

# CERN Career Networking Event 2020

*Reflections on Career Transition from Science to Business*

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Basel & Geneva, Switzerland

16 November 2020



# Disclaimer

Thanks for the opportunity to present to you today.

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I am:

- Not officially representing my current company, Lonza, nor any former companies/employers
- Not recruiting (although Lonza is expanding in Switzerland and elsewhere)
- Presenting a few slides about Lonza to give context on what I currently do
- Offering my views & experience transitioning from scientific research into business
- Having respect & gratitude to my scientific experiences, former colleagues, and institutions

# My Background

## Journey from Science to Business



- **NASA/Langley:** Aeronautical Engineering Apprenticeship - Transonic Aircraft R&D



- **Yale University:** Undergraduate Physics (and Music)



- **University of Wisconsin – Madison:** Ph.D. Physics, Post-doc, Research Scientist (based at CERN)



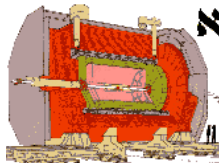
- **CERN:** Research Fellow



- **Brookhaven National Laboratory:** Research Scientist (based at CERN)



- **CLAS @ CEBAF:** Nuclear Physics



- **ALEPH:** Heavy Flavor Physics



- **ALEPH, ATLAS:** Higgs Boson Searches

McKinsey&Company

- **McKinsey & Company** (San Francisco & London): Management Consulting

SGS

- **SGS** (Geneva): Corporate Strategy, Global Operational Excellence, Lean/6 Sigma, Finance, Business Management

Lonza

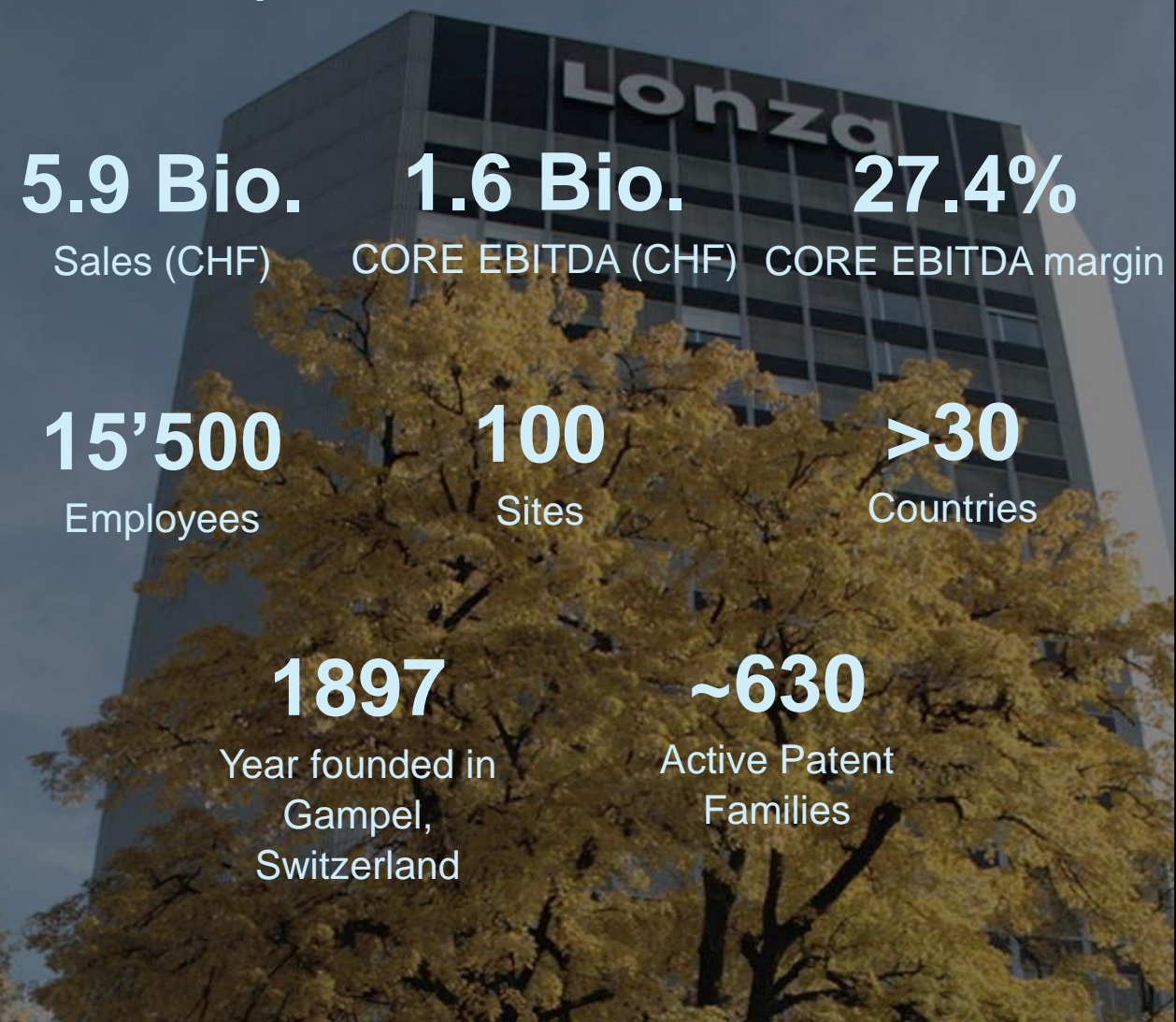
- **Lonza** (Basel): Corporate Finance, Global Capital Investments, Risk, Corporate Development/M&A, Strategy Implementation

I currently work here

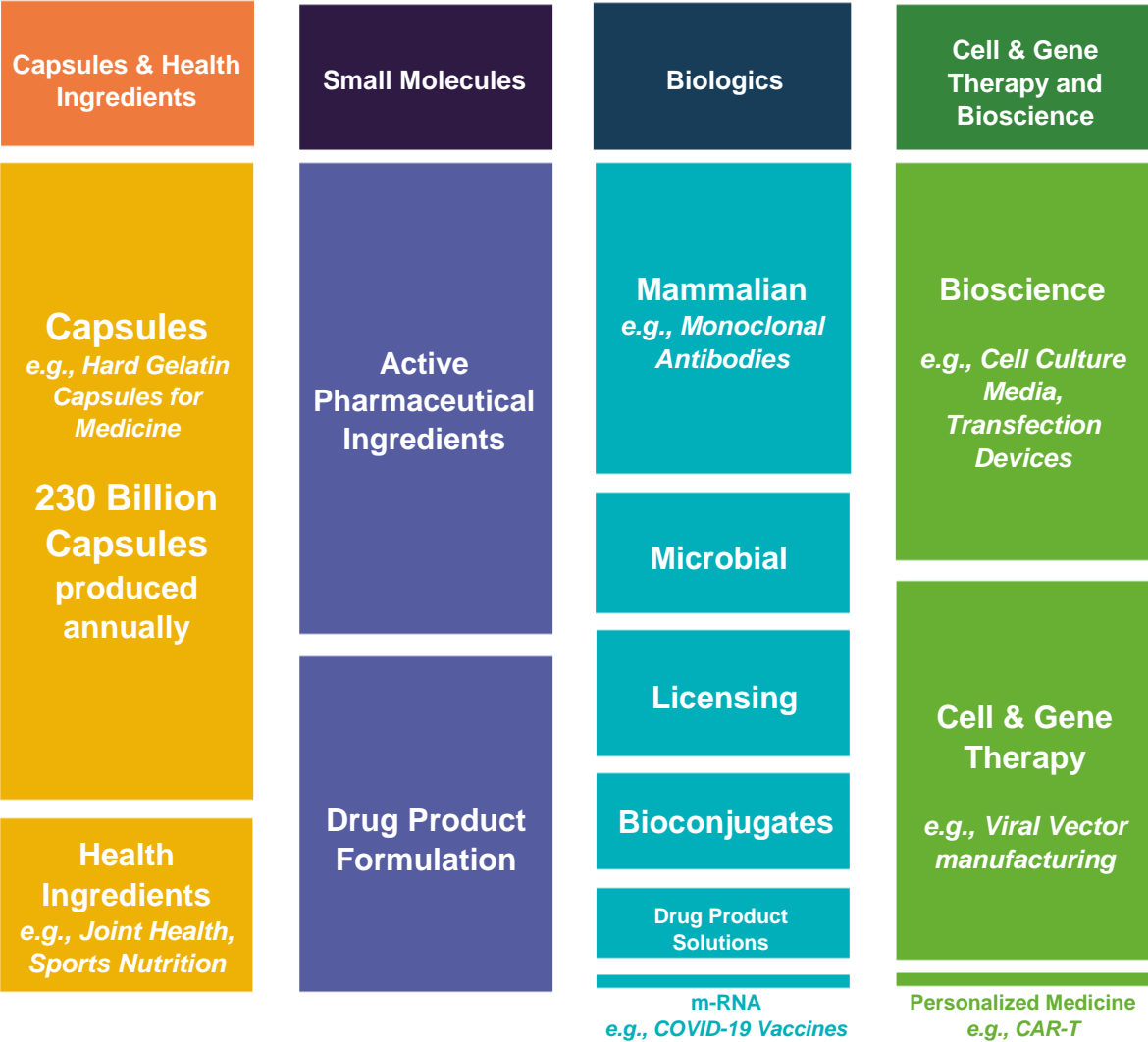
# Where I work now

Lonza delivers Technologies to enable a Healthier World as preferred partner to Biotech, Pharmaceutical, Chemicals Markets.

## Lonza Group Full-Year 2019 Results



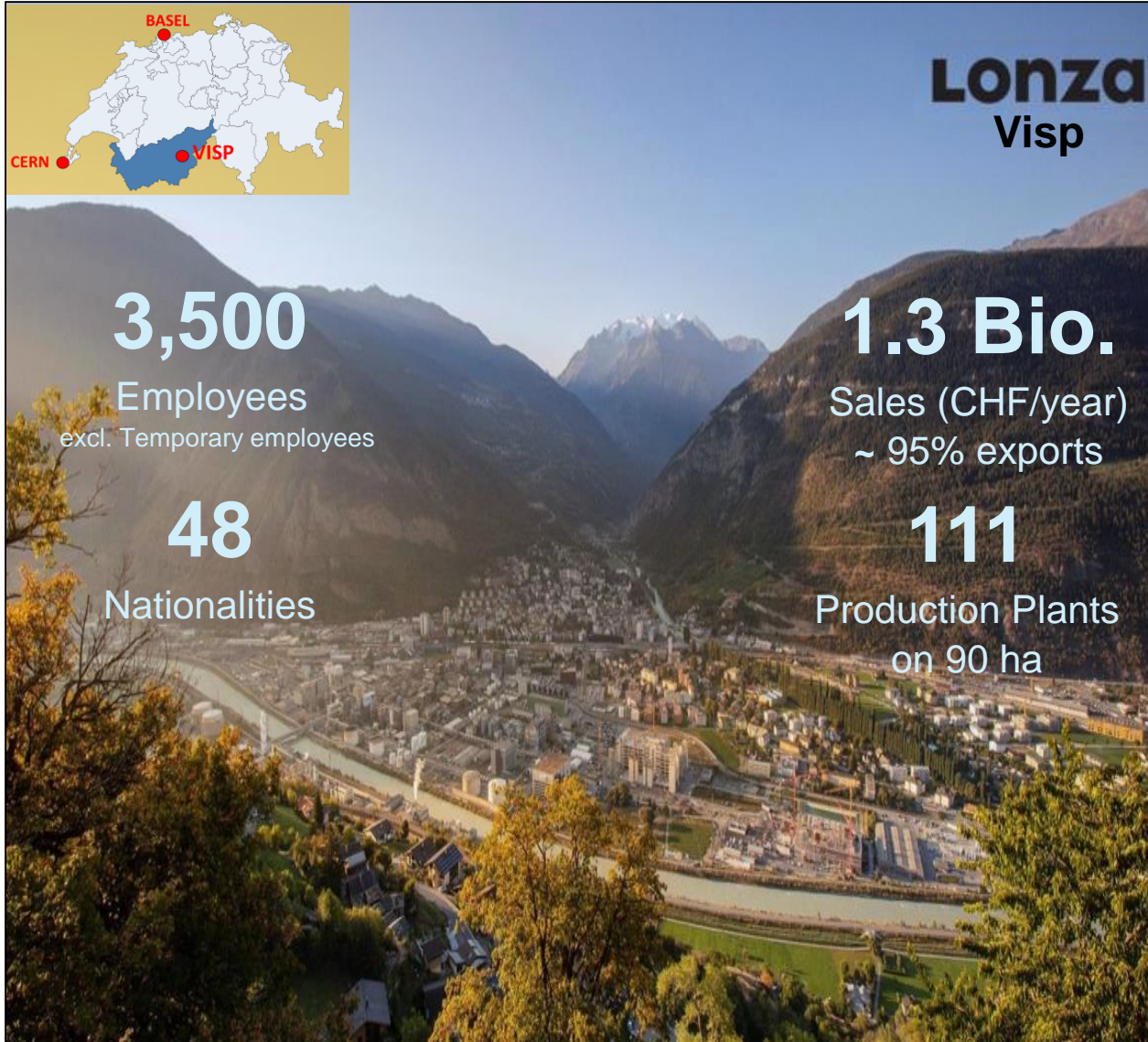
## Lonza Divisions and Business Units





# Lonza's largest production site: Visp, Valais, Switzerland

Similar to CERN campus both in size and complexity, but dedicated to Biotech, Pharmaceuticals, Chemicals.




**Lonza**  
Visp

**3,500**  
Employees  
excl. Temporary employees

**48**  
Nationalities

**1.3 Bio.**  
Sales (CHF/year)  
~ 95% exports

**111**  
Production Plants  
on 90 ha



**Lonza**

**Ibex® solutions – a generation project**  
A new CDMO\* concept for biologics requirements



**ibex®** | Design  
**ibex®** | Develop

**ibex®** | Dedicate

**Customer benefits**

- > Speed
- > Flexibility
- > Simplicity
- > Risk mitigation

\*CDMO = contract development and manufacturing organization  
Corporate | Visp Site Presentation



# Brave New World of Pharmaceuticals

“Large Molecule” Biologics, Cell/Viral Therapeutics: accessing technology upon which Life is based: Proteins and Nuclei Acids

## Example: Biologic Therapeutic Monoclonal Antibody (mAb)

$$M_{\text{mAb}} \approx 150 \text{ TeV}/c^2$$

for comparison

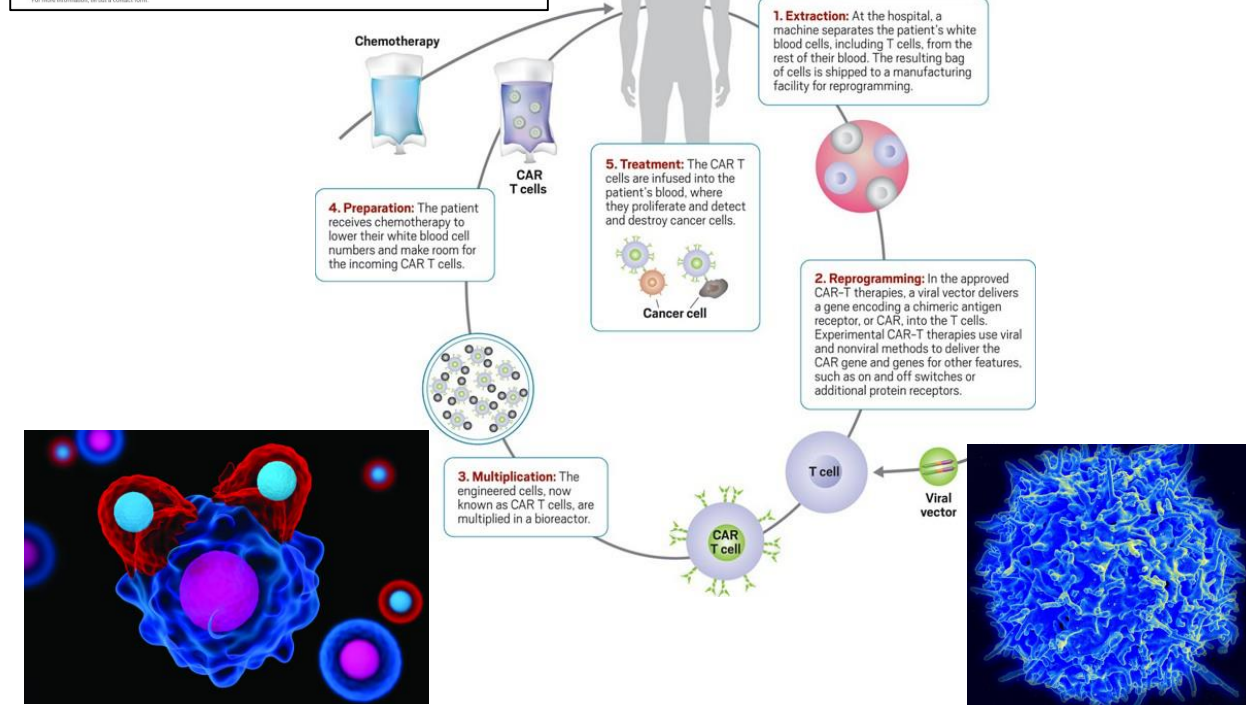
Aspirin Molecule

$$M_{\text{Aspirin}} \approx 170 \text{ GeV}/c^2$$

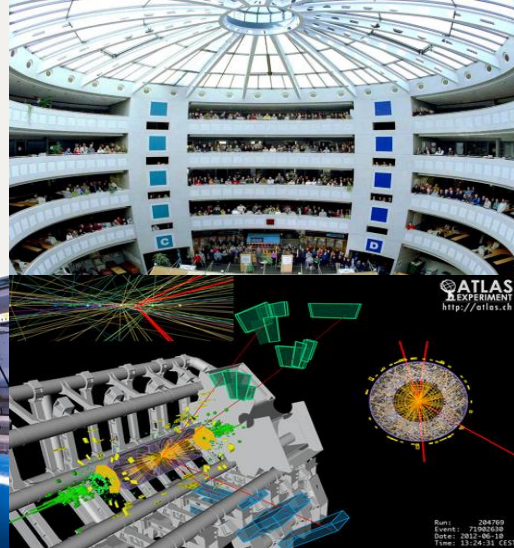
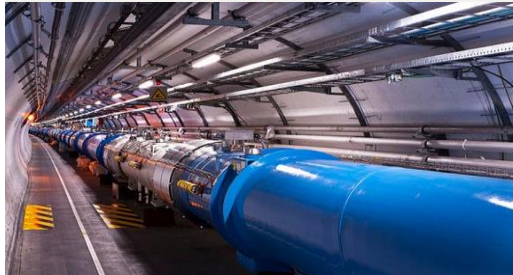
Most “Large Molecule”  
Biologics cannot be  
synthesized using  
traditional Chemistry.  
Must use Bioreactors →



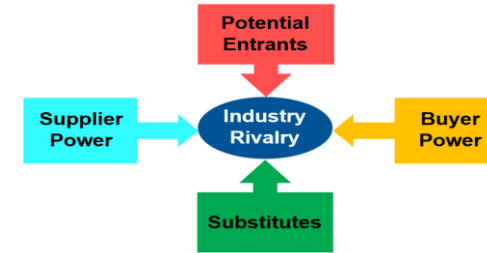
## Example: Personalized Medicine using Autologous Chimeric Antigen Receptor (CAR)-T Cells



Initial thinking regarding transitioning from Science into Business... not entirely correct/complete.

$$\begin{aligned} \mathcal{L}_{SM} = & \underbrace{\frac{1}{4}W_{\mu\nu}^aW^{\mu\nu a} - \frac{1}{4}B_{\mu\nu}B^{\mu\nu} - \frac{1}{4}G_{\mu\nu}^AG^{\mu\nu A}}_{\text{kinetic energies and self-interactions of the gauge bosons}} \\ & + \underbrace{\bar{L}\gamma_\mu\left(i\partial_\mu - \frac{1}{2}g\tau W_\mu - \frac{1}{2}g'YB_\mu\right)L + \bar{R}\gamma_\mu\left(i\partial_\mu - \frac{1}{2}g'YB_\mu\right)R}_{\text{kinetic energies and electroweak interactions of fermions}} \\ & + \underbrace{\frac{1}{2}\left[\left(i\partial_\mu - \frac{1}{2}g\tau W_\mu - \frac{1}{2}g'YB_\mu\right)\phi\right]^2 - V(\phi)}_{W^\pm, Z, \gamma \text{ and Higgs masses and couplings}} \\ & + \underbrace{g^a(\bar{q}\gamma^\mu T_a q)G_\mu^a}_{\text{interactions between quarks and gluons}} + \underbrace{(G_1\bar{L}\phi R + G_2\bar{L}\phi_c R + h.c.)}_{\text{fermion masses and couplings to Higgs}} \end{aligned}$$


A graphic illustration featuring the silhouettes of a man and a woman in business attire. The man is on the left, pointing upwards with his right hand, and the woman is on the right, also pointing upwards with her right hand. They are positioned in front of a large, red, jagged line graph that trends upwards from left to right. The background is a blue world map with a grid of white lines. The overall image conveys a sense of global business success and growth.



- Highly developed analytic skills
- Extract insights from “Big Data”
- Can manage complex projects
- Accustomed to large collaborations

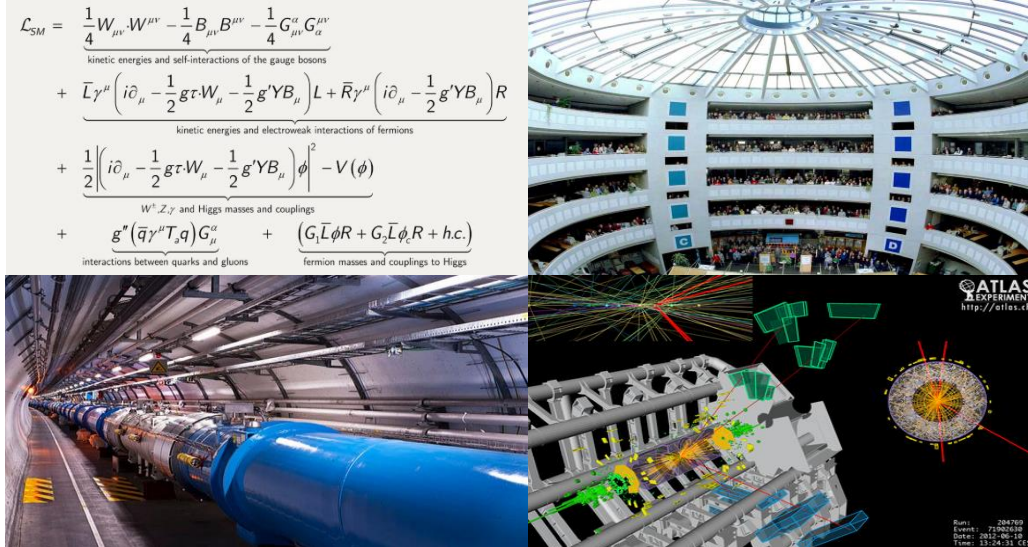
## ...and can transition into Business!(?)



# My Career Transition **Reality**

Revised Thinking regarding transitioning from Science into Business, i.e., “Things I wish I knew before.”

## “Science”



### I, like many Physicists:

- Highly developed analytic skills
- Extract insights from “Big Data”
- Can manage complex projects
- Accustomed to large collaborations

## “Business”



### ...and can transition into Business, **but:**

- ⚠ Master new reality, environment, challenges, competencies
  - ⚠ Overdeveloped Strengths can be Weaknesses
  - ⚠ Focus on *commercially relevant* insights
  - ⚠ **Communication**
  - ⚠ **Change**
  - ⚠ **Culture**
- see next slides...



# 1. Communication

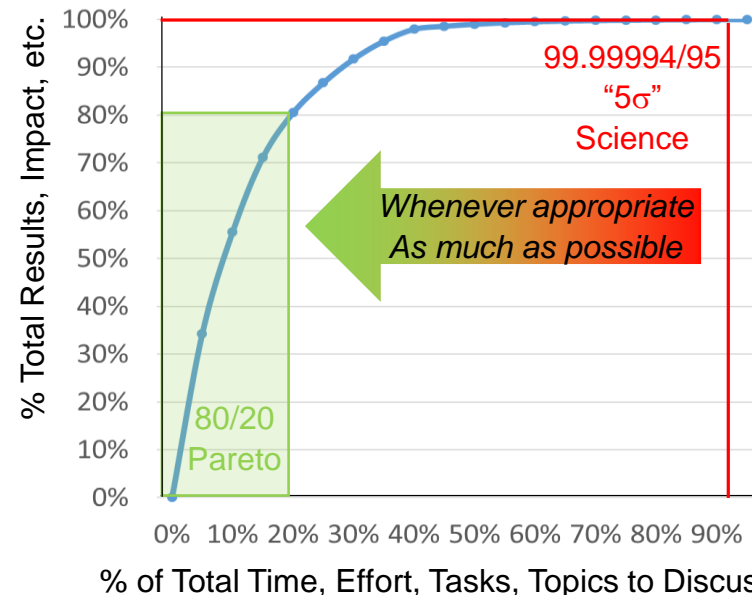
## Things that have helped me

- Communicate with awareness of different Personality Types →
- Evolve from Scientific/Refutational to Encompassing styles
- Identify, manage, engage with different Stakeholders
- Migrate from 99.99994/95 to 80/20 “Pareto” approach

Example Personality Type Framework: Myers-Briggs

<b>ISTJ</b> “Inspector” 11.6%	<b>ISFJ</b> “Protector” 13.8%	<b>INFJ</b> “Counselor” 1.5%	<b>INTJ</b> “Mastermind” 2.1%
<b>ISTP</b> “Crafter” 5.4%	<b>ISFP</b> “Composer” 8.8%	<b>INFP</b> “Healer” 4.4%	<b>INTP</b> “Architect” 3.3%
<b>ESTP</b> “Promoter” 4.3%	<b>ESFP</b> “Performer” 8.5%	<b>ENFP</b> “Champion” 8.1%	<b>ENTP</b> “Inventor” 3.2%
<b>ESTJ</b> “Supervisor” 8.7%	<b>ESFJ</b> “Provider” 12.3%	<b>ENFJ</b> “Teacher” 2.4%	<b>ENTJ</b> “Field Marshal” 1.8%

Note: “Myers-Briggs Type Indicator” and MBTI are registered trademarks of Consulting Psychologists Press Inc.  
Source: Wikipedia

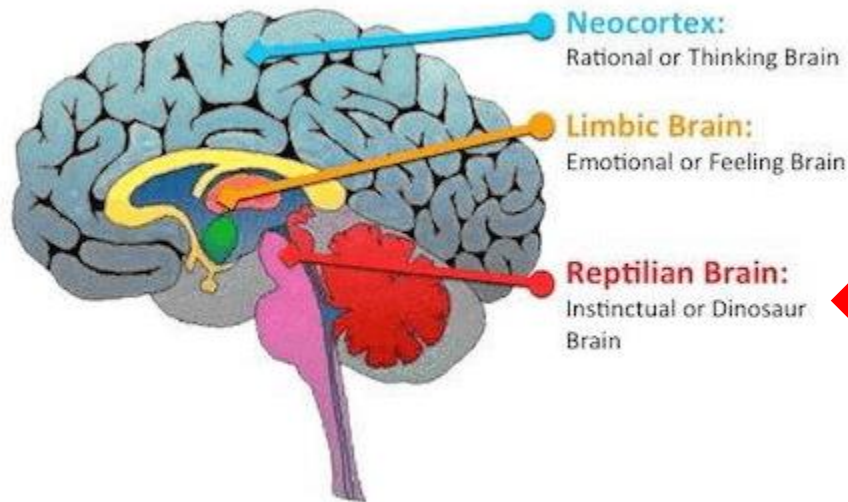


Stakeholder(s)	Area(s) of Interest
Customers	Price, Value, Quality, Time, OTD, Care, EHS(S)
Owners/Stockholders	Profit, Cash Flow, Performance, Direction, EHS(S)
Government	Tax, Legislation, Macroeconomics, EHS(S)
Regulators	Compliance
Management	Performance, Targets, EHS(S)
Staff	Rates of pay, job security, EHS(S)
Creditors	Credit score, liquidity, ESG
Community	Jobs, Involvement/Outreach, EHS(S)

## 2. Change (Management & Leadership)

### Things that have helped me

- Do not Fear Change (*it is going to happen anyway!*)
- View as Opportunity
- Becomes increasingly frequent and more profound (viz. 2020)
- Learn how to receive and give Feedback (e.g., JoHari Window)
- Realize *anyone* is replaceable
- Understand Change “Phases and Cycles” (viz. *Amygdala*)



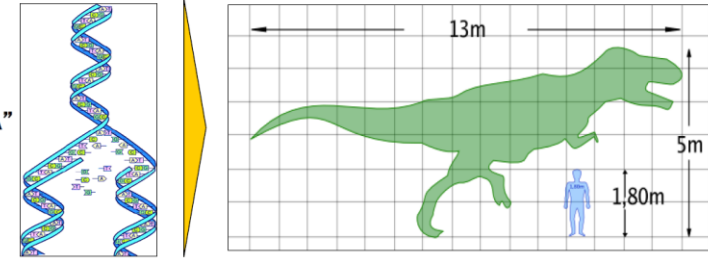
### BUSINESSES AS LIVING ORGANISMS: CHANGE NECESSARY TO SURVIVE AND GROW



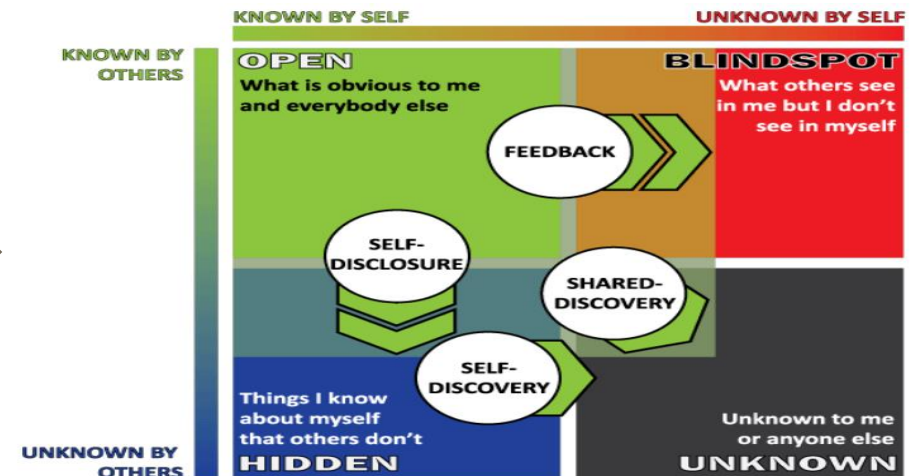
*“It is not the strongest of the species that survive, nor the most intelligent, but the one most responsive to change.”*

- Charles Darwin

- Even small changes in “Corporate DNA” have huge consequences.



### Example: the JoHari Window



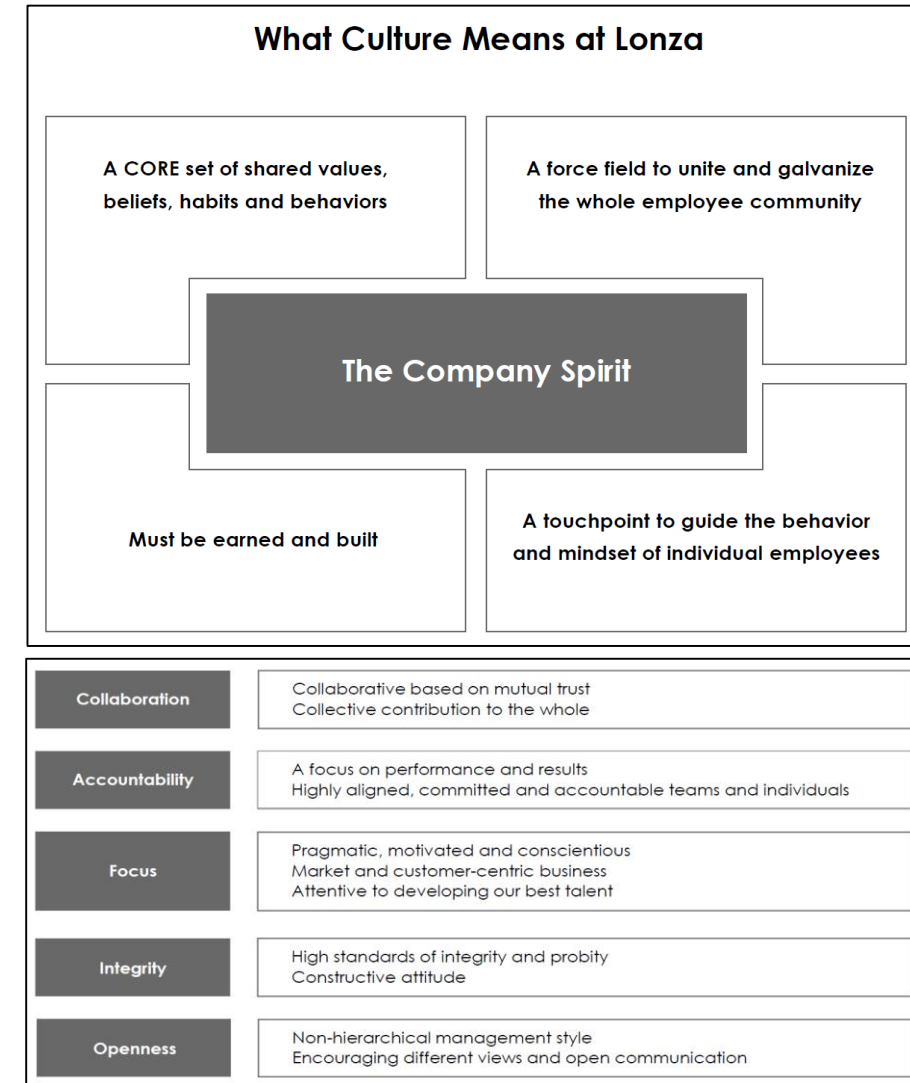


### 3. Culture

Things that I am continuing to learn and which are helping me

- “*Culture eats Strategy for Breakfast*” – Peter Drucker
- Derived from the Latin word *colere*, *cultus* = **to care**
- Encompasses Attitude, Values, Behaviors, Respect
- Basis of company (and individual) Adaptability and Resilience
- Often not *What* but *How* things are done
- Sounds easy but it is not
- Usually able to sense a Culture rapidly

#### Example of Business Culture:



Source: A. Baehny, *Lonza Investor Update* – 15 October 2020

# Industries and Functions

A spectrum of ideas / “Food for Thought” of potential relevance for Physicists

## Industries

- High Tech: Silicon Valley, Software, Advanced Electronics, Semiconductors
- Life Sciences, Pharma, Chemicals, Aerospace, Oil & Gas, Metals & Mining, Nutrition
- Financial Services, Investment Banking, Insurance

*Closely Aligned*

*Growth Opportunities*

## Functions

- |                          |                               |                          |
|--------------------------|-------------------------------|--------------------------|
| ■ Operational Excellence | ■ Environment, Health, Safety | ■ Strategy               |
| ■ Finance                | ■ Sustainability              | ■ Mergers & Acquisitions |
| ■ Quality (e.g., GMP)    | ■ Intellectual Property       | ■ Legal                  |
| ■ IT/OT/Digital          | ■ Regulatory                  | ■ Ethics & Compliance    |
| ■ Project Management     | ■ Risk                        | ■ Marketing & Sales      |
| ■ R&D                    | ■ Supply Chain                | ■ Human Resources        |



# Important Practicalities

A few practical things that have helped me on my career journey

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- Build and *maintain* a Network
- Find, observe, learn from formal & informal Mentors & Coaches / inspirational Colleagues & Bosses
- Recast/tailor/translate your experience and skills
- Don't be afraid to “course-correct” your own career
- Be Persistent!

**I hope you found this helpful, and  
I wish you luck in your career journeys!**

