

Controlling is not enough

401.661 Advanced Construction Technology

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Lecture Outline

- Modeling Practice I: Telecommunication Company
- Modeling Practice II: Prefabrication

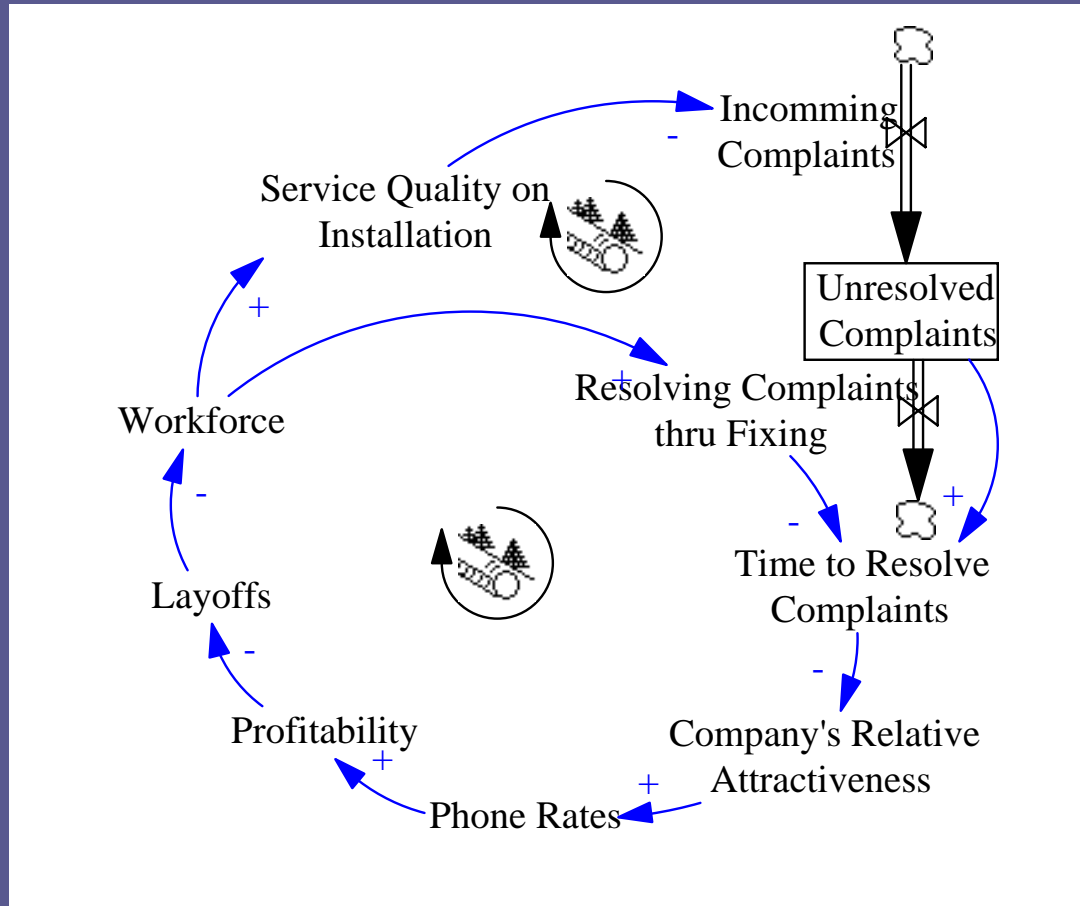
Problem Statements

- Recently, the **service quality** of SingTelcom, a leading telecommunication company in Singapore, has been declining. In spite of a series of phone rate adjustments, the company is now facing a danger to lose its customers.
- SingTelcom wants to find policies that can turn the situation around.

Momentum Policies

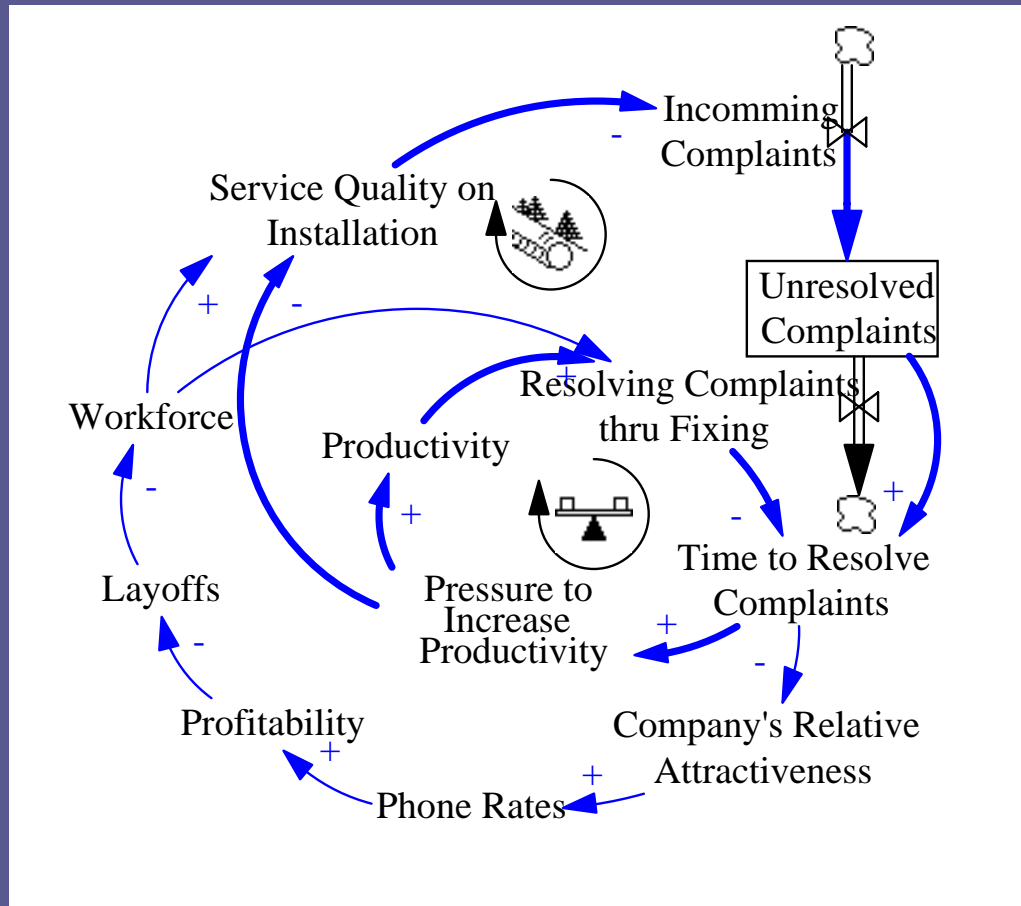
- Lay off workers (fixing and installations).
- Try to have the company grow fast.
- If service stays low, reduce telephone rates even more.

Way of Setting the Rate so far



Given the problem, rate setting relying on the traditional way can cause continuing deterioration.

Focus on Quality and Productivity...

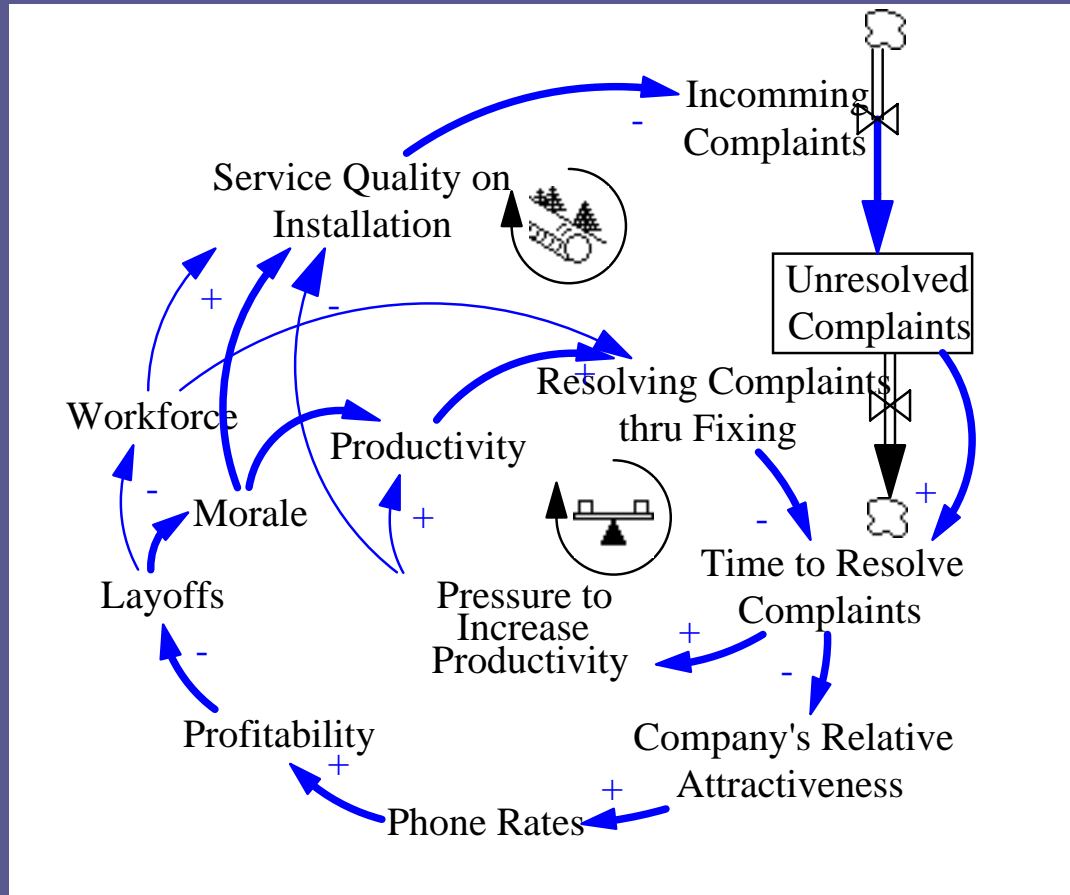


➤ Respond to rate threat by improving quality.

➤ Resist pressure on productivity.

➔ HOW?

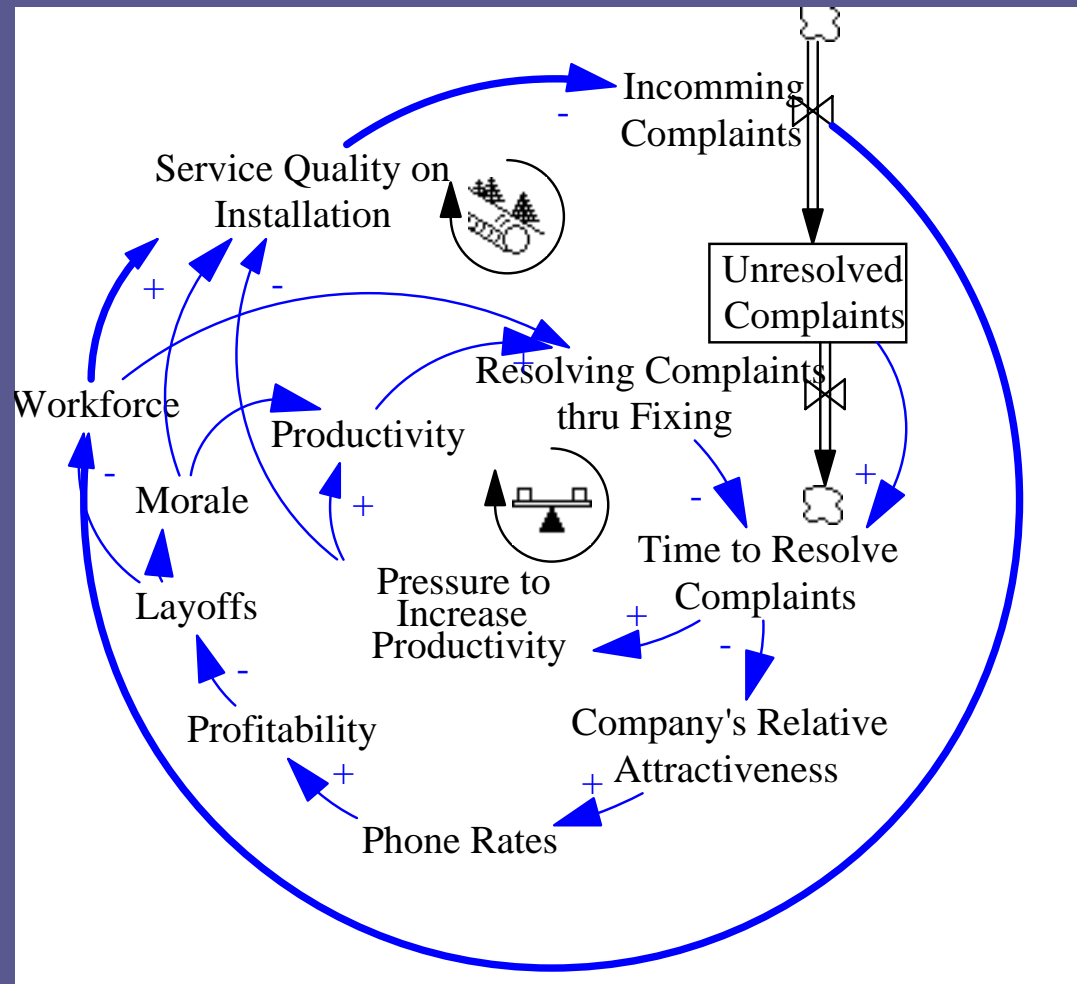
Compounding via Morale



➤ Incentives on good service and productivity

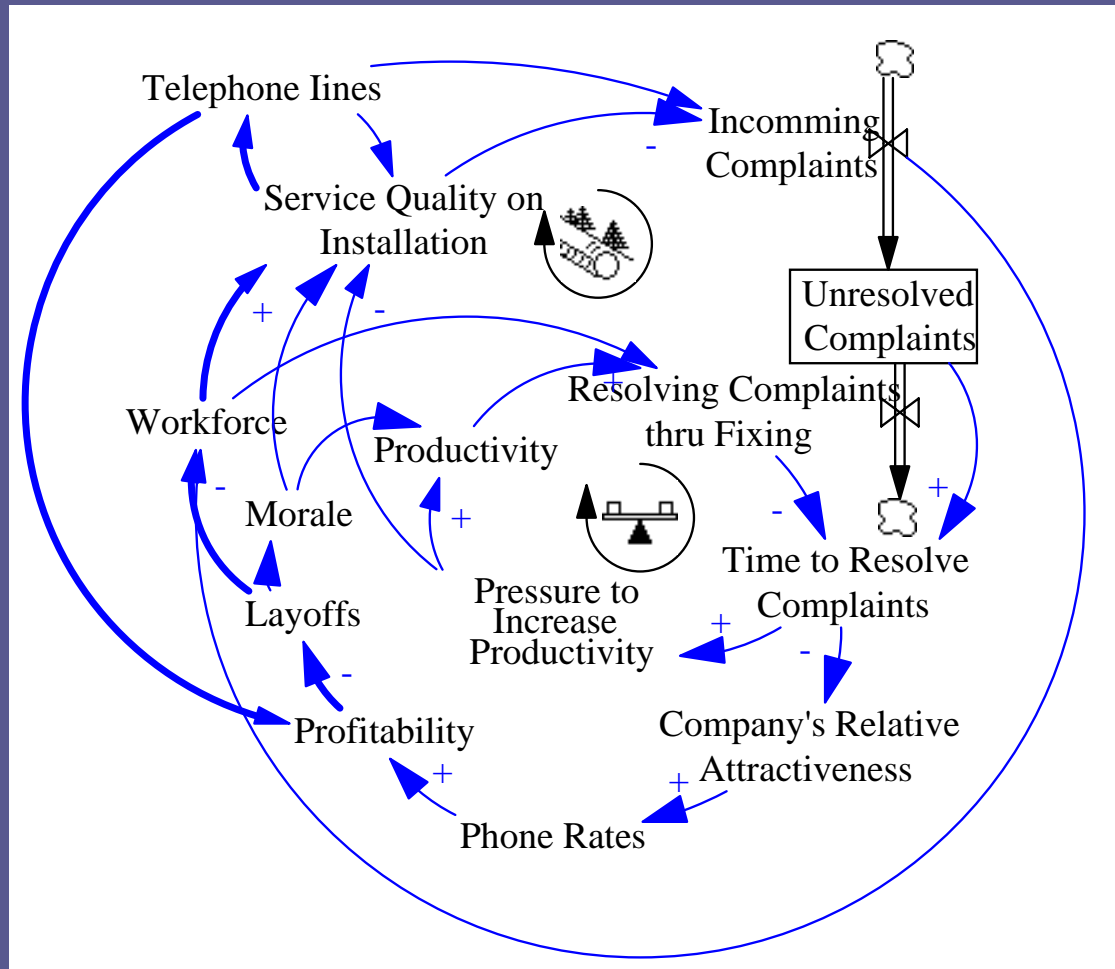
➤ No layoffs

Even Hire More ...



Profits will suffer in the short terms...

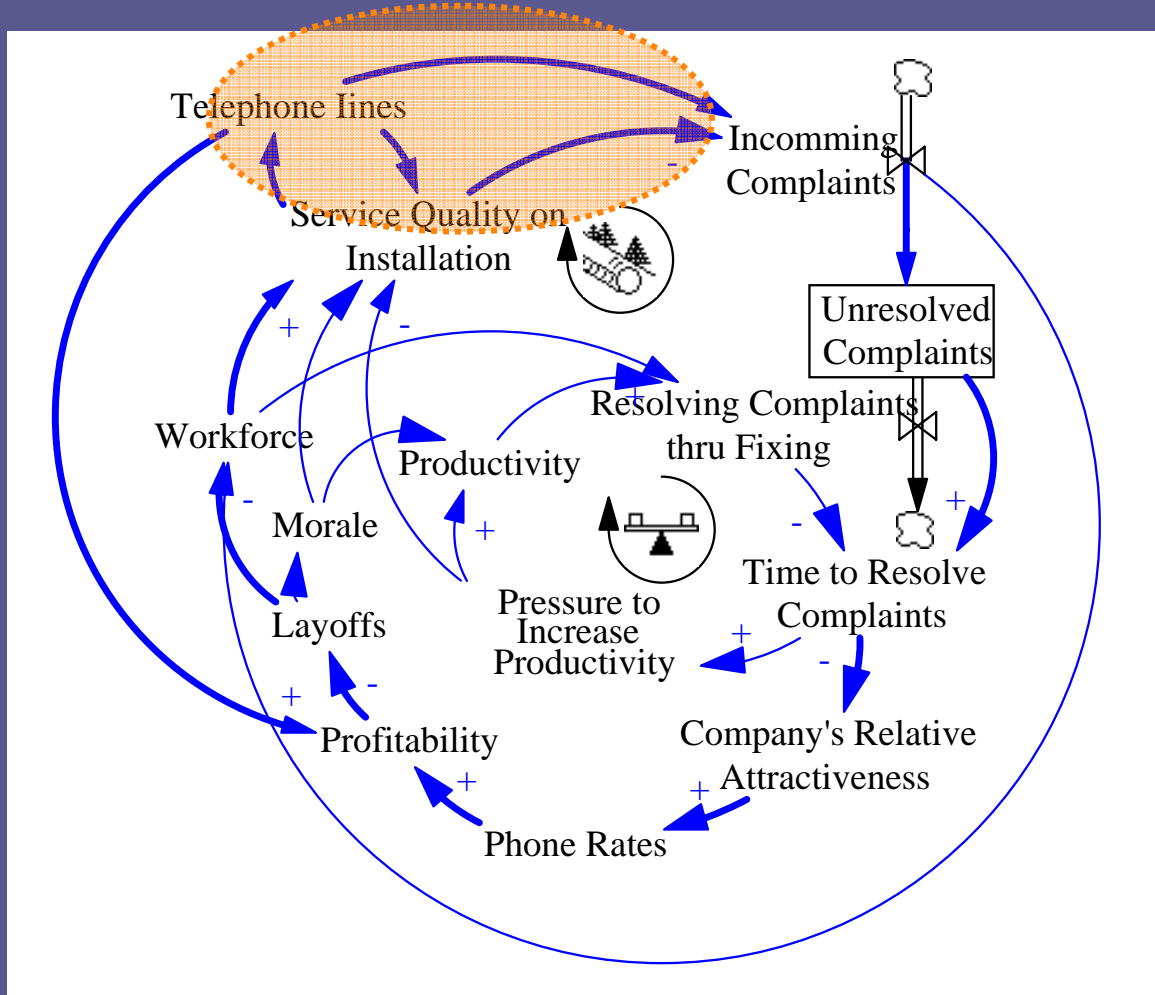
The company Hopes...



Hiring more people can increase service quality and in turn telephone lines, which increases their profits.

However...

Lurking Danger



Increased telephone lines can deteriorate their service quality and profitability as well.

Policies

- Start hiring (profits will suffer in the short term).
- Introduce **incentives** on good service and productivity increases.
- Do **not** put newly hired people in line expansion, which is counter to the 'company's hope'. However, our conclusion suggests that the company's hope is dangerous.
- Utilize them for **resolving customers' complaints**.

*Modelling process represented here is made based on Jim Hines (1999) at MIT.

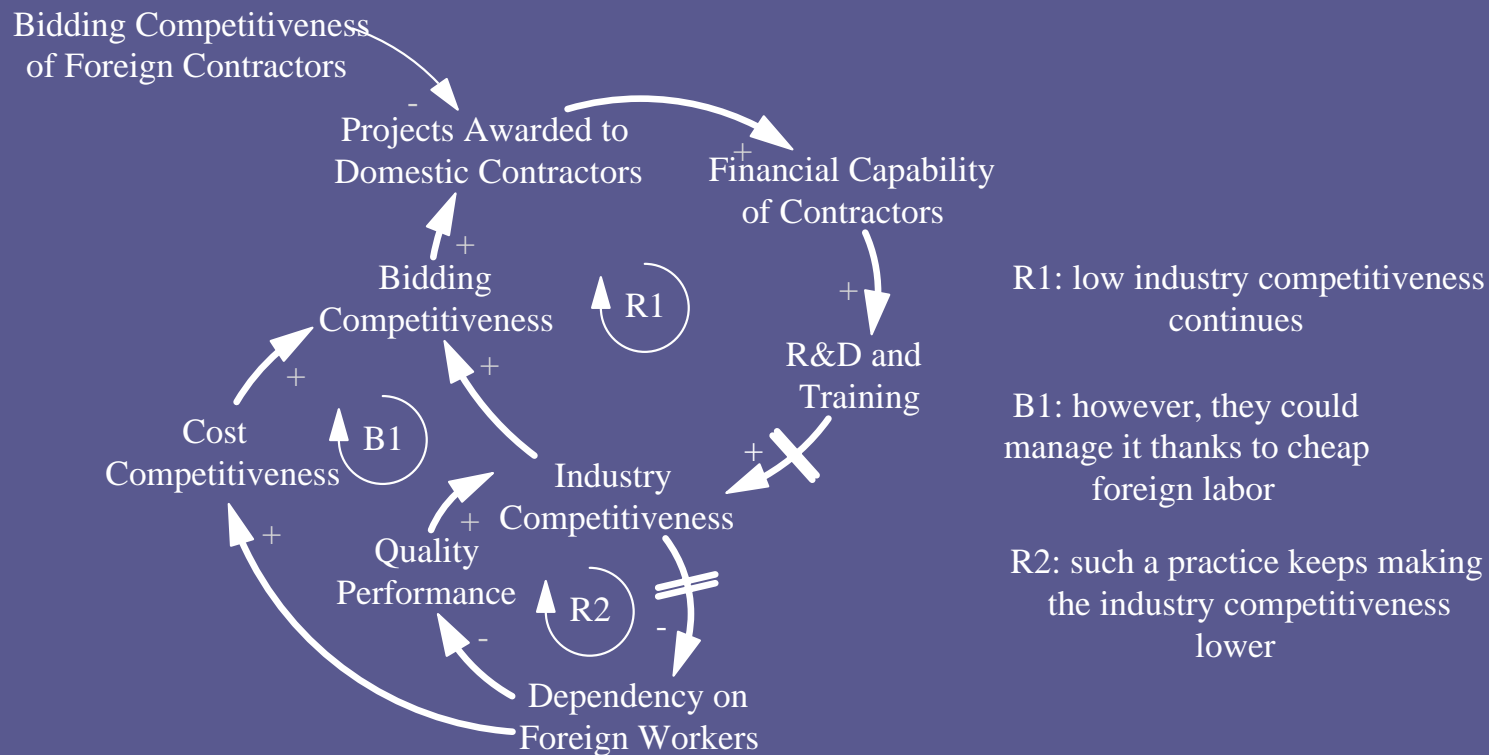
Lecture Outline

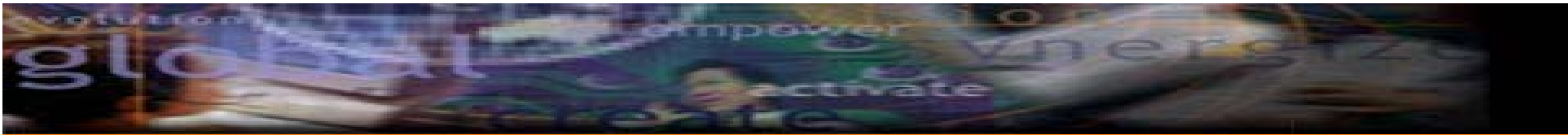
- ✓ Modeling Practice I: Telecommunication Company
- Modeling Practice II: Prefabrication

Problem Statements

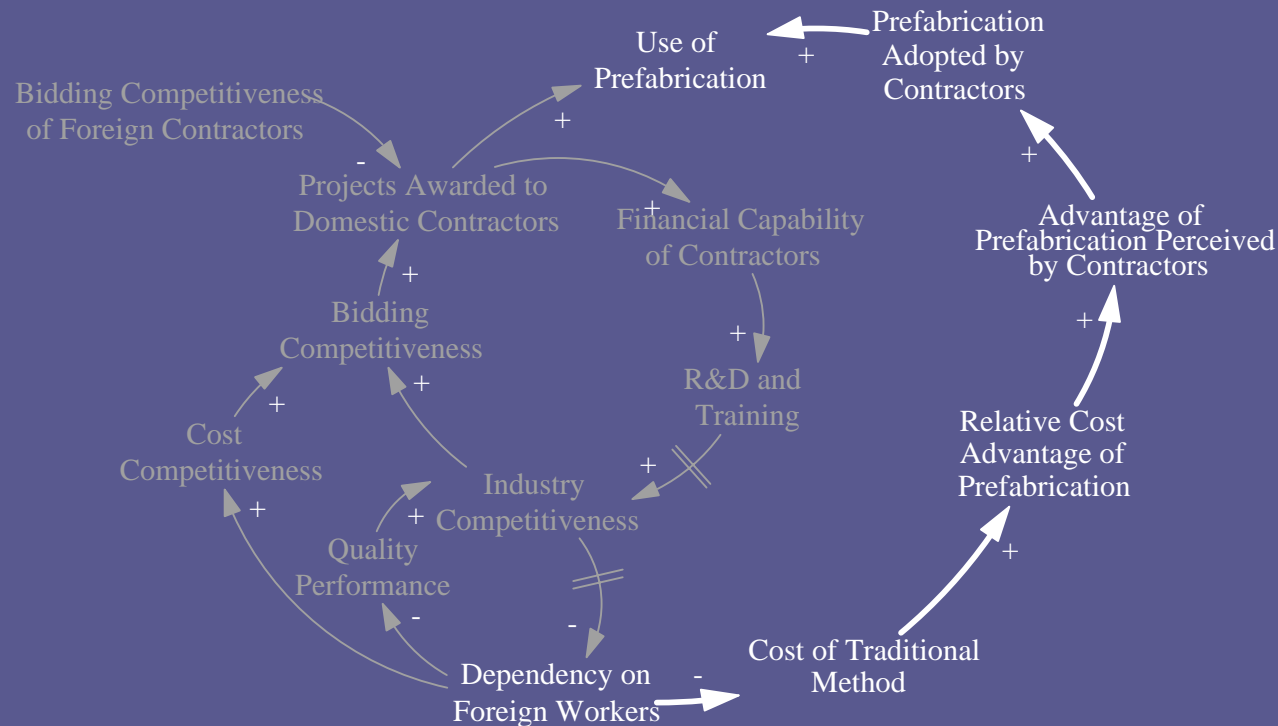
- Although the prefabrication method has potential advantages over the standard method, private companies have **undervalued** its advantages and are **reluctant** to adopt them.
- Building and Construction Authority wants:
 - to find **the drivers that have inhibited prefabricated construction** in the private sector and,
 - to know how to increase **their use of the prefabrication method, by improving the perceived attractiveness of the method.**

Why the Singapore construction industry has been dependent on cheap foreign labor instead of using high tech such as the prefabrication method? (think why the government forces the private sector to use PF...probably they think the industry competitiveness)





Dependency on cheap foreign labor has also resulted in less use of PF in the private sector



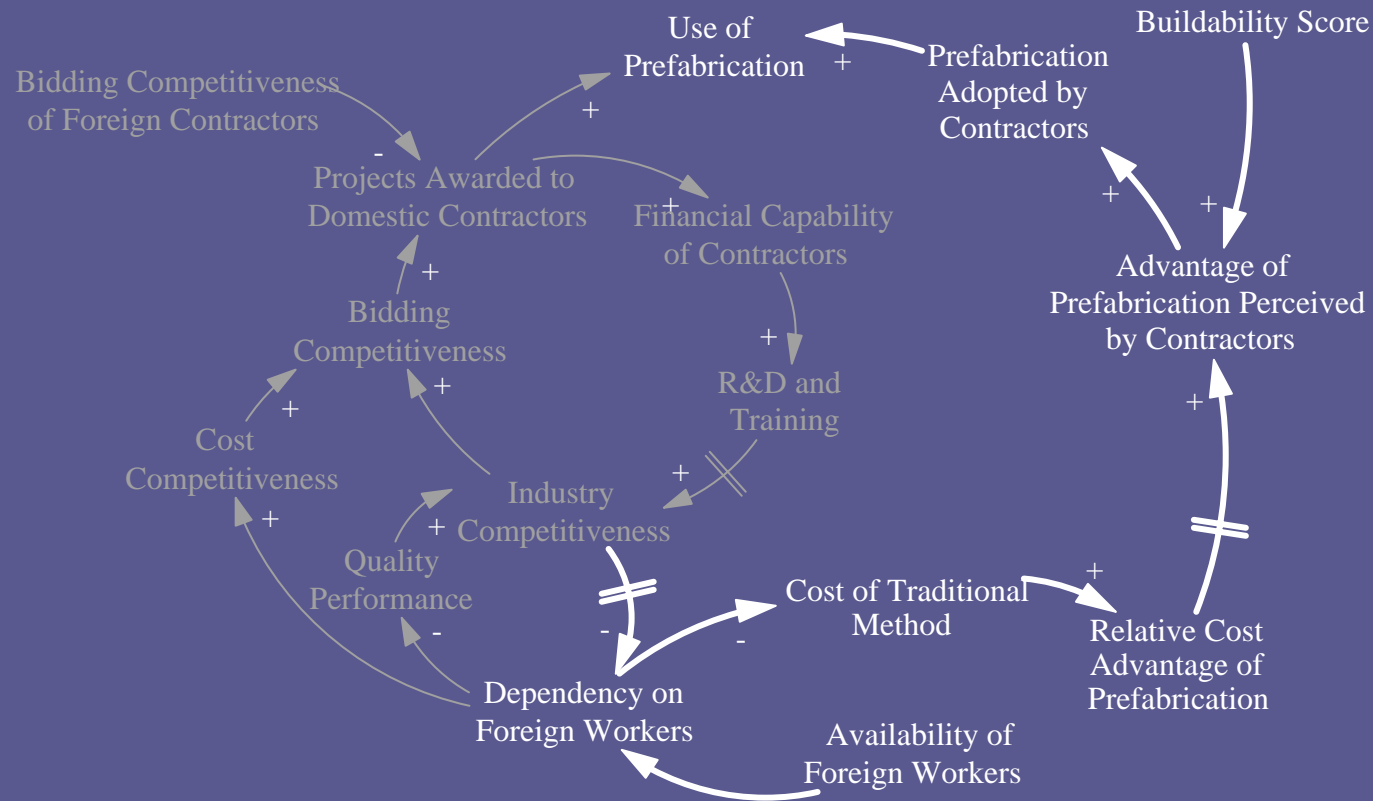
Hypothesis1: no big gap between the real and perceived attractiveness of PF

Hypothesis2: PF has higher quality, less diversity, less advantage compared to foreign workers

Hypothesis3: not considering foreign workers can result in even higher costs and delays during project execution.

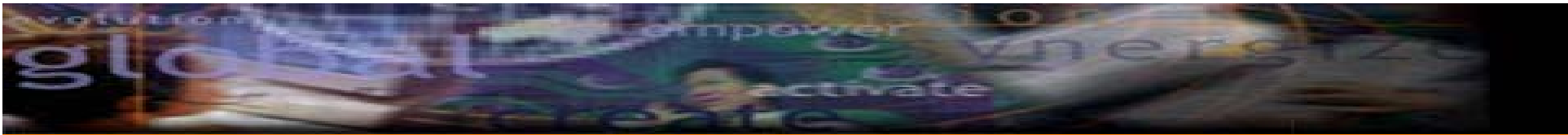
Hypothesis4: use of PF can increase tech competitiveness

Then, how to increase use of PF?

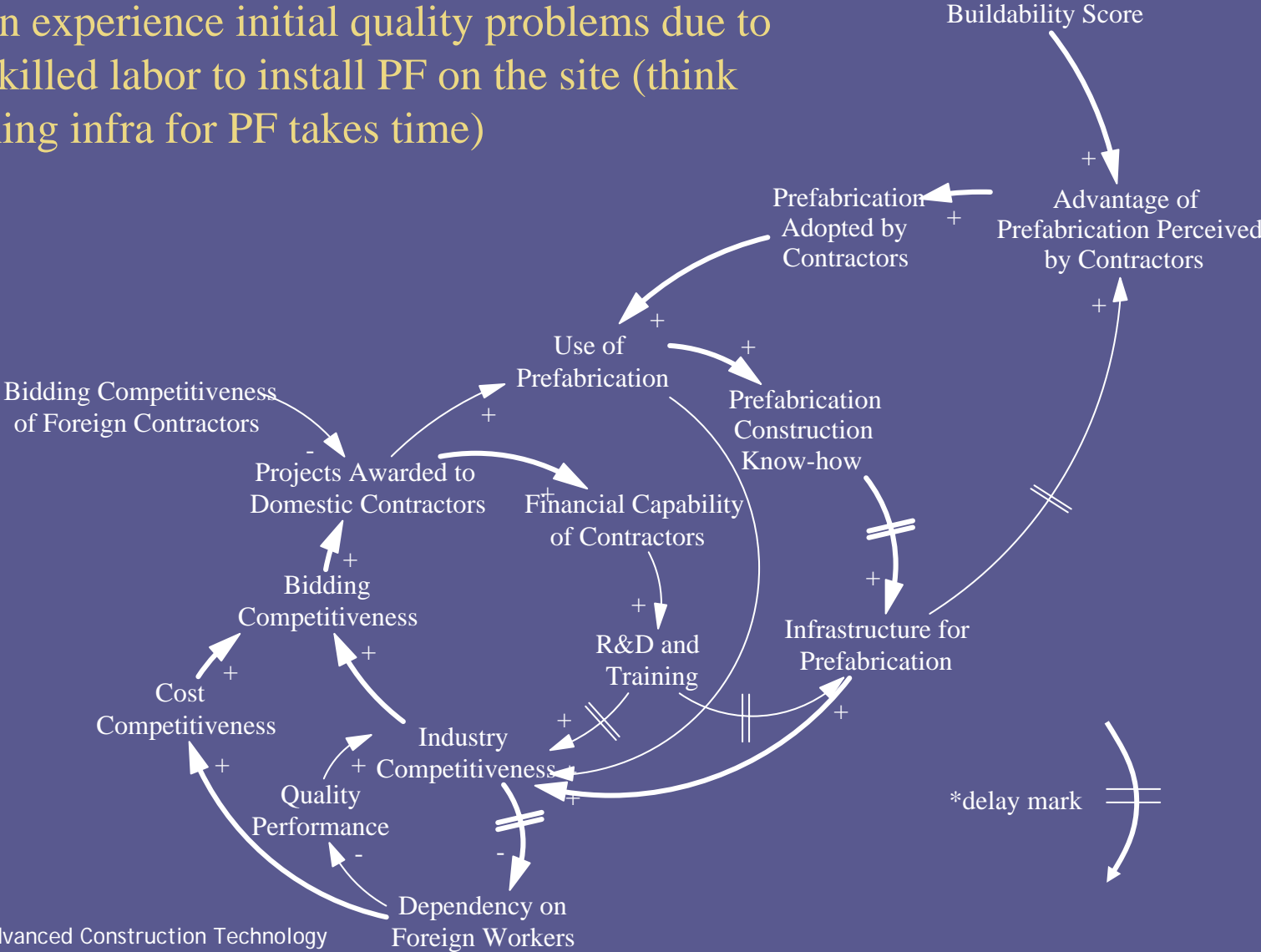


Policy Implication 1. Limiting Availability of Foreign Workers: will work but takes time due to significant time delays

Policy Implication 2: Regulating the buildability Score: will work but...



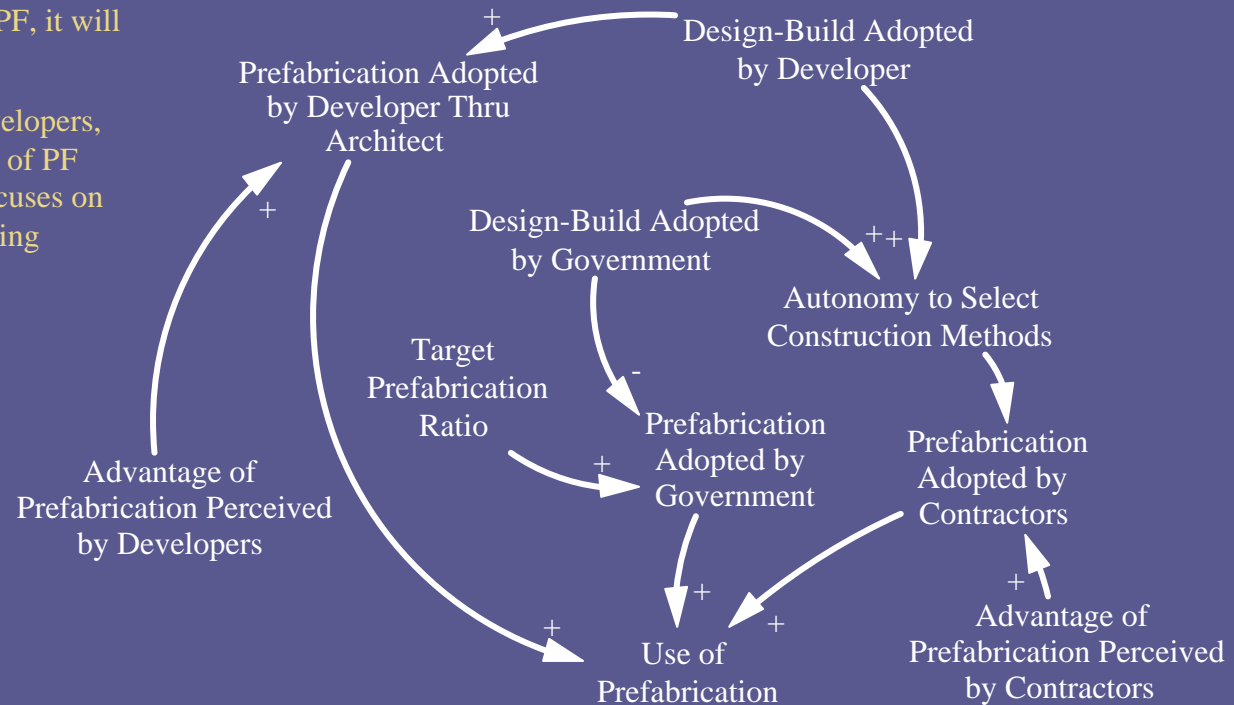
Lurking danger: Increased use of PF by Builability Score can experience initial quality problems due to lack of skilled labor to install PF on the site (think establishing infra for PF takes time)



Is increasing the use of Design-Build helpful?

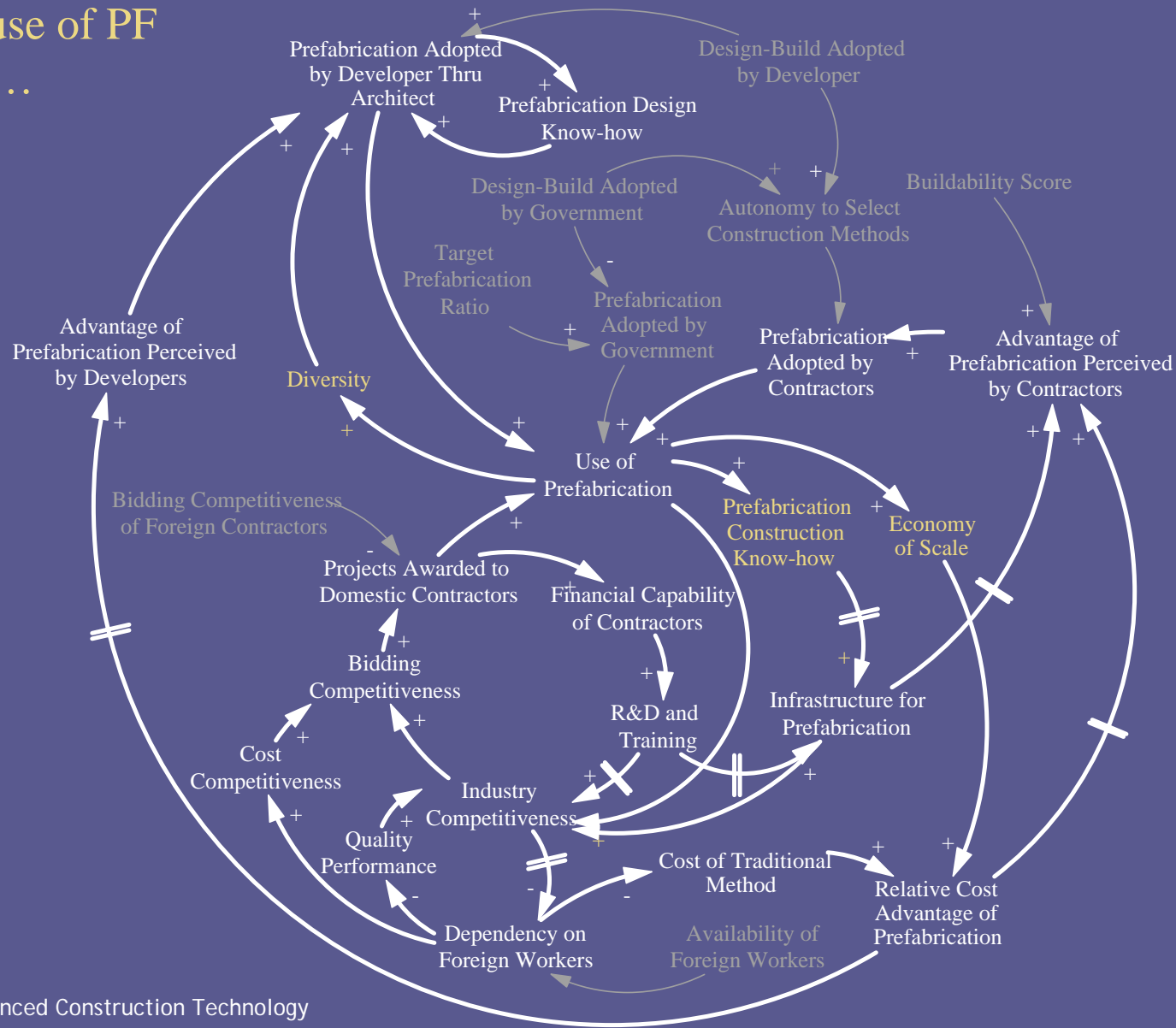
Policy Implication4: in the case of DB adoption by government, if PF adoption by contractors is less than the target PF, it will result in less use of PF.

In the case of DB adoption by developers, use of PF depends on Advantage of PF perceived by developers, which focuses on design diversity and cost saving

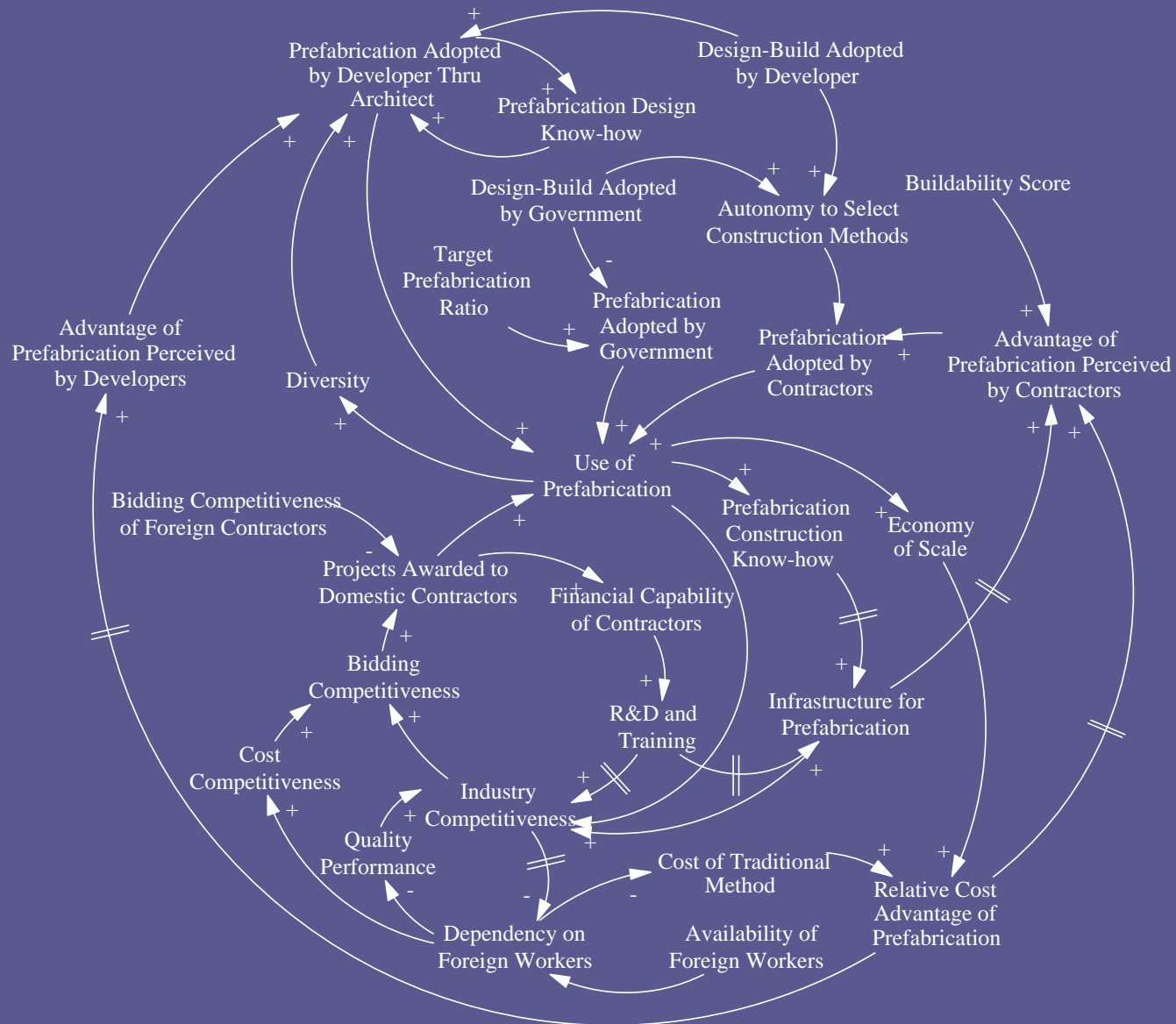




Once the use of PF increases,...



All together



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