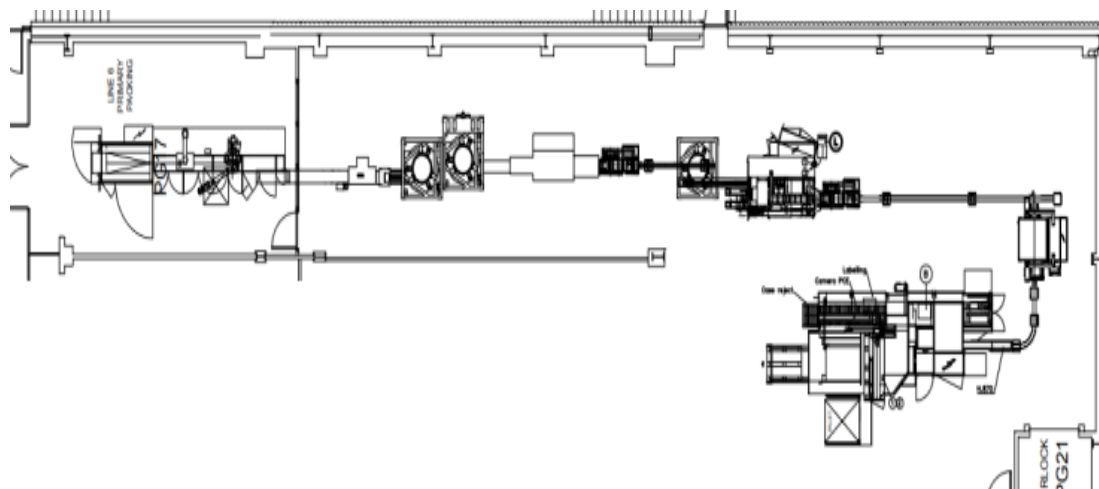
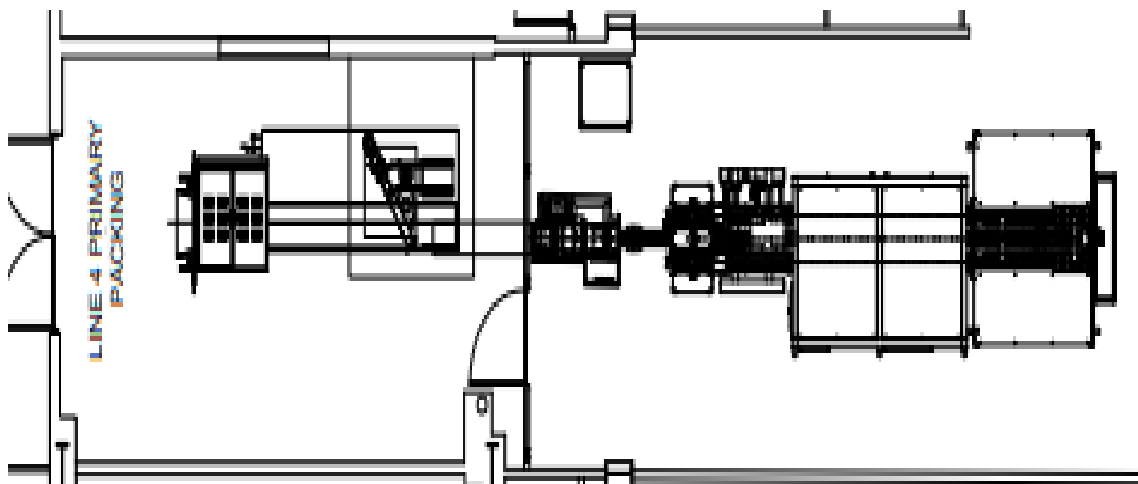
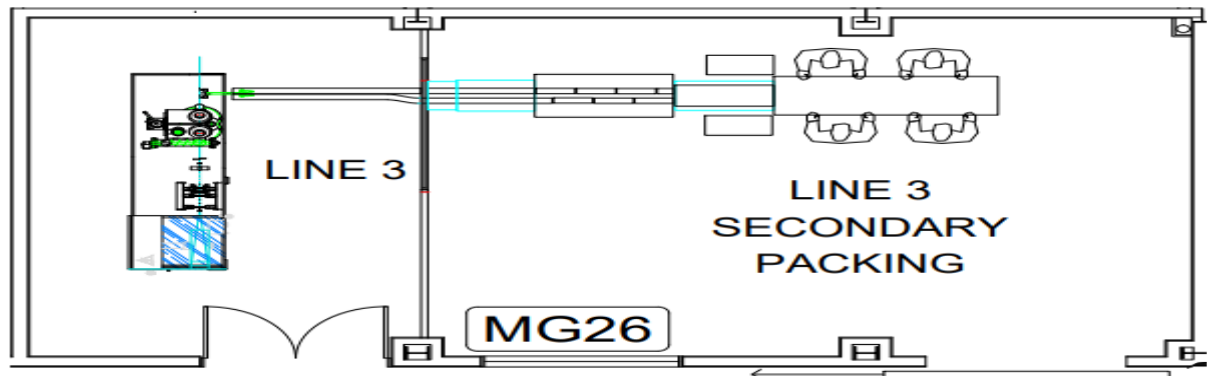
“Our vision is to ensure that we bring transformative products to Europe that add value and benefits to healthcare systems and patients.”

Peter Stein, Executive Chairman

In the constant drive for process improvements and product growth, Norgine Hengoed, the main manufacturing site are undergoing a large organisational change and are investing 40 million euros into new production facilities and equipment which will supersede the out dated and aging equipment/processes that are currently utilised in the manufacturing of their powder based medicines.

Project Scope

With the company's drive for continuous improvement, one of the main projects being undertaken is for a Bowel Preparation Oral Solution (Laxative) called PLENVU which is forecasted to grow exponentially over the coming years due to its effectiveness and popularity within the market. This is currently single sourced from Norgine Hengoeds manufacturing facility and is produced as a split process between 3 sachet filling and packing lines in order to produce all 3 components; Dose 1, Dose 2A & Dose 2B. The current material flow and Line Schematics can be found below:



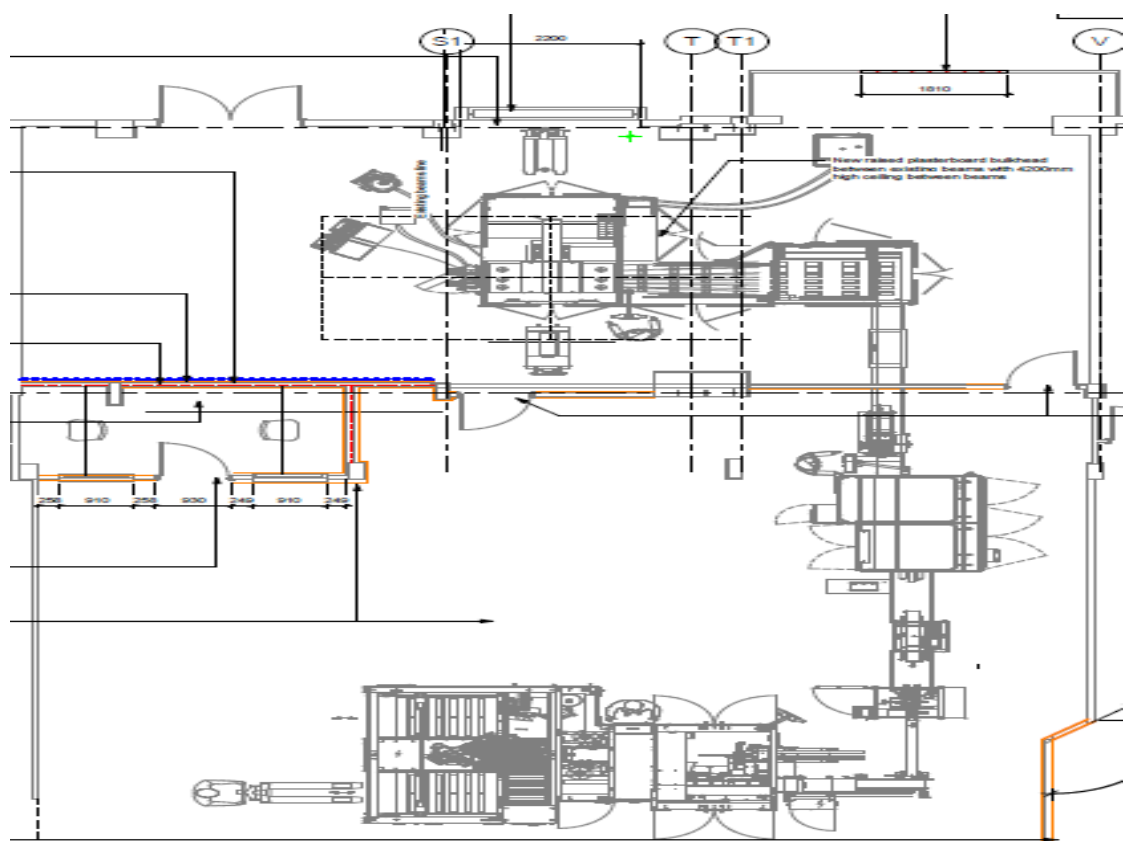
There are many areas in which the business feel need to be improved by a new process being implemented, these include:

- Large reduction in manual labour, due to the current split processes requiring 15 members of staff at any one time required to run all three lines at the same time.
- Minimising business risk and ensuring continuity of supply by installing a completely new line alongside the old which will eventually supersede it.
- A large number of critical machine spares parts are now obsolete and if they breakdown, we have no other means of repairing them.
- The split process is extremely inefficient and causing huge planning and resource issues, any new production line must be able to produce the 3 doses of medicine on 1 line.
- Removal of all non-value added activities and streamlining the overall process to ensure it is as lean as possible, removing all types of wastes.
- Reduction in waste product, rework and the need for manual intervention.

In order to achieve the goals outlined, a new production line is in the final stages of its design process, whereby all 3 packs will be produced, twice on 1 filling machine, matching the overall current machines output with full automation and no need for manual intervention, apart from quality control checks and adding tertiary packaging materials, i.e. laminate, cartons, leaflets, outer boxes and pallets.

This machine will be a twin shot filling line as well, which will mean that we then have the ability to run for over 2 weeks without the need for batch change overs etc. this production line will be staffed with 3 highly trained operators and a dedicated maintenance support technician which will dramatically reduce the cost per pack due to the huge reduction in labour costs. It also supersedes the old technology with the most up-to-date and readily available equipment which will secure Norgines product future for years to come.

By having an inline integrated process, it heavily reduces many wastes, as mentioned above. The overall line drawing can be found below:



Aims of The Project

The specific aim of this project from William Davies' perspective is to take the lessons learned from the current issues found with the existing production line and deliver a far more streamlined and lean manufacturing process.

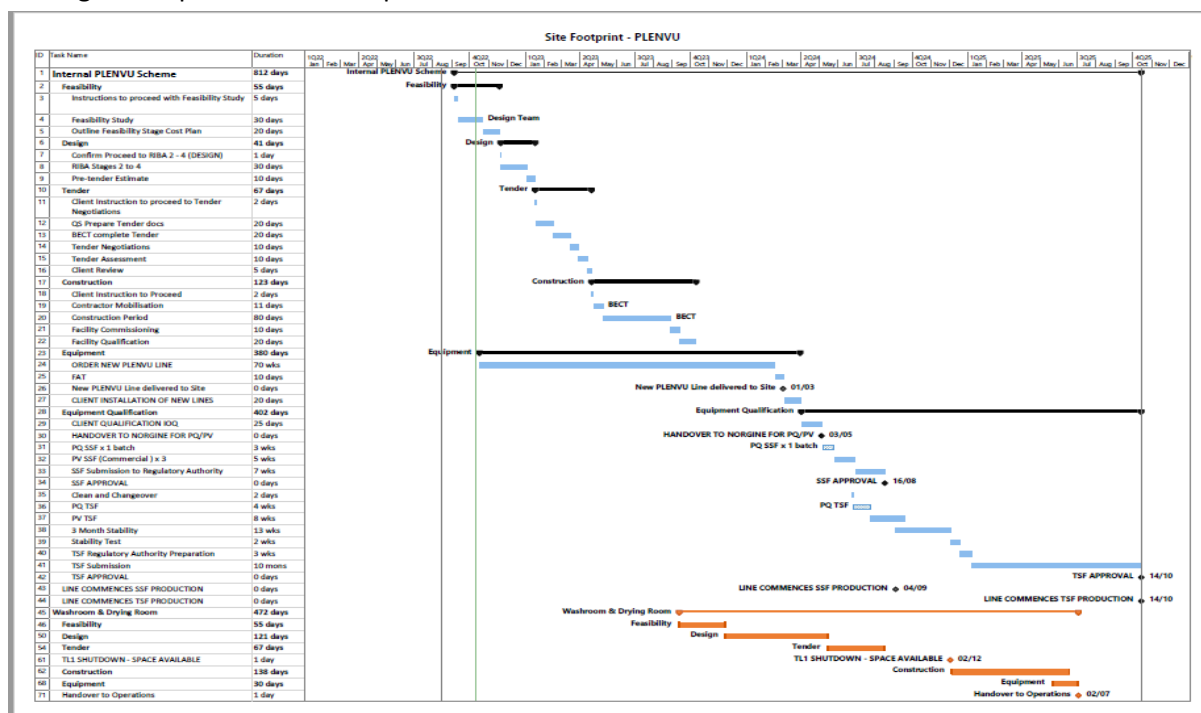
The main focus' which will enable this to be achieved are:

- Heavily increasing and reliance upon Key stakeholder engagement (Operators & Maintenance engineers input to gain their buy-in from the start of the project).
- Improving project communication as a whole in order to ensure that everyone is fully aware of what is happening to improve team moral and project buy-in.
- Improving tertiary packaging materials in order to make them more reliable and repeatable.
- Implementation of new industry-leading equipment which will require less-maintenance interference and heavily increase Overall Equipment Efficiencies.
- Up skill and empower operators to increase competence and self-supportive levels, by changing out dated mindsets.
- Provide a process and equipment layout which is heavily focussed on Lean techniques by minimising wastes.

As the Operations representative for the project, William Davies will be leading a small team who will work with the Project engineers and machine manufacturers to provide a system that will achieve these goals.

Timescales & Provisional Work Plan

A High-level provisional work plan can be found below:



As William Davies has been heavily involved since project initiation, he has had a significant influence over the process design and lots of details can be provided around this.

The plan for the overall project is to take it to its installation Phase by the time the project hand-in date is met and give an overview of the current state of the project and show how this will be controlled going forward in order to achieve the goals outlines.

Facility Requirements

Through Norgine Licenses the following facilities are available:

- Solid Works.
- 2D Design packages.
- Microsoft Project Planner.
- Minitab.
- Overall Equipment Efficiency software to measure machine performance.
- Norgine Specific Continuous Improvement tools and templates.

Industrial partners which will support the project:

There are many companies that will collaborate on the delivery of this project. These include:

- HL Design – Civil Engineering/Architects
- Bear Construction – Structural engineers
- Consilium – Quantity Surveyors
- BECT – Construction Contractors
- Universal Pack Italy – Sachet Filling machine & Cartoner
- OCS Checkweigher
- Pester Pac Automation – End of line Casepacker / Palletiser
- Optel – Serialisation.

Bibliography / Links to literature read to date

[Reactions towards organizational change: a systematic literature review | SpringerLink](#)

[Organisational Change and Firm Performance | OECD Science, Technology and Industry Working Papers | OECD iLibrary \(oecd-ilibrary.org\)](#)

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[Automation Doesn't Just Create or Destroy Jobs — It Transforms Them \(hbr.org\)](#)

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[Automation and New Tasks: How Technology Displaces and Reinstates Labor \(aeaweb.org\)](https://aeaweb.org/1207.1455.pdf)

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[Training and competence - Equipment and machinery \(hse.gov.uk\)](https://hse.gov.uk/training/competence-equipment-machinery/)

[OTS Overview: Benefits, Requirements, Challenges and Strategies - Simulate Live](#)

Conclusion

To conclude, this is a large project with huge potential. William Davies believes with the correct support and guidance all of the criteria points can be met to achieve high results within this individual project but requires support from the academic literature perspective and what avenues to effectively research.

This is a project focusing on NPI, CI and Organisational change which are very broad and adaptable topics which can be tailored to suit and fulfil the marking criteria. As this is a huge project for William and the majority of his work time is committed to this, it is believed that this is the best project to take forward into the Academic subject with the hopes that it will also strengthen his ability within the industry side of implementation and project delivery.