University of Glasgow

UoG / UESTC Joint School of Engineering
Engineering Project Management & Finance

Lecture 16:

Company Strategy & Engineering Careers

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Final Lecture Contents

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What is Strategy?

You will hear many people talk about strategy or strategic plans. Most people do not know what is its true meaning.

- Refer to SunTsu's book 'The Art of War:

  " Know yourself and know your enemy, and you will never be defeated."

- Strategy is more than just planning — it's about deep understanding and wise positioning.
- True strategy requires knowledge of:
  - Your strengths and limitations
  - External challenges and competitors

What is Strategy?

- Johnson and Scholes (Exploring Corporate Strategy) define strategy as follows:

"Strategy is the ***direction*** and ***scope*** of an organization over the ***long-term:*** which achieves ***advantage*** for the organization through its configuration of ***resources*** within a challenging ***environment***, to meet the needs of ***markets*** and to fulfil ***stakeholder*** expectations".

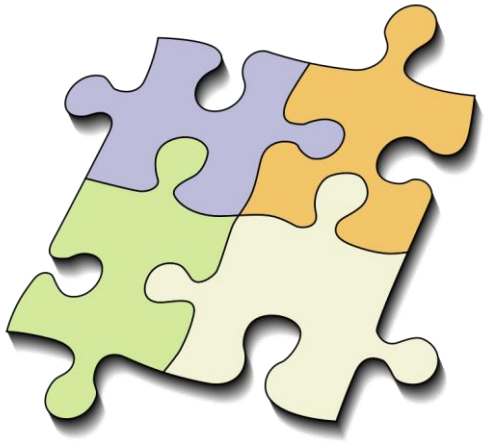
Key Takeaways

- Strategy = **Long-term advantage** + **Resource alignment.**
- Sun Tzu reminds us: strategy starts with **understanding**, not action.

There are different levels of strategy…

Within Companies:

- Product Strategies (for product families or product types)
- Business Units (for groups of similar products / customers)
- Technology Strategies
- Manufacturing Strategy
- Sales &Marketing Strategies



BUT…

For successful companies they must all fit together like a jigsaw puzzle. An effective organization can ONLY have **one overall strategy**.

How do you develop a strategy?

A strategy is different from vision, mission, goals, priorities, and plans. *It is the result of* ***choices executives make****, on* ***where to play*** *and* ***how to win****, to maximize* ***long-term value****.*

To define the fundamentals of your strategy, you need only to answer three questions:

1. **Who is the target customer?**
2. **What is the value proposition to that customer?**
3. **What are the essential capabilities needed to deliver that value proposition?**

- Without clear and coherent answers to these three questions you won't have a strategy.

Ken Favaro Booz & Company, Summer 2012 / Issue 67

Product Strategy

- From our earlier discussions, a product can be something you sell (a phone, software, a car etc) or a service you offer (design services, expertise etc)

1. Clearly identify who you want your customers to be?
   - Where are they, how much will they spend etc
2. What are you offering to the customer?
   - What problem are you solving?
3. What do you need (resources) to provide that product or service?
   - Suppliers, skills, support infrastructure, $$$, technology

Technology Strategy

- Where do you want to be as a company:
  - A technology leader (always the latest and greatest)
  - A technology follower (learn from the leaders)
  - How much will people pay for you being ‘first?’
- What technology (or types) are important to you?
  - Do you need to own ALL the technology?
  - What technology is REALLY important to your business?
  - Ideally, own the IP that makes your product different (and hard to copy), and licence less important technology
- Do you (or should you) care about technology at all?

Sales & Marketing Strategy

How will you interface with your customers?

1. Who is the target customer?

   Young, old, male, female, rich, or poor?

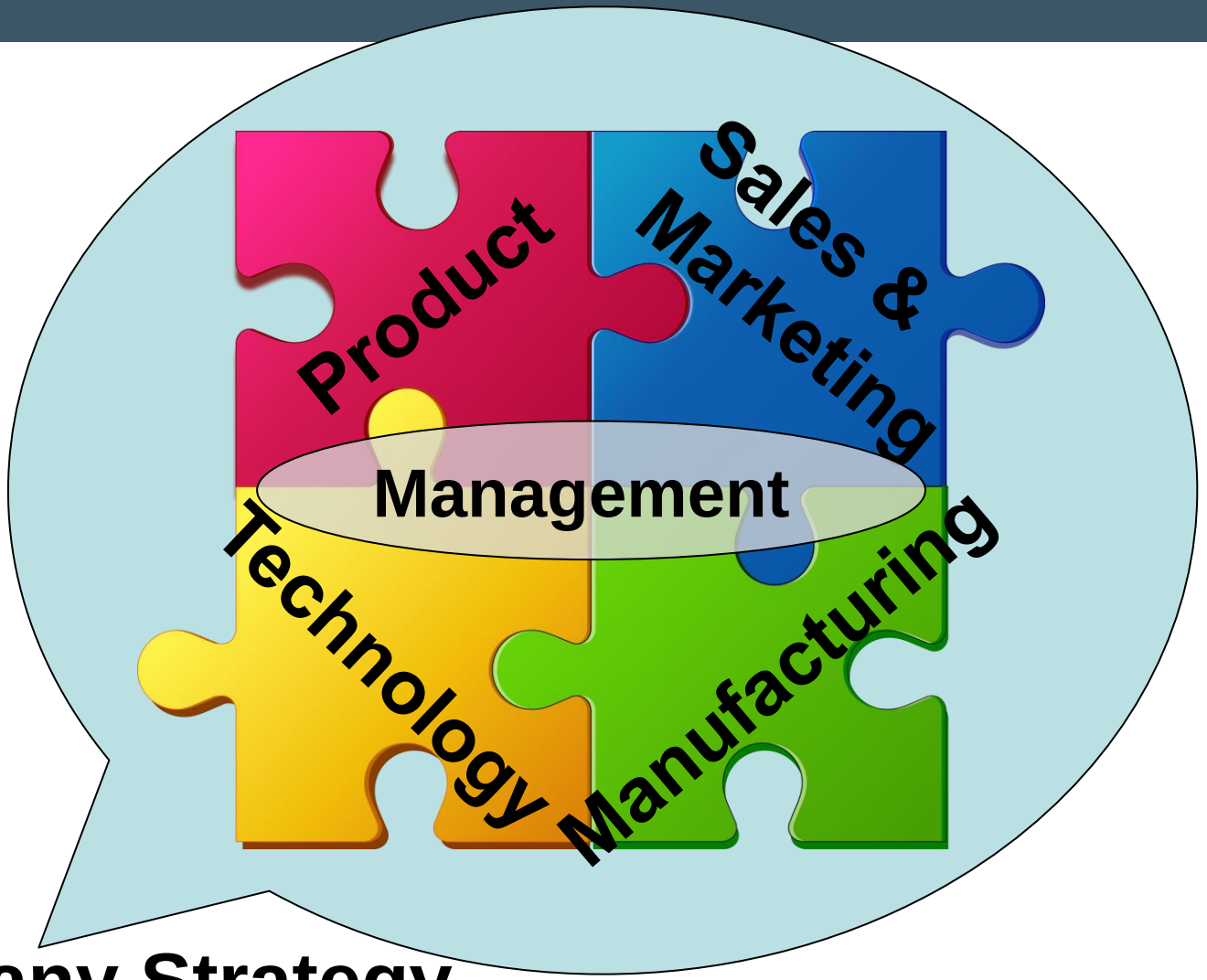
2. What is the value proposition to that customer?

   Save time, save money, do something new?

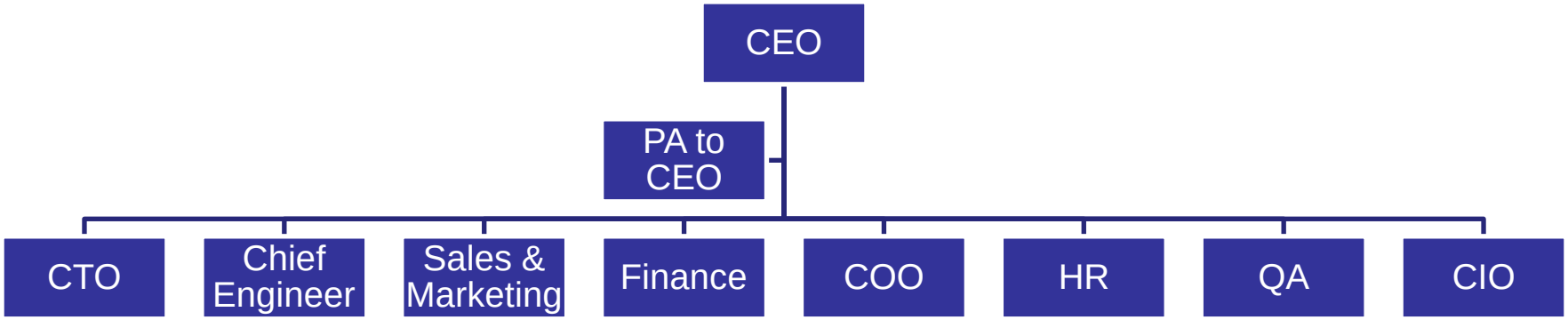
3. What are the essential capabilities needed **for you** to deliver that value proposition?

   Technology, Service, low cost, good infrastructure

An organization's strategies must interlink…



Who owns the strategy?



Strategy Is About Thinking Long Term

Where do you want your company to be in 5, 10, or 15 years?

We've talked about **company strategy**, but this kind of thinking applies to many areas:

- **Countries:** China's Five-Year Plans (e.g., the 14th Plan for 2021–2025)
- **Universities:** University of Glasgow's Internationalisation Strategy
- **You:** Where do you want to be in 5, 10, or 15 years?

You must take charge of your own future.

Strategic thinking isn't just for companies — it's for your career and life, too.

Long Term Engineering Career Options

1. Become a professional Engineer in Industry
2. Become an academic studying Engineering
3. Use your Engineering Degree in another Career
4. Do something completely different !

When you graduate you will be able to:-

Define problems, Analyze Problems, Be highly numerically and computer literate, Be capable of very 'pure' logical thought, Come up with innovative solutions

These are VERY attractive skills for many careers.

A Professional Engineer in Industry

There are 100's of different engineering roles Industry

Role

- System Architects / System Engineering
- Design Engineers (SW or HW)
- Test Development Engineers
- Test Engineers
- Manufacturing /Production /Equipment / Plant Engineers
- Assembly Engineers
- Quality Engineers
- Sales Engineers
- Applications Engineers
- …

Industry

- Semiconductors
- Software
- Automotive
- Aerospace
- The Military
- Consumer Equipment
- Medical Equipment
- Food / General Manufacturing
- Power Industry
- Transport Industry
- Communications / Broadcasting
- …

Search and think what will be 'important' in 10 years time…

An Academic Engineer or Teaching

- Become so interested in an aspect of technology of engineering you want to study it as a career
- The boundaries between Scientist and Engineer become blurred as an academician
  - You are focused on discovering the LIMITATIONS of something
  - Less focused on making products or revenue
  - Your Goal is to publish high quality research papers
- You have the opportunity to make breakthrough discoveries
- Academic life is very competitive; they only choose the best.

Use your Engineering Degree in another Career

Your Engineering Training Makes You Highly Desirable Across Many Careers

- You are among the **most mathematically skilled professionals** — often with **stronger math skills than accountants or finance experts**.
- After computer scientists, you have **some of the deepest knowledge of computing**, and you understand **how computers actually work at a fundamental level**.
- You've been trained to **analyze complex problems**, break them down into manageable parts, and **communicate clear solutions**.
- Engineering is a **team effort** — you know how to **collaborate, share responsibility**, and rely on others' expertise.

Do something completely different!

You've had enough of engineering — you want out!

- **Musician, Sculptor, Painter**
  - *Wait... what about all that creativity and innovation training?*
- **Writer, Lawyer, Journalist**
  - *Wait... you've been trained to build logical arguments and communicate clearly in writing.*
- **Butcher, Baker, Farmer, Restauranteur**
  - *Wait... you understand basic finance, cost control, and how money works.*
- **Marketing, Sales, Property Developer**
  - *Wait... you know how to analyze markets and forecast trends.*

Oh Dear… Sounds like Professional Practice all over again…

Final Year Projects (FYP)

The **culmination** of your undergraduate engineering education

- It's your chance to **demonstrate everything you've learned**.
- We want to see your **mastery across the curriculum** — from theory to practical application.

Choosing Your FYP — Some Advice:

- It's **YOUR project** — choose something that genuinely interests you.
- Play to your strengths. Think about which parts of the course you're best at and **show yourself at your best**.
- Your FYP can be a **powerful tool in job interviews.** Industry professionals love hearing about fresh ideas and innovations.
  - Bring a 3-slide summary of your project.
  - Be ready to talk about what you built, why it matters, and what you learned**.**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Thank you
谢谢
INSPIRING PEOPLE