do more
feel better
live longer

Investment and Innovation at GSK Barnard Castle

Alastair Leighton – Site Director

Brendan Fish – Technical Director

What We Do

Pharmaceuticals

We develop and make medicines to treat a range of conditions from respiratory diseases to HIV/AIDS

Vaccines

We research and make vaccines for children and adults that protect against infectious diseases

Consumer Healthcare

We make a range of consumer healthcare products in four categories: Total Wellness, Skin Health, Oral Care and Nutrition.

Our business today

Putting patients and consumers first

Our products are used by millions of people around the world, helping to improve their health and well-being.

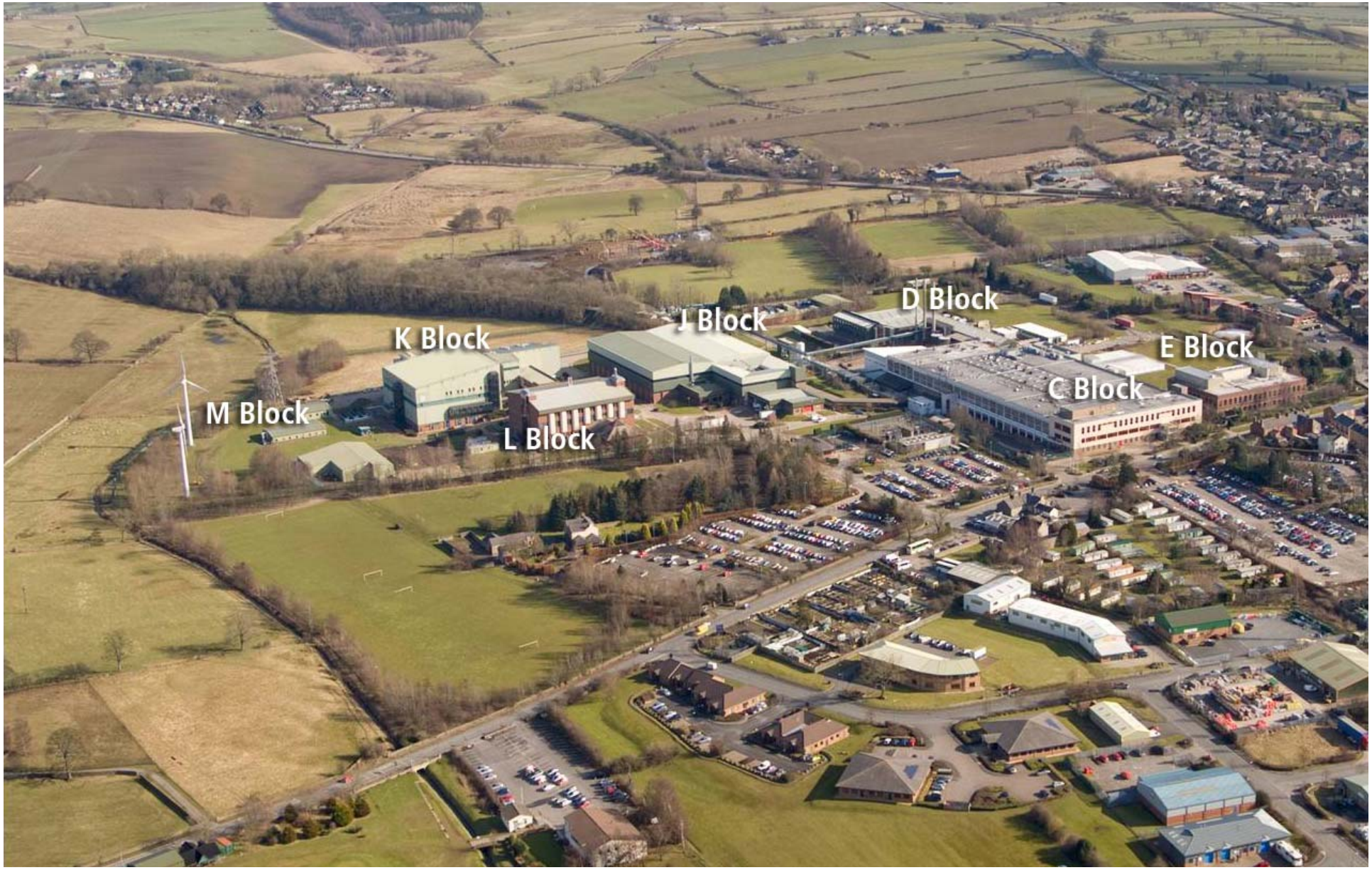
Major research and development facilities in **3 continents**

More than
100,000
people working in **115** countries

70
Manufacturing facilities in 33 countries in 2017

GSK @ Barnard Castle

Barnard Castle



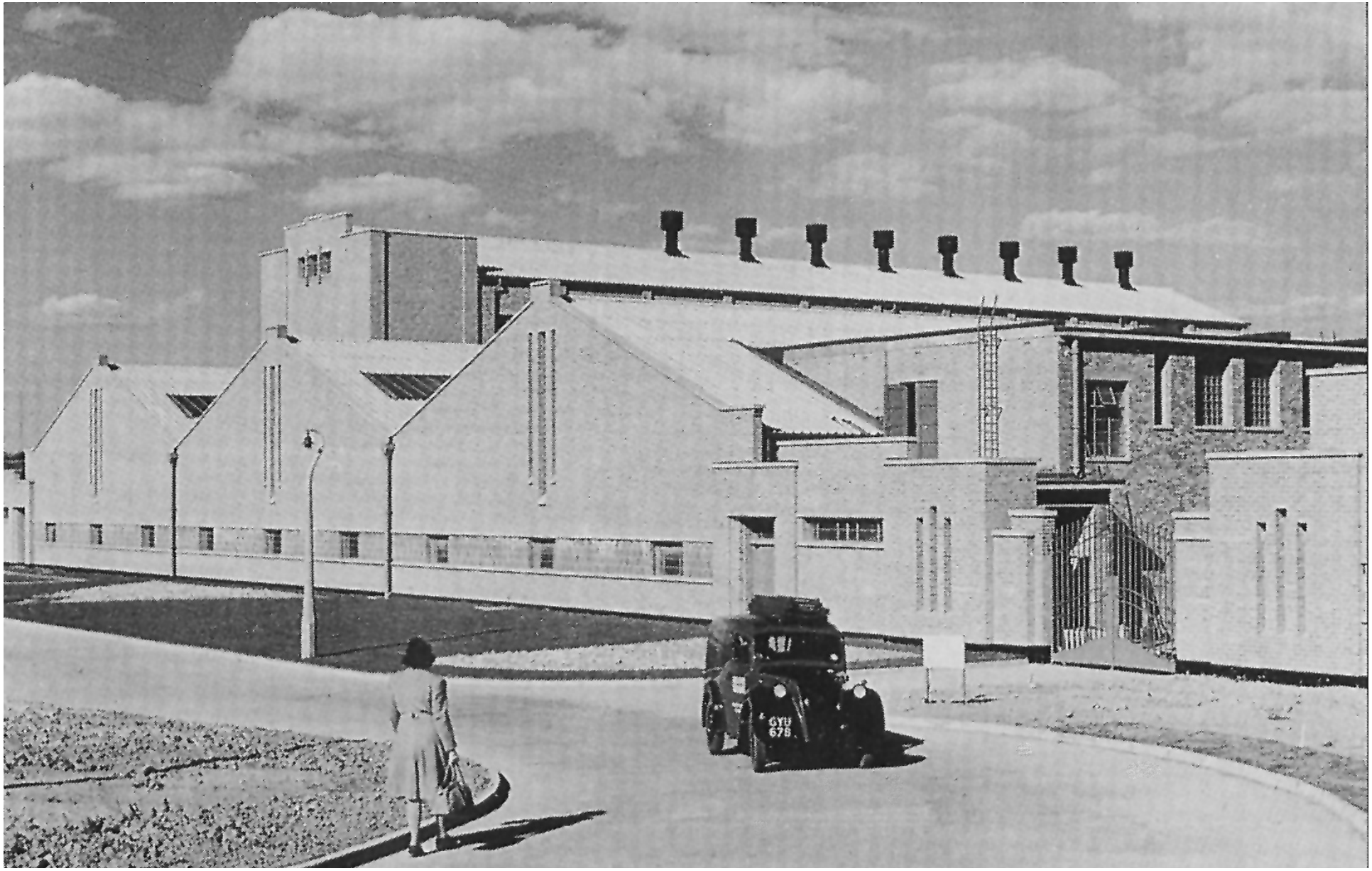
Our **Role** within the network

- One of the **biggest secondary manufacturing sites** in GMS
- Global supply and new product introduction site for **Steriles**, **Inhalations**, **Dermatology** & **Cephalosporin** products
- Supplying over **1,600 SKUs** to **140 different markets** at a rate of nearly half a million packs per day

There are **c1,400** people working here:

- 1100 focussed on the supply & launch of products
- 300 more in agile SSs & CoEs that support the wider GMS network

Our history



Our Products

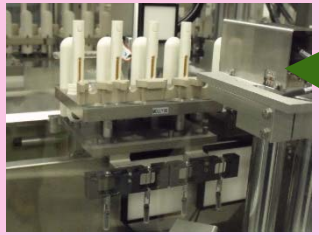
Creams, ointments and gels

Biopharms & small molecule formulations

Sterile vials

Inhaled products

Pre filled syringes



Auto-Injection devices

C Block

Antibiotics Oral Solid Dose

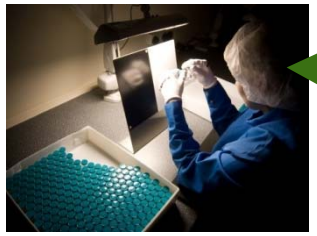
K Block

Innovation

GSK invested £3.9bn in R&D in 2017

Our Pharmaceuticals R&D organisation is focused on research across four therapy areas – two core areas where we already have strong leadership developing new medicines: **Respiratory** and **HIV/infectious diseases**; and two potential areas where we have ongoing development programmes: **Oncology** and **immuno-inflammation**.

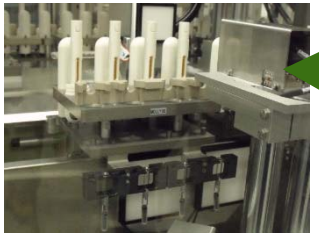
These therapy areas will create a significant number of new products aligned with Barnard Castle's capabilities



Biopharms & small molecule formulations

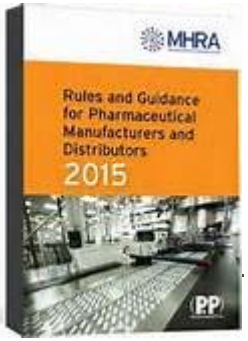
Sterile vials

Pre filled syringes



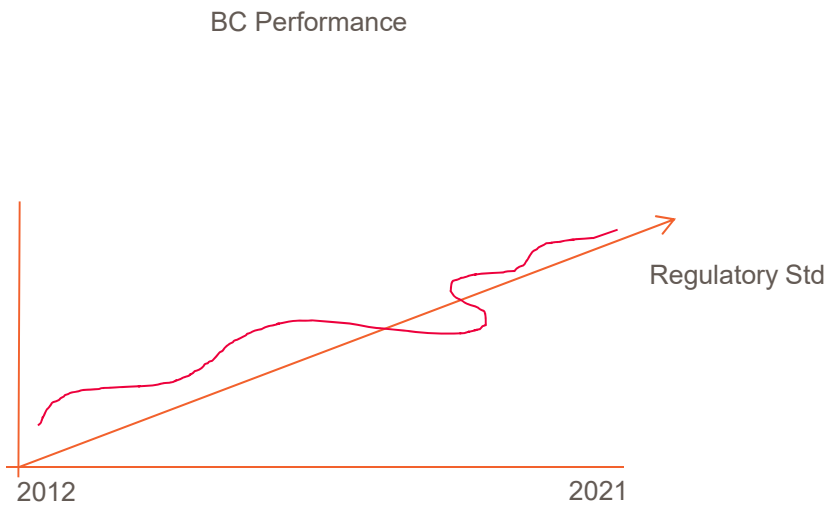
Auto-Injection devices

Global Pharmaceutical Supply – Highly Regulated



Staying ahead of expectations

- A Global supply site with Strategic New Products must stay ahead of regulatory expectations
- Continuous EHS and Quality improvement plans keep us ahead of expectations
- Investment is critical to maintain leading edge capabilities



Innovation and Investment

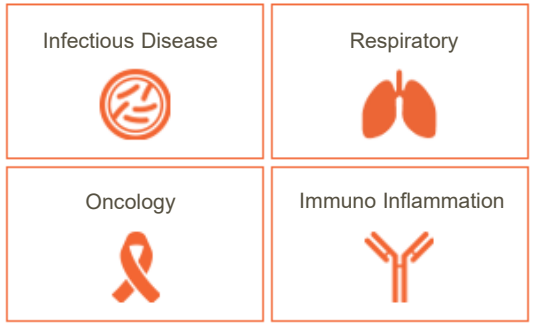
Investing in manufacturing to ensure sustainable innovation

Why Are We Doing This?

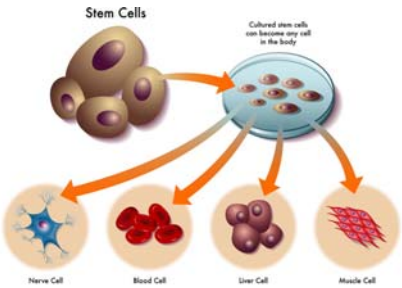
- Our industry is evolving
- Technology does not stand still
- Our products are more complicated
- We have patients that are dependant upon us

Our Industry Is Evolving

- Discovering and developing a new medicine is expensive and time-consuming
  - Averages: $2.6 billion and 10 years
- The productivity challenge is real
  - Our medicines have to be affordable in a competitive world
  - If doctors, payers and patients cannot afford new treatments (irrespective of how amazing they are) then how does their existence even matter?
- The FDA is approving a record number of drugs - and that's likely to persist
  - On a mission to approve drugs for unmet medical needs; orphan drug products; drugs that show a benefit over existing medications



Portfolio Management



New Therapies

Large Volume Injections

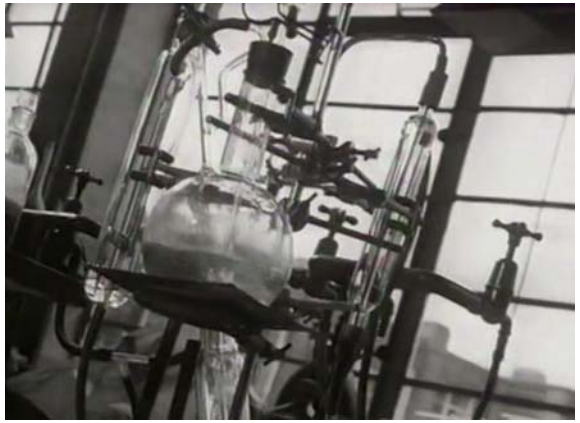
A Little Bit of History

Site constructed to produce Penicillin

Our Technology Does Not Stand Still

1940's and 50's

Vials line 1940's



Lab Testing 1940's

Lab Testing 1940's

Vials Packing 1948

Bio Assay Lab 1965

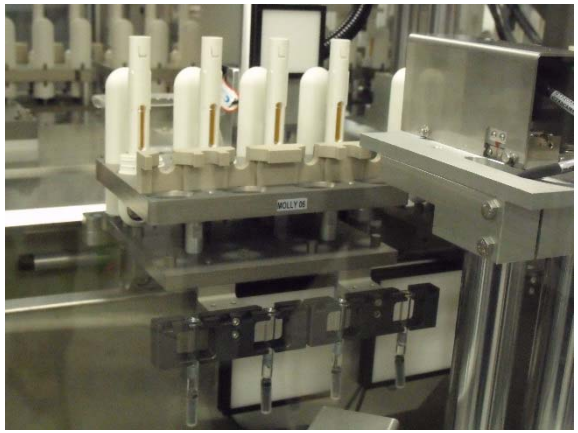
Our Technology Does Not Stand Still

2018

Low Pressure Plasma

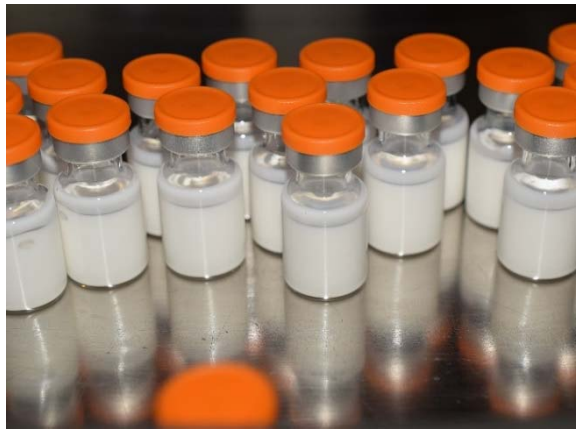
Syringe Isolator Line

Device Assembly Line



Device Assembly Line

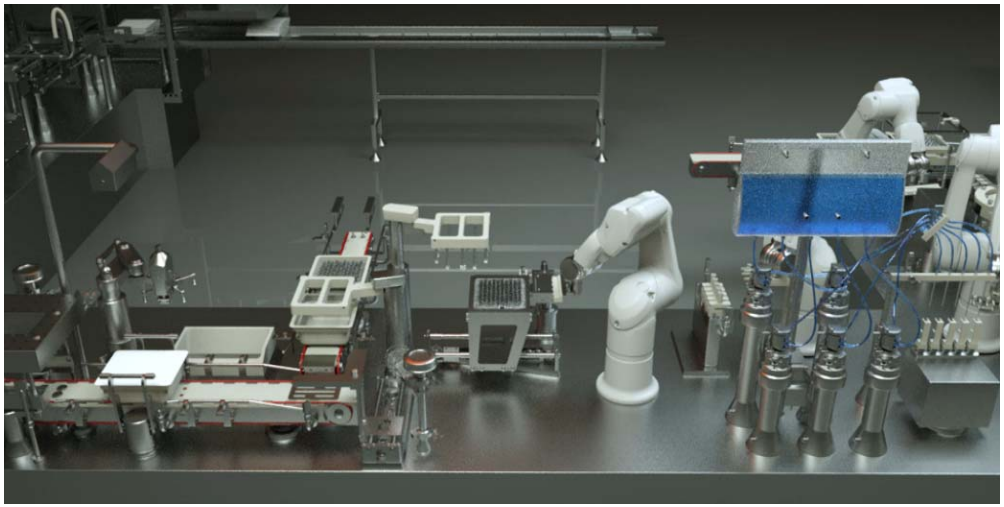
Aseptic Wet Bead Milling



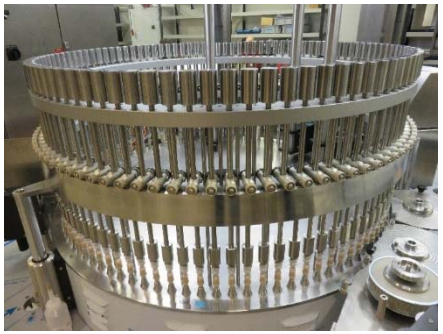
Suspension Products

Our Technology Does Not Stand Still

The future



"Driverless" Lines

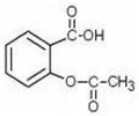


"Driverless" Inspection

Bringing The Digital Age To Manufacturing

Why All The Fuss With Pharmaceutical Production?

Our compounds and processes are multifaceted

Small Molecule	Biologic
Aspirin 180Da 21 atoms 	Antibody ~145,000Da ~23,500 atoms
Skateboard ~10 components 	F1 Car ~80,000 components

Gel – 45 step process

Keeping it clean and sterile: Bacteria on the point of a pin

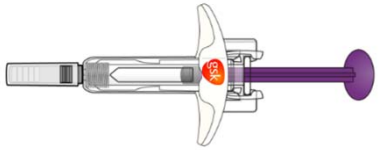
New Product Introduction At Barnard Castle

Our Patients Rely Upon Us

Muscle relaxant for tracheal intubation

Supension product – a long acting treatment for HIV

New Antibody treatment for anthrax lesion



Novel antibody treatment for lupus – 1st in 50 years

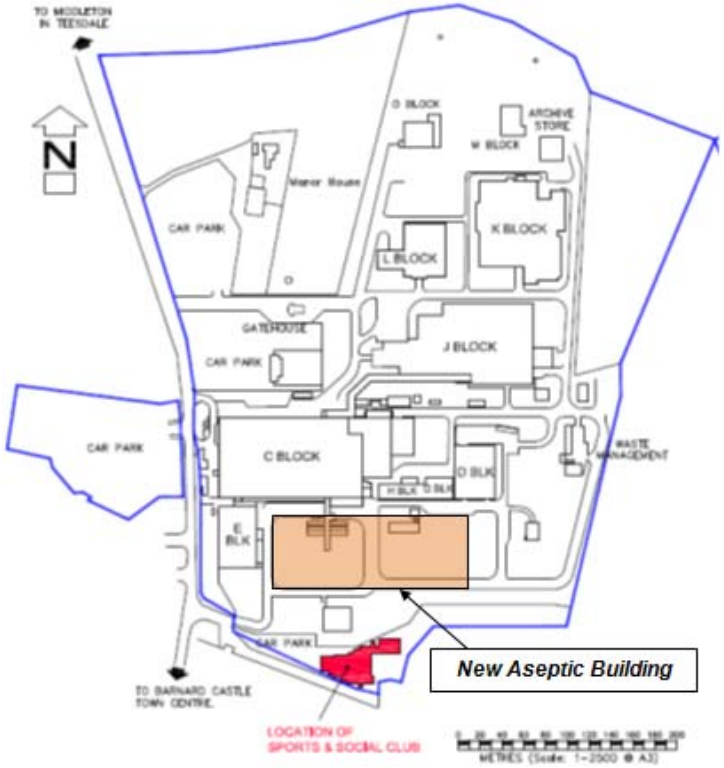
Summary

- Investment for the future
- Needs Driven Innovation
  - Patient Focus
  - Productivity

What are we building?

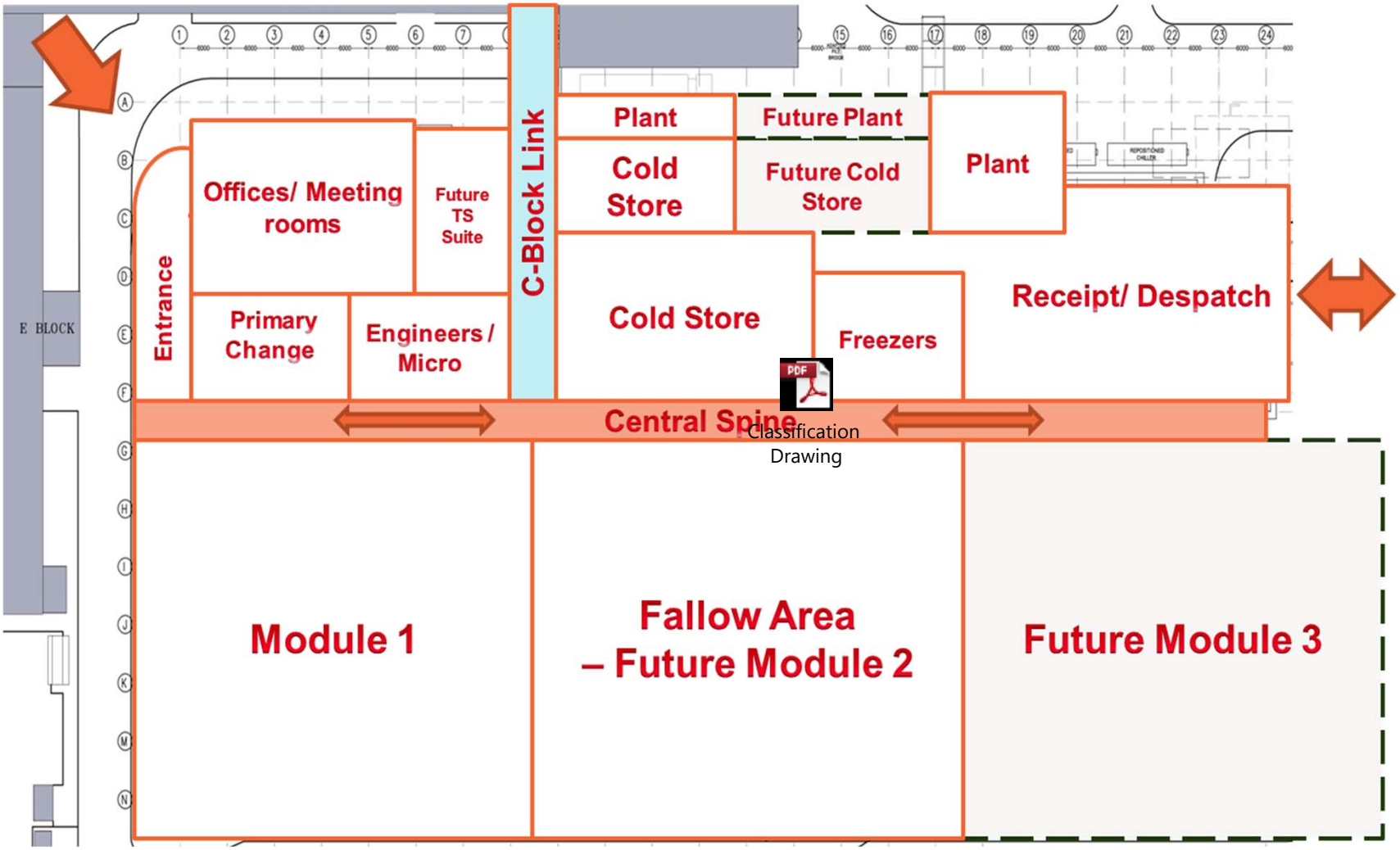
Project Background

- *Purpose designed new build facility based around modular principles*
- *Initially only 1 of the manufacturing suites will be fitted out*
- *Process designed for cold chain small batch, high value Biopharm products*
- *Advanced robotic filling technology under VHP isolator*
- *Capability to process both vial and syringe formats*
- *Manufacturing and filling using single-use technology as first intent*
- *Fully Integrated IT / Automation solution with eBRS*



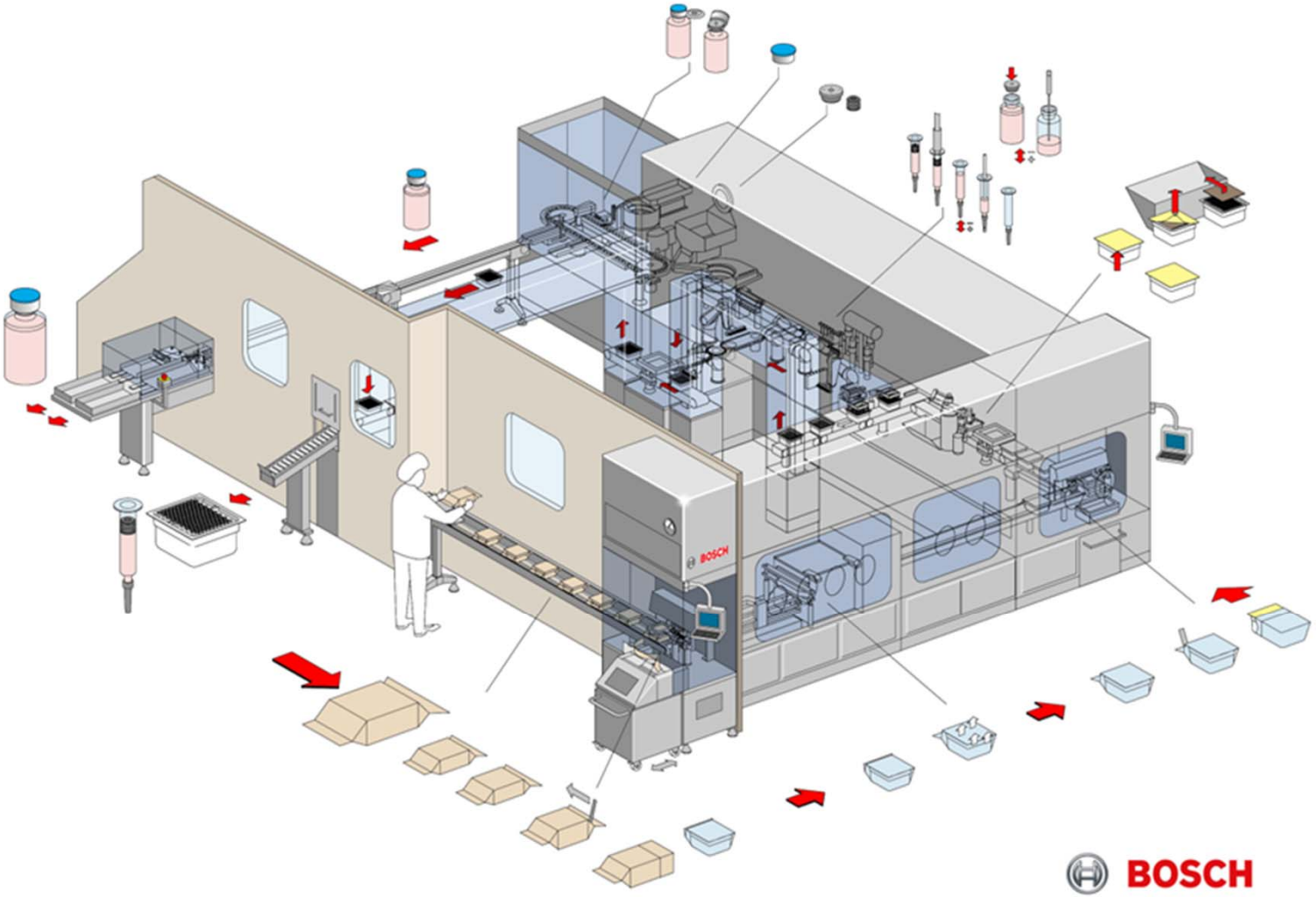
Design

High Level Building Layout



Design

Bosch Isolator Filling Line



Progress – October 2016 BF1

Slide 26

BF1 I added this slide - shows how quick we've gone??
Brendan Fish, 12/06/2018

Progress – Today (20 months later)

There is a person at the end of our supply chains
Everything we do is to ensure they can do more, feel better, live longer