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# IT innovation in Life Science

PRESENTED BY

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# Innovation in Life Science

*"**Discover new ways to improve** and extend people's lives" (Novartis)*

*" **Innovate to** bring therapies to patients that significantly improve their lives." (Pfizer).*
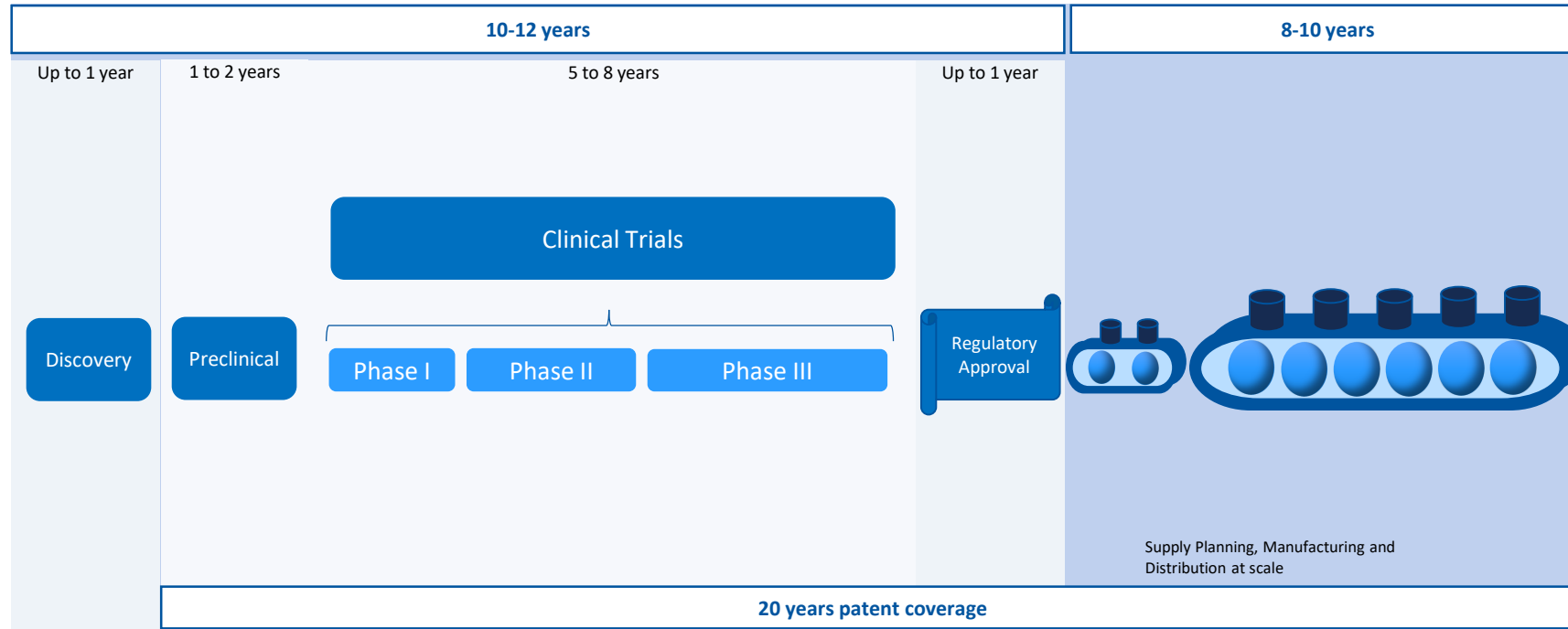
*"Bringing science and sense of sight to life through world-class **innovation** and customer experience" (GSK)*

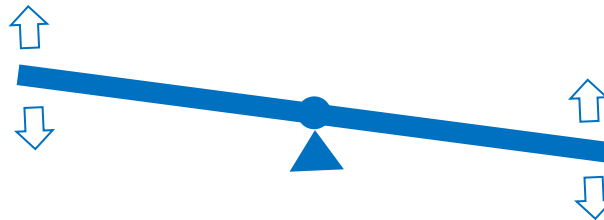**Innovation** is at core of Life Science.

# A Delicate Balance of Innovation and Access

## Traditional Development pipeline



| 10-12 years | | | | 8-10 years |
|---|---|---|---|---|
| Up to 1 year | 1 to 2 years | 5 to 8 years | Up to 1 year | |

Clinical Trials

Phase I · Phase II · Phase III

Discovery · Preclinical · Regulatory Approval

Supply Planning, Manufacturing and Distribution at scale

**20 years patent coverage**

## Innovation

- **2.6 billion USD** to bring one single drug to the market
- **Ten** to **twelve years** for a new drug to get to patients.
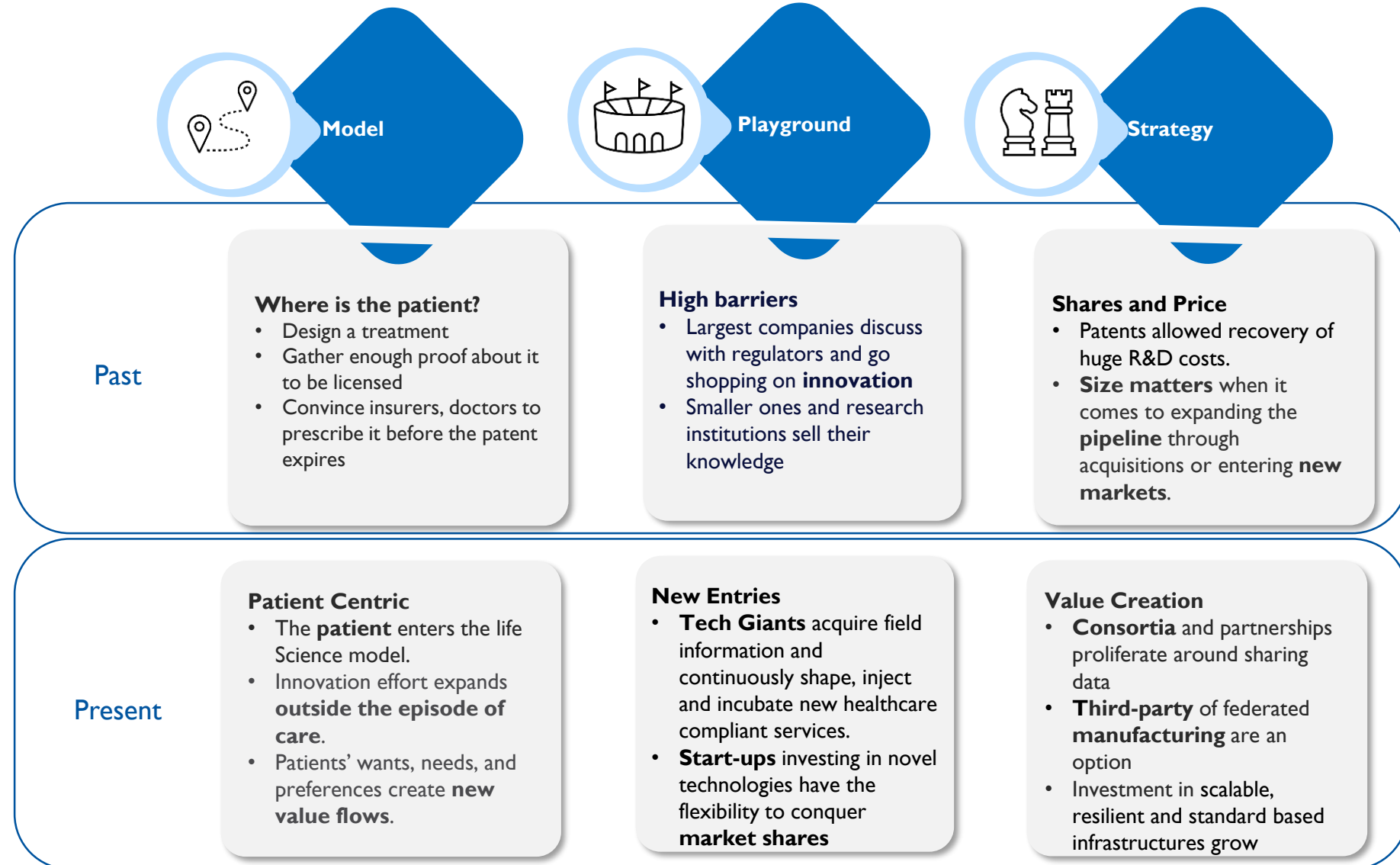
## Access

- Drug patents are good for 20 years after the drug's **invention.**
- On average the copyright protects **only 10 years** after the drug hits the market
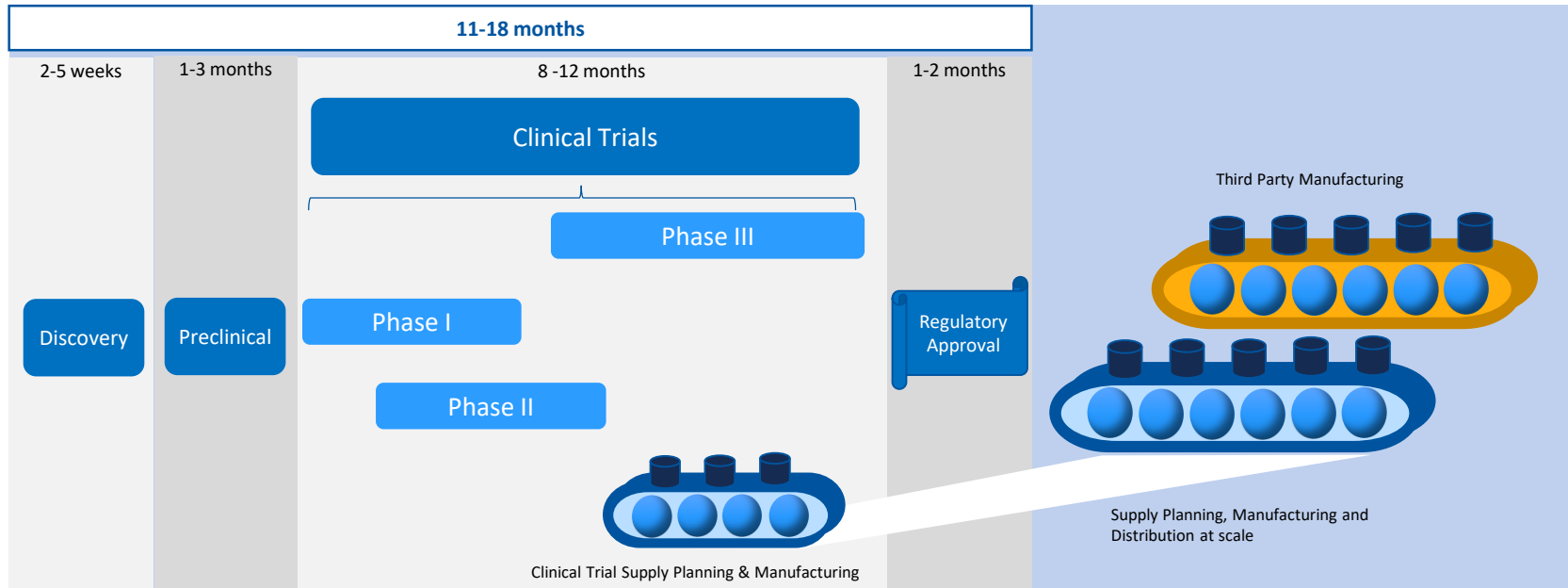
# Digital and Pandemics Disruptive Mix

Digital has changed the industry. The pace of change increased with the pandemics. Cost pressure lowers barriers and old and new players need new strategies.

**What has changed?**

- Collaboration is a must
- Hyperscalers make a bet
- Regulators as enablers
- Patents + Royalties
- Preventive Care + Telehealth

**Model**

**Playground**

**Strategy**

## Past

**Where is the patient?**
- Design a treatment
- Gather enough proof about it to be licensed
- Convince insurers, doctors to prescribe it before the patent expires

**High barriers**
- Largest companies discuss with regulators and go shopping on **innovation**
- Smaller ones and research institutions sell their knowledge

**Shares and Price**
- Patents allowed recovery of huge R&D costs.
- **Size matters** when it comes to expanding the **pipeline** through acquisitions or entering **new markets**.

## Present

**Patient Centric**
- The **patient** enters the life Science model.
- Innovation effort expands **outside the episode of care**.
- Patients' wants, needs, and preferences create **new value flows**.

**New Entries**
- **Tech Giants** acquire field information and continuously shape, inject and incubate new healthcare compliant services.
- **Start-ups** investing in novel technologies have the flexibility to conquer **market shares**

**Value Creation**
- **Consortia** and partnerships proliferate around sharing data
- **Third-party** of federated **manufacturing** are an option
- Investment in scalable, resilient and standard based infrastructures grow

# The Digital Development Pipeline



**11-18 months**

| 2-5 weeks | 1-3 months | 8 -12 months | 1-2 months |
|---|---|---|---|

Clinical Trials

Phase III

Phase I

Phase II

Discovery

Preclinical

Regulatory Approval

Third Party Manufacturing

Clinical Trial Supply Planning & Manufacturing

Supply Planning, Manufacturing and Distribution at scale

## Key Innovation trends

- Lean Clinical Trials
- Collaborative Planning
- Modular Manufacturing
- Medical Health Record
- Devices and Wearables

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- New algorithms are revolutionizing drug discovery, allowing scientists to achieve results in days rather than years.

**AI/ML/DL**

- They are becoming the backbone of collaboration across companies, harmonizing, streamlining workflow, while maintaining quality and safety

**SAAS Solutions**

- Blockchain consortia bring professionals together to form a truly multi-disciplinary public-private ecosystem.

**Blockchains**

- Advances in technology are enabling telehealth to save lives, decrease hospital stays, and establish preventative care.

**Real time/ Near time Data Acquisition**

- Many life science datasets are now available, represented in a common format and accessible via standard interfaces for both academic and commercial use.
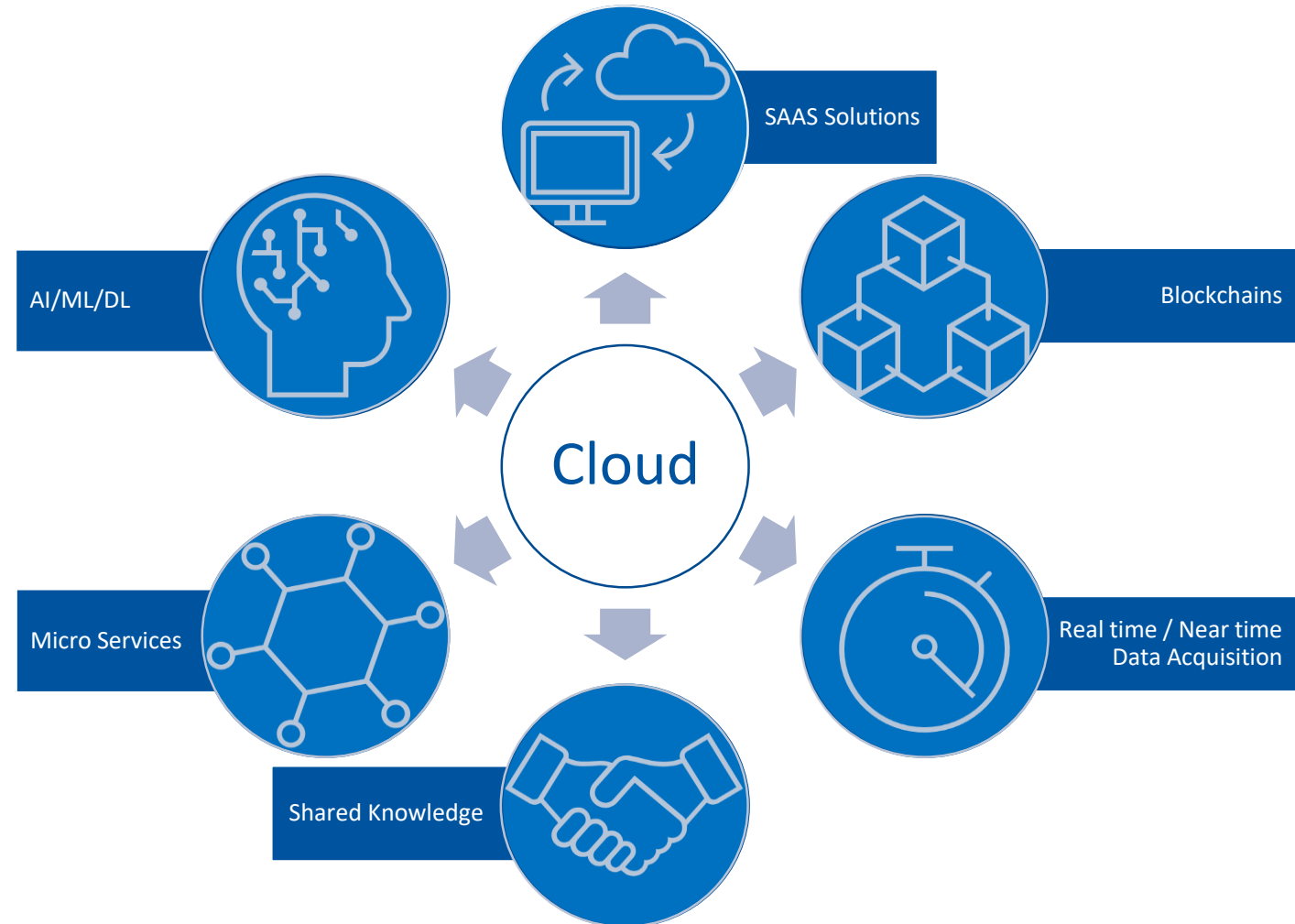
**Shared Knowledge**

- Microservices will lay the groundwork for trustworthy patients' information exchange among practitioners, facilitating cooperation and insights.

**Micro Services**

# Takeaways: Innovation in *Life Science*

- *Life Science industry **fundamentals are shifting**, and their **future** may look **different than** it does **today**.*

- *Top-tier pharmaceutical companies have expedited **collaborations and acquisitions**, although they could not avoid new **brave entrants** rattling the industry ranking.*

- ***Lean** Clinical Trials, **Collaborative** Planning, **Modular** Manufacturing, Medical Health Record **(MHR)**, **Devices** and **Wearables** are key trends that will leverage digital technologies and shared data.*

- ***At the center** of this ambitious renovation of the entire industry **there is** the **Cloud***



SAAS Solutions

Blockchains

Real time / Near time Data Acquisition

Shared Knowledge

Micro Services

AI/ML/DL

Cloud

# Contacts

For any questions feel free to contact me.



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