Be an industry leading CMC organization where associates are digitally savvy and use sophisticated data & digital technologies to develop, supply and launch innovative medications.

* TRD = Technical Research & Development, responsible for CMC activities within Novartis
Accelerate technical development

Full set of experiments
Limited learning from past Manual processes

“Digital twin” + fewer experiments
Predictive analytics
Process automation

Candidate Selection  Pre-Clinical Phase I  Phase II  Phase III  Launch

Molecular properties
Manufacturing (SAP)
Process (eLN)
CMC reports
Stability (LIMS)
Transform knowledge management

Keyword search
Locate expert
Hope for answers!

Cognitive search
Document summary
Similarity inference

Internal documents
External Publications
Increase efficiency in operations

Glycan Mapping method

Manual
(Peak alignment, assignment, integration)

Automated
(Chemometrics, ML/AI driven image analysis)
Enable a futuristic supply chain
E2E data strategy is key

Advanced Analytics, Machine Learning, Artificial Intelligence, Augmented Reality (AR), Virtual reality (VR)

Digital Integration Hub, FAIR (ZONTAL platform)

Transactional IT-Systems, Modelling & Simulation

IoT/OT – Connectivity

Knowledge

Information

Data

Operational Technology (Facilities, Equipment, Instruments)

Design Product  Clinical Supply  Launch Product

TRD Data Strategy
TRD E2E Data Strategy
Leveraging semantic technologies

Knowledge & Data Engineering

Data Sources (LIMS, HPLC, SAP, MES etc)

Business Users

Data Science & Analytics

Data Sources (LIMS, HPLC, SAP, MES etc)

Reference & Master Data
Data Model
Data Alignments

Reference & Master Data
Data Model
Data Alignments

TRD Data Hub

TIMS

F1 Advanced Analytics Tools

- AllegroGraph
- poolparty
- Cmap
- accurids
- EBX
- URI Builder

NERVE Live

Microsoft | Research

Qlik | TIBCO Spotfire

Reimagining Medicine
ZONTAL Space - Digital Integration Hub

Solution Architecture

- Context: Reference & Master Data
- Data Sources: Proprietary, SQL, JSON, XML, …, ADF
- Data Models and Standards: Ontologies, AFO, ADM
- Data Processing
- FAIR-ified Data Sets: ADF
- Standardized Data Interface: SQL, SPARQL, ADF
- Business Processes
- Data Visualizations
- Advanced Analytics (AI/ML)
- Security & Compliance
Live Demo

Turn Data into Corporate Assets - Make Data Available for Reuse - Secure Compliance and Data Integrity
Solution Benefits

Enable Implementation of the Data and Digital Strategy

▪ Single source of FAIR-ified data, both for humans and machines
▪ Based on open standards, use any analytical tool set
▪ Democratizes data Access for both Data Scientists and Lab Scientists
▪ Interoperable, self-reporting data assets are available to all Novartis applications

Significantly Change the Way Products are Developed

▪ Accelerate development using data and digital technologies
▪ Make products more robust (better, safer, faster)
The first FAIR Digital Data Integration & Data Lifecycle Management Platform

Questions?