



#sharing challenges
and solutions in practice

“CAPEX Project Delivery for What Patients Need Now”

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Pandemic Triggered CAPEX Investments

Introduction



- *The COVID-19 pandemic triggered a significant demand for Roche Diagnostics Operations.*
- *Several “Fast Track” projects were initiated to install additional capacity to meet the demand.*
- *The classical milestone approach to project execution would not deliver capacity in time*
- *Alternative strategies and approaches were employed.*

Pandemic Triggered CAPEX Investments

Agenda



- Roche Overview
- Pandemic Triggered CAPEX Investments
- Example Project: Magnetic Glass Particle Production
 - *Scope*
 - *Project Execution Strategy*
 - *Mindset & Project Team Culture*
 - *Timeline / Execution*
 - *Construction Video*
- Summary

Roche Overview

Roche Group



| | | | | |
|---|--|--|---|---|
| <p>1896 Founded in Basel Family still holds majority stake</p> |  | <p>Reliable partner during COVID-19 pandemic</p> |  | <p>Leader in Diagnostics and Pharma</p> |
|  | <p>#1 R&D investor in healthcare</p> | <p>100,920 Employees worldwide</p> | <p>16.4 million People treated with our medicines in 2021</p> |  |
| <p>32 medicines on the WHO List of Essential Medicines</p> |  | <p>Sustainable one of the most sustainable healthcare company in the Dow Jones Sustainability Indices</p> | | <p>27 billion tests conducted with our Diagnostics products in 2021</p> |

Integrity, Courage, Passion

Roche Overview

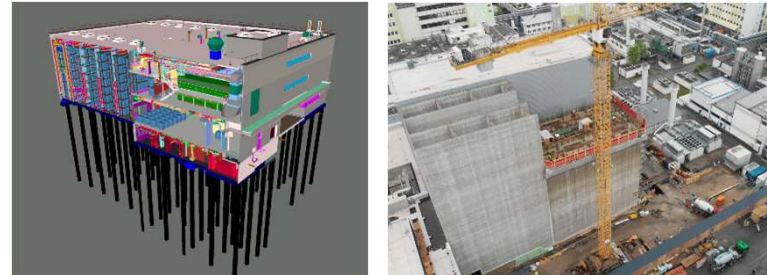
Site Penzberg



| | | | |
|------------------------------|------------------------|---|---|
| 7,200 employees | | | Investments 2017 – 2021: € ~ 1 b |
| | 434,000 m ² | | Second largest site in Germany |
| 277 trainees and students | | Pharma and Diagnostics in one location | |
| | | | Hot spot for digitalisation and molecular information |

Roche Overview

Engineering Penzberg



Site Engineering Penzberg

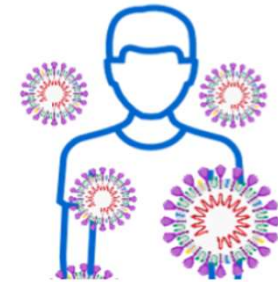
- Projects for Pharma and Diagnostics divisions
- Start and complete 20-30 projects per year
- 60-70 projects running simultaneously
- > 200M Euro in CAPEX spend per year
- 80 Engineering professionals
- Historical conventional project execution



Pandemic Triggered CAPEX Investments

Initial Situation

- Roche provides detection of SARS-CoV-2 via the cobas® PCR and Elecsys® Antigen tests
- Important reagent materials for PCR tests are produced in Penzberg
- The **market demand** for these products has more than **doubled** due to the pandemic



Actions:

- Shift work, 7-day weeks, and overtime set as a short-term measure
- “Bold Move” - Fast track projects launched for long-term solution





Pandemic Triggered CAPEX Investments

Bold-Move/Covid-19 Related Projects Overview (Penzberg)

| Product / Demand | Project(s) | Area | Budget | Project duration |
|-------------------------------------|---|-----------|---------------|---------------------------------|
| Magnetic Glass Particles | EMGP2P (Bold-Move) Extension Magnetic Glass Particles Facility 2 Pz | Chemistry | ≈ 26M€ | 12 month (fast track) |
| Nucleotides / Desoxy-Nucleotides | CENPP (Bold-Move) Capacity Extension Nucleotides Pz | Chemistry | ≈ 10M€ | 15 month (fast track) |
| Desoxy-Nucleotides | CENP2P (Covid-19 related) Capacity Extension Nucleotides PZ | Chemistry | ≈ 12M€ | 16 month (fast track) |
| MagNA Pure | CMPFP (Covid-19 related) Capacity MagNA Pure 24/96 Filling | Filling | ≈ 4M€ | 12 month (fast track) |
| Magnetic Glass Particles | EMGFPF (Bold-Move) EUR 2 Mio. for acceleration measures | Chemistry | ≈ +2M€ (13M€) | acceleration of running project |

Exemplary example project EMGP2P "**Expansion Magnetic Glass Particle 2 Penzberg**".
These particles are produced exclusively in Penzberg and are required in all PCR tests.

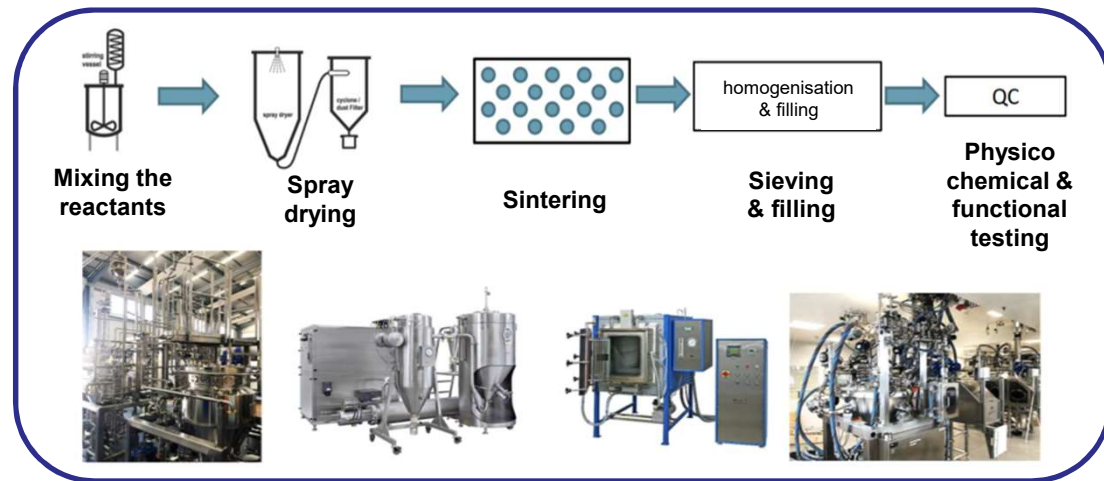
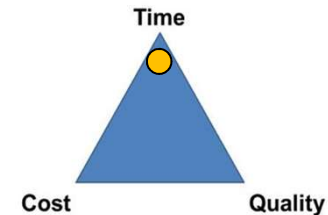
Magnetic Glass Particle Production

Scope

- Realisation of an **MGP production plant**
- Find and prepare empty spaces (upgrade existing HVAC, electricity, building automation)
- Fulfilment of all **SHE** requirements (ATEX, SIL, Inertisation, ..)
- **Utility** and media systems (purified water, ethanol, caustic, vacuum,...)

Guiding principle

Meeting market demand as quickly as possible with safe equipment and the necessary quality!



Magnetic Glass Particle Production

Approach



The primary target of the project **"as fast as possible"**. Target period < 1 year.



Magnetic Glass Particle Production



01 Project Execution Strategy

Planning and Execution



Parallel phases CD, BD, DD, CC → increased staffing of external planning resources



Funding availability → stakeholder management



Existing concepts and market standard components → 90% suitable



Planning in execution → start construction with 60% planning status



Simultaneous engineering → basis was running project undergoing optimizations



Continuous and real time design reviews → open error culture to find failures

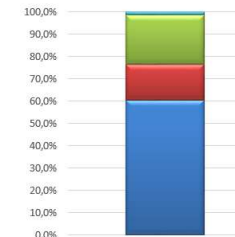


Reduced qualification and test phases → higher risk in start-up and in production

Engineering 23%

Changes 17%

Direct Cost 60%

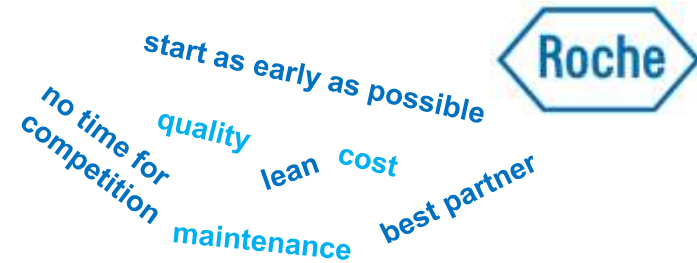


Trade-offs → Higher overall project costs 10-15% and higher risk in the project and in operations

Magnetic Glass Particle Production

01 Project Execution Strategy

Procurement Strategy



Find a suitable partner (*delivery time, know how*)



Early contract notification to supplier



Apply for single source (*based on former contracts, minimal tender*)



Immediate involvement of execution suppliers planning



Ordering long lead items at risk (*preliminary planning, material*)



Contracts closed with 90% specification covered and no date confirmation



Continuous exchange (status, changes)

Trade-offs → Higher contracted project costs ~5%



Magnetic Glass Particle Production

01 Project Execution Strategy

Resource Allocation



Prioritisation of personnel and equipment → delays and impacts to other projects



Strategic outsourcing → pilot project for future operating model



High performing team → immediate change to team members

Trade-offs → personnel and equipment made available with impact on other projects



Magnetic Glass Particle Production

01 Project Execution Strategy

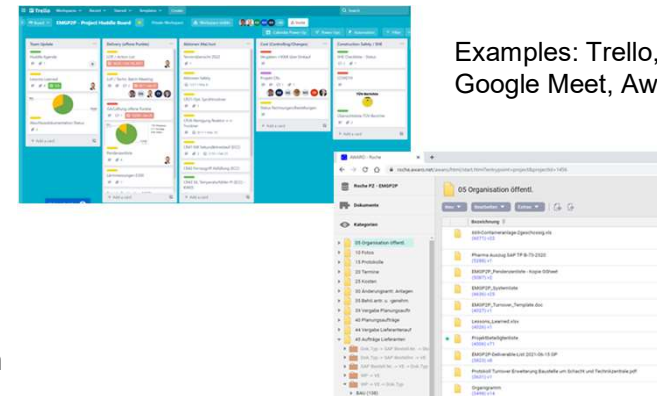
Communication / Information New ways of working virtually

Technology

- **Online meetings** → changed the way we work
- **Cloud-based project data** → accessible to all team members

Lean

- **Daily Huddles** → further meetings if necessary → dynamic
- **Virtual obeya room** → quick decisions and full transparency
- **Solution orientated** → solve problems in the field without escalation
- **Producing plant** → not perfect → user buy-in



Key Learnings → New ways of working within the team increased effectiveness and efficiency



Magnetic Glass Particle Production

02 Mindset & Project Team Culture

Trust, Attitude, Lean & fast ways of working

- Highly Motivated Team** → One common goal!
- Decision Making** → Project team and management; some decisions will be wrong!
- Open Error Culture** → Problems and issues openly discussed with goal to solve quickly
- Lean / Continuous Improvement** → Challenge the ways of working

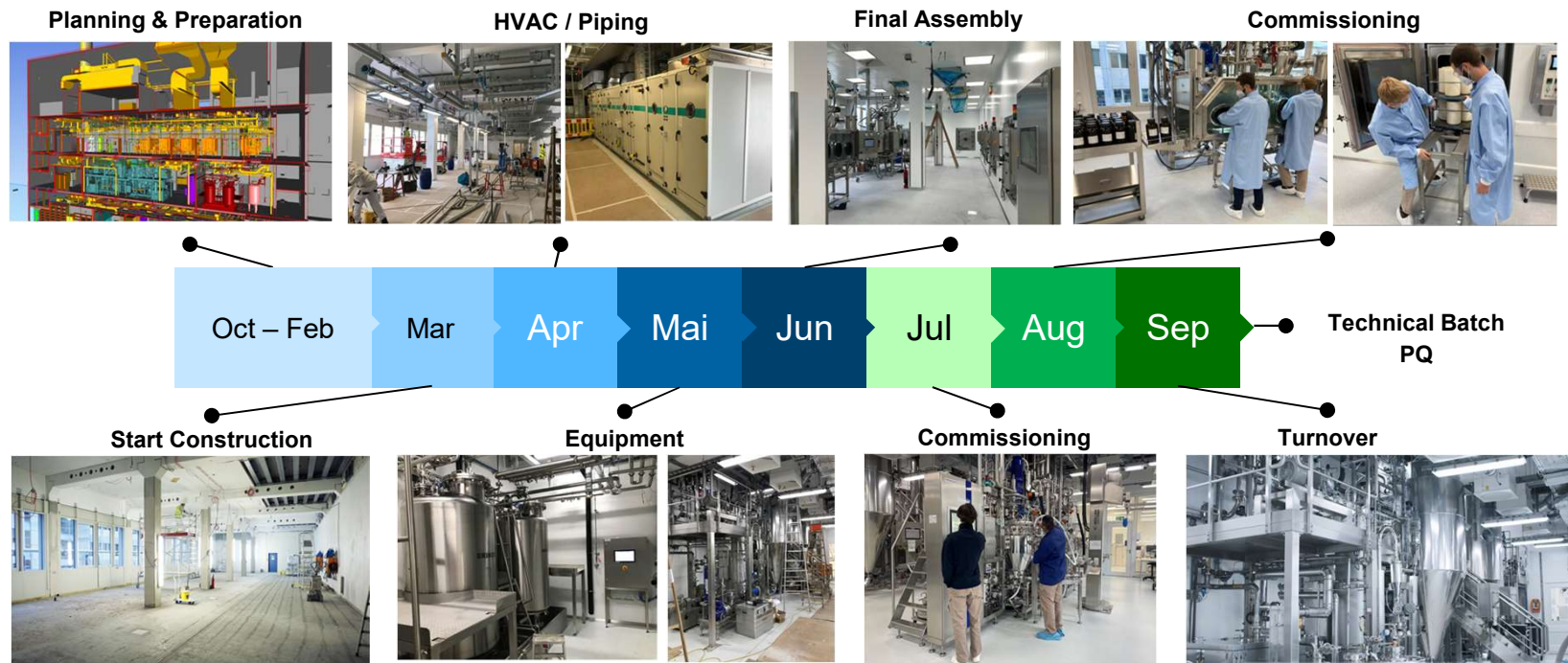


Motivation → Fighting the pandemic together!



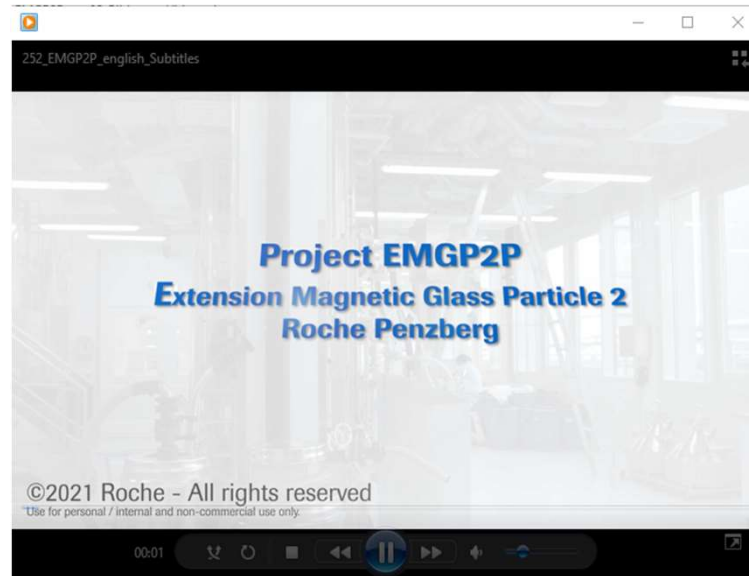
Magnetic Glass Particle Production

Timeline / Execution



Magnetic Glass Particle Production

Construction Video





Magnetic Glass Particle Production

Summary



The pandemic changed the way we work.



Highly motivated and empowered teams perform better.



Management support enables project speed.



“Fast Track” projects have trade-offs.



Solution orientated mindset overcomes trade-offs.



Strategic outsourcing



Integrity, Courage, Passion



Doing now what patients need next

Thank you for your attention

QUESTIONS ?