Transitioning from Academia to Industry

Rutgers University iJobs Presentation for Scientists

JOANNA **GHAYAD**

- COACHING -

Joanna Ghayad, PharmD, ACC

- Joanna is an ICF-certified Leadership & Career Coach who works with scientists to build skills complementary to their scientific expertise in areas of communication, influence, & high function core team building.
- Joanna is a servant leader with 15 years of experience in the healthcare, biotech & pharma previously employed by top-ranked healthcare centers like University of Pennsylvania & Fortune 500 Pharmaceutical companies like Bristol Myers Squibb
- Joanna's experience includes management of research portfolios driving innovate & AI informed research extending from target ideation/validation to IND filing through Phase 1-3 Clinical Trials
- She is passionate about cultural, multigenerational and gender inclusivity in the workplace.
- Outside of work, she finds joy in cooking dinner with her 3 year old daughter, nature walks & beach time in South Jersey with her husband, 3, 6, and 14 year olds, and trying out the newest restaurant.

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Objectives

- Understand & appreciate of the differences between working as a scientist in academia compared to industry
- Evaluate and recognize a startup compared to a mature pharmaceutical company and the differing risks
- Understand at a high level who is involved & what it takes to bring a target idea into a human

Audience Response Questions
Use the chat

- Do you know someone who works for a pharmaceutical company?

Audience Response Questions
Use the chat

- Use up to 5 words to describe what you believe scientists working at pharmaceutical companies do.

Audience Response Questions
Use the chat

- Choose the statement that best describes your baseline knowledge about the drug discovery process (what it takes to get a drug into a human).

    a. I have a good understanding
    b. I have some understanding
    c. I have zero understanding

Academia & Industry

Fundamental Differences

	Academic Research	Industry Research
Goals	Knowledge advancement, understand disease mechanisms, contribute to scientific literature	Develop products or technologies that are able to be marketed to generate profit

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Work Environment	May include broad range of responsibilities including teaching, mentoring, administrative.	Structured and focused on teamwork across functions. Deadlines play a role, high standard for quality & safety.

Other aspects of industry

- Competition
  - Be aware of what competitor companies are doing
- Speed to Market
  - Identify ways to mitigate risks to enable continued project progression
- Communication
  - Required for cross-functional teams to achieve their goal
- Business acumen
  - Stay aware of company priorities because they can change

Startup vs. Mature

Pharmaceutical Companies

Audience Response Questions
Use the chat

- What are the 3 stages for a startup company?

Audience Response Questions
Use the chat

- What are the stages of investment for a company?

Startup Stages

Stage
Pre-Seed
Early (Seed)
Mid (Growth)

Startup Stages

Stage	Company Size	Phase of Development
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CTO=Chief Technology Office; CFO=Chief Financial Officer; CMO=Chief Medical Officer;
R&D=Research & Development; IP=intellectual property;

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Mid (Growth)	15-40 employees; team expands to scale operations, and includes departments like R&D, marketing, sales, manufacturing operations	Focus on conducting clinical trials, expand product pipeline, & prepare for market entry & possibly IPO

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Startup Stages

Stage	Company Size	Phase of Development	Funding Source & Amount
Pre-Seed	1-8 employees; includes founders and few key advisors	Testing hypotheses, idea generation & validation through initial research. Goal to identify if a product solves a market problem.	$25,000 - $500,000 Angel investors, friends & family, savings, sometimes early stage VC firms
Early (Seed)	9-15 employees; team expands to include CTO, CFO, & CMO	Focus on preclinical research, establishing partnerships and securing IP. Goal to have a working prototype	$500,000 - $5M Angel investors & early stage CV firms
Mid (Growth)	15-40 employees; team expands to scale operations, and includes departments like R&D, marketing, sales, manufacturing operations	Focus on conducting clinical trials, expand product pipeline, & prepare for market entry & possibly IPO	**Series A:** $2M - $20M; VC firms looking for proven business model **Series B:** $7M – 30M; VC & PE firms seeking market & operations expansion **Series C:** $30M - $100M; large VC & PE investors preparing for an IPO

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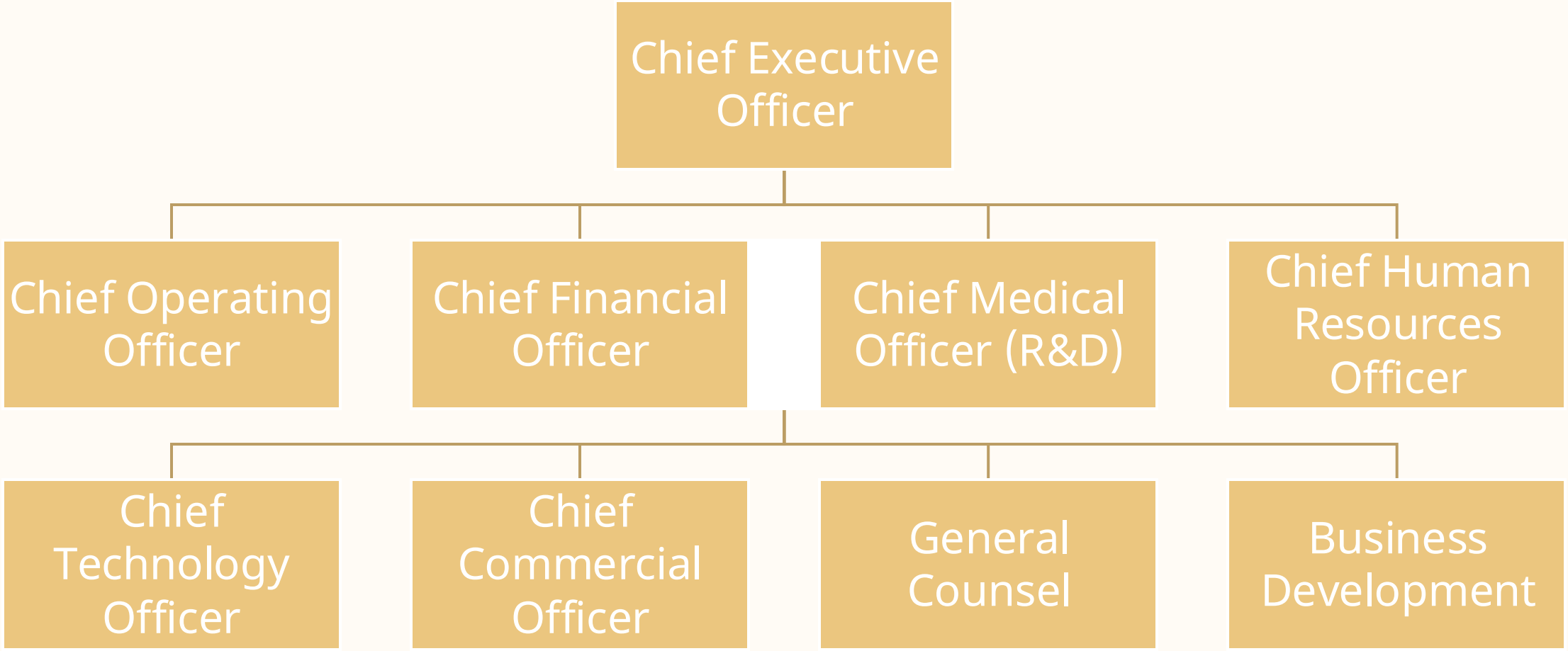
Org Structure of a Mature Company

Chief Executive Officer

Org Structure of a Mature Company



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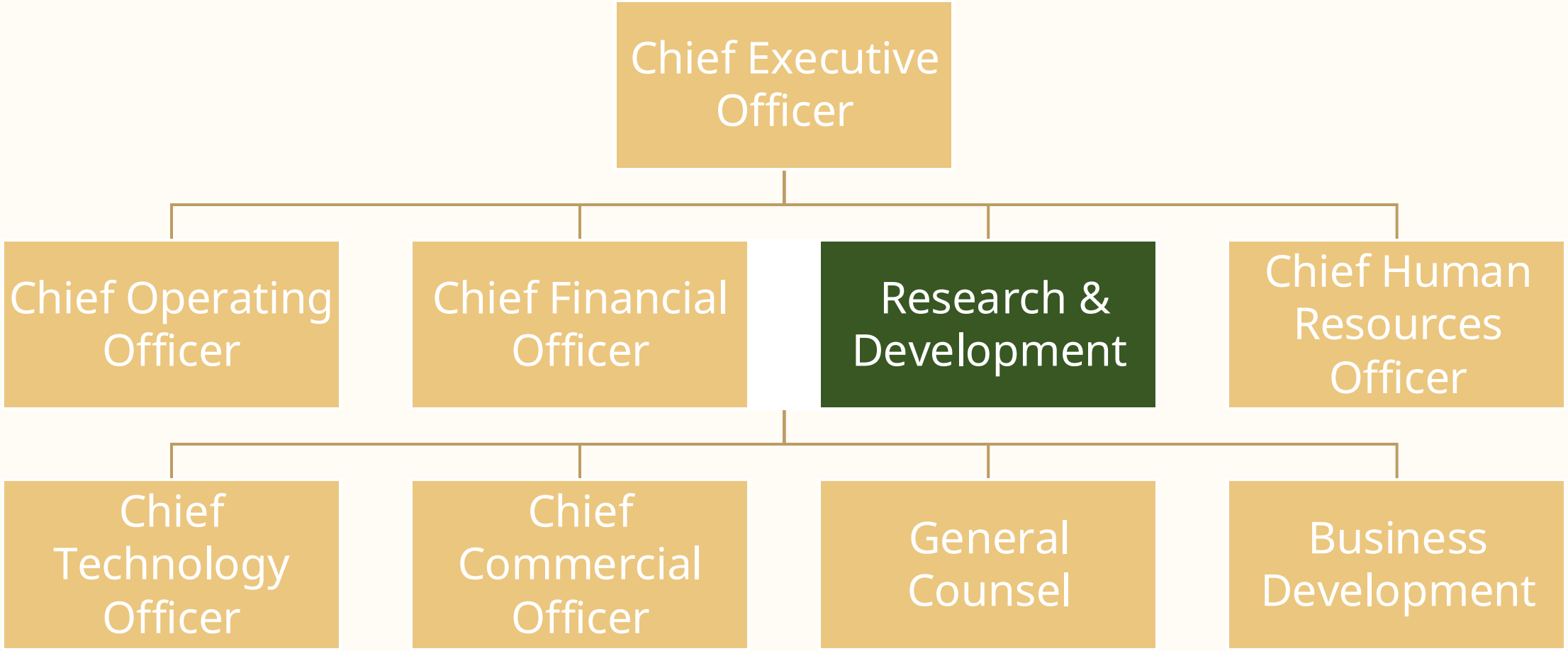
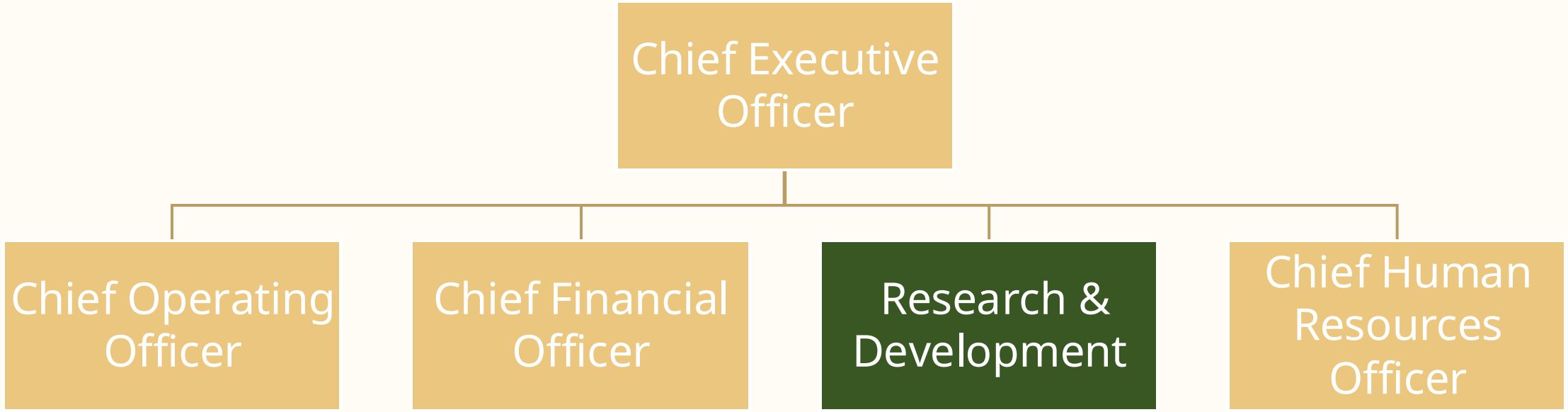


Pharma Org Reporting Structures



Global Supply Chain
Manufacturing Operations
Quality Assurance
Quality Control
Environmental Health
Strategic Operations
Corporate Communications

Financial Planning & Analysis
Investor Relations
Risk Management
Cost Accounting & Management
Corporate Development

Discovery Research
Clinical Development
Program Leadership
Medical Affairs
Clinical Operations
Pharmacovigilance
Regulatory Compliance
Translational Medicine & Biomarkers

Talent Management
Leadership Development
Diversity Equity Inclusion
Organizational Development
Change Management
Total Rewards

Bold = Possible Roles for Scientists

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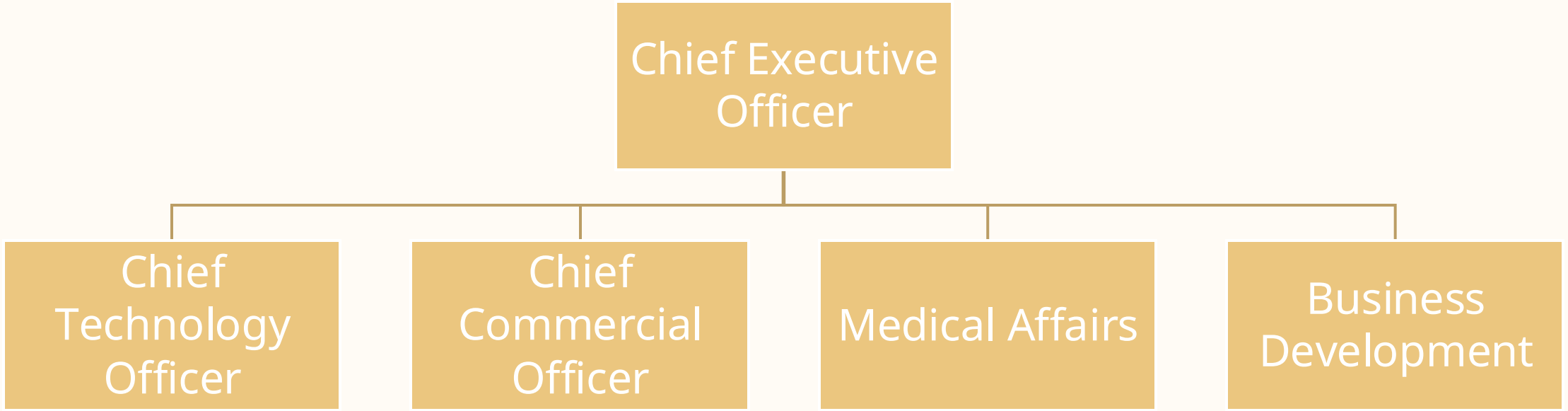

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Research & Development

WHO & WHAT it takes to bring a drug into a patient

Audience Response Questions
Use the chat

- What role does the Research organization play in a pharmaceutical company?

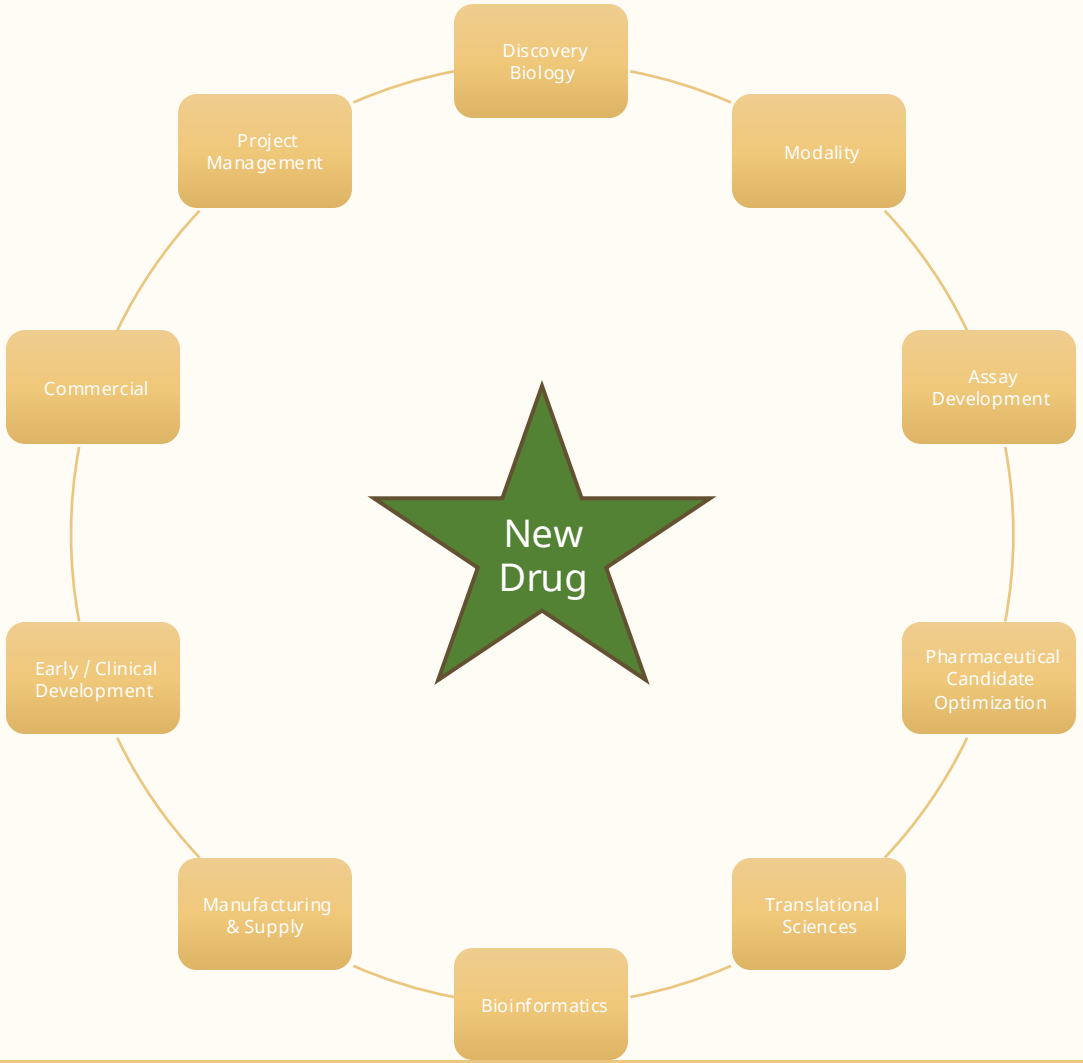
Audience Response Questions
Use the chat

- What role does the Development organization play in a pharmaceutical company?

Research Org's goal is to identify targets that are efficacious, safe, druggable, & address an unmet medical need

- Prioritizing attractive targets
  - Rationale & Translational Hypothesis
    - Does the target address an unmet medical need?
    - Is there a mechanistic link to disease biology?
    - Is there a clear way to stratify patients most likely to benefit?
  - Druggability: How challenging is the target to drug?
    - Is the target structurally enabled?
  - Tox Liabilities
    - Does the target possess a promising tolerability profile & are AEs predictable?
  - Competitive Landscape
    - What is the differentiated profile relative to the field?
    - Is there a first in class / best in class potential?

It takes a village to bring a drug into a patient



Phases of Drug Development

Target Identification & Validation

- Identify target
- Validate target
- Demonstrate druggability
- Desired characteristics of clinical candidate
- High level translational research plan
- IP Assessment

Compound Screening, Lead Discovery & Optimization

- Identify lead candidate
- Optimize lead candidate for target engagement/ pharmacodynamics
- Preliminary toxicology assessment

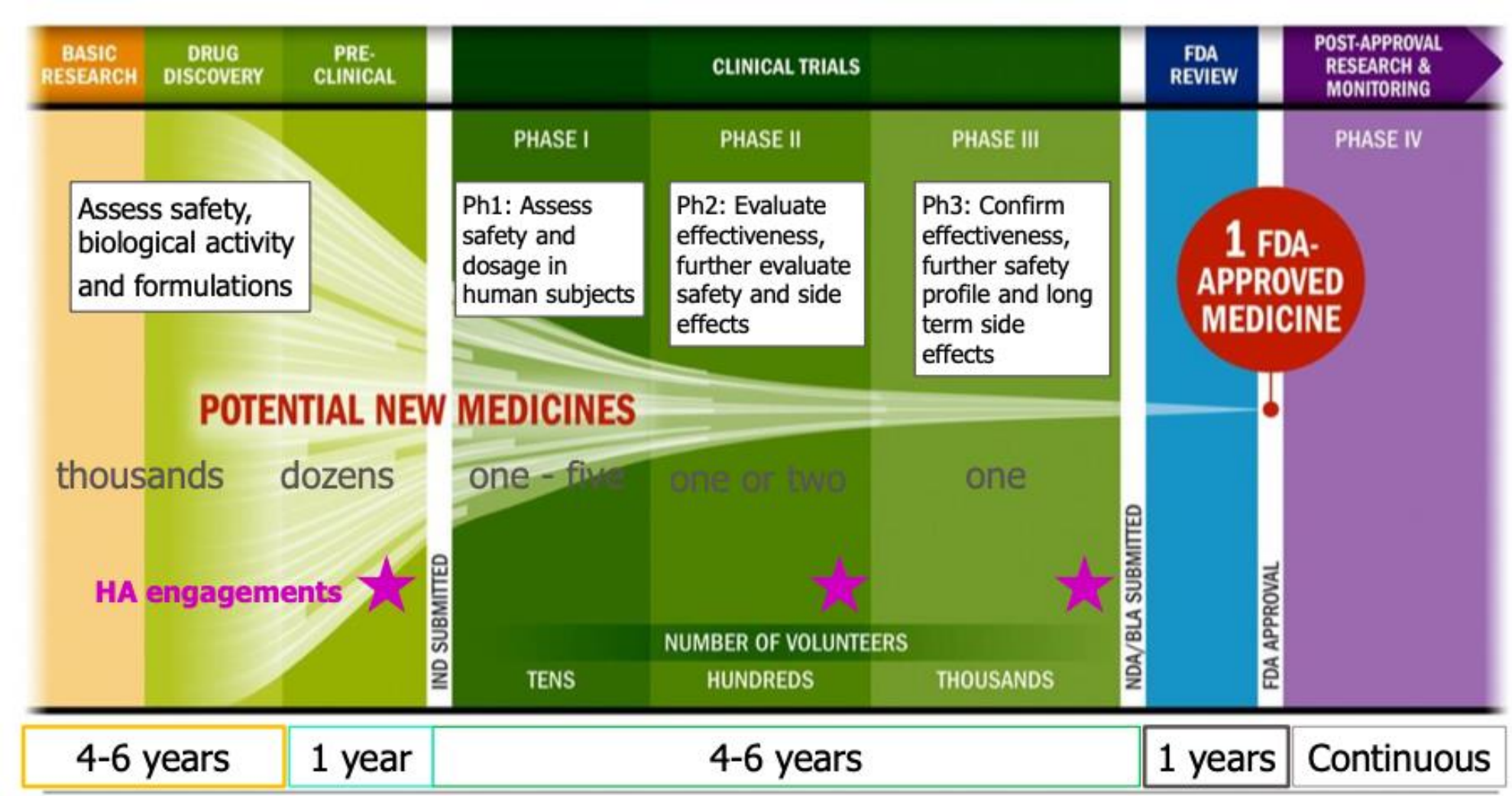
Preclinical Development

- In vitro / in vivo correlation
- Optimized development candidate
- GLP toxicology studies
- Human dose projection
- Scale up for clinical supply
- Translational plan

Clinical Development

- First in Human Clinical Trial (Phase 1)
- Biomarker assays
- Site activation
- Endpoints
- Competition
- Patient stratification

Drug Development Paradigm



* The average R&D cost required to bring a new, FDA-approved medicine to patients is estimated to be $2.6 billion over the past decade (in 2013 dollars), including the cost of the many potential medicines that do not make it through to FDA approval.

Source: PhRMA adaptation based on Tufts Center for the Study of Drug Development (CSDD) Briefing: "Cost of Developing a New Drug," Nov. 2014. Tufts CSDD & School of Medicine., and US FDA Infographic, "Drug Approval Process," http://www.fda.gov/downloads/Drugs/ResourcesForYou/Consumers/UCM284393.pdf (accessed Jan. 20, 2015).

Questions?

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Reimagining Science Careers

Navigating the Commercial Organization as a Scientist

February 21, 2025 | 12pm ET / 9am PT

Link to Register in Comments

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