

UNIVERSITY OF TWENTE.

Big Picture for SE Education

Illustrated with examples from University of Twente

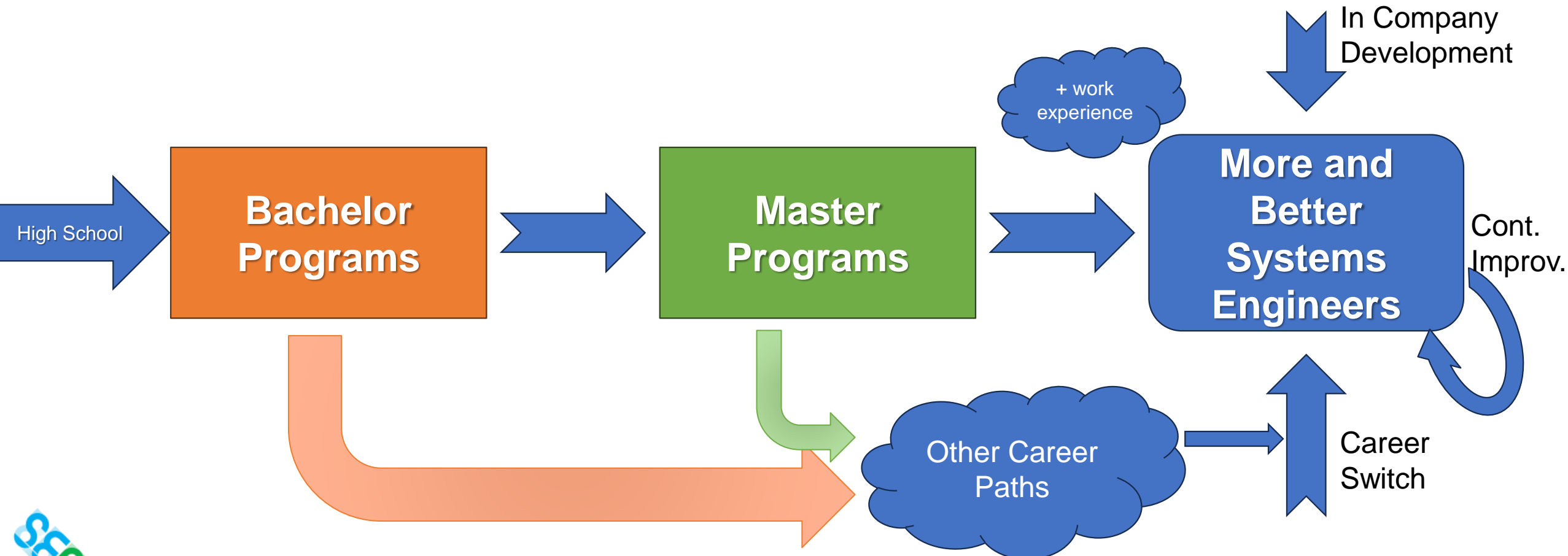
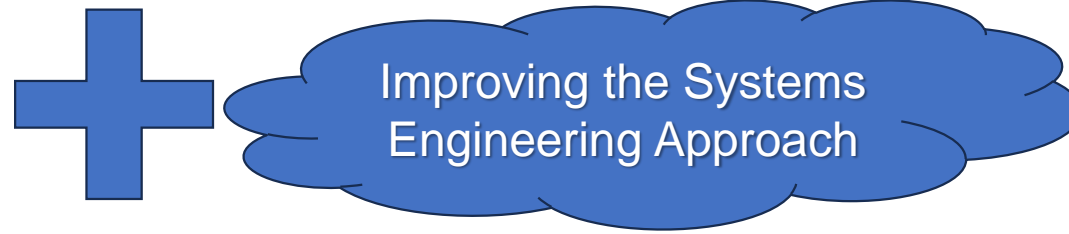
Maarten Bonnema

Professor of Systems Engineering and Multidisciplinary Design

INCOSE Fellow



The Big Picture

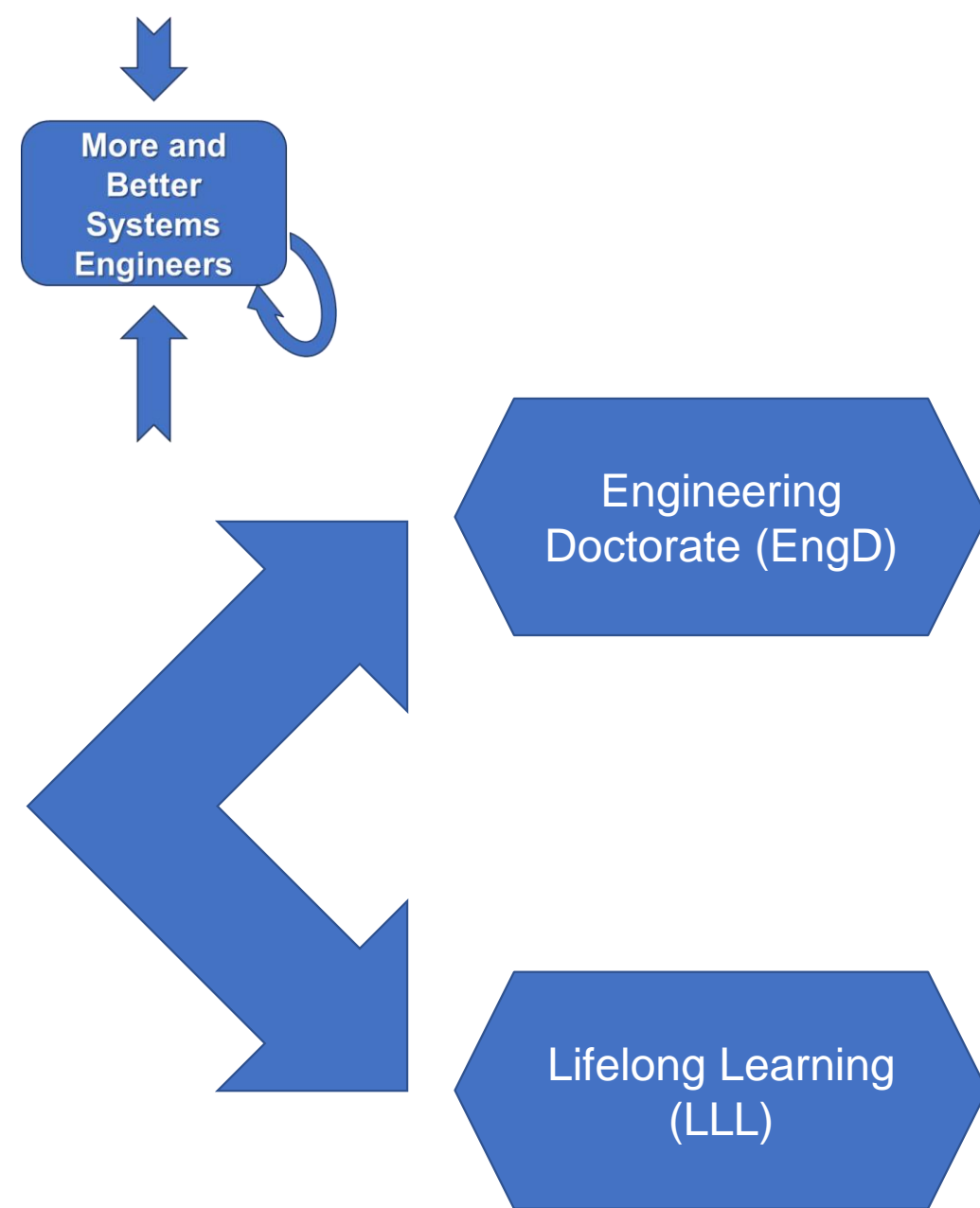
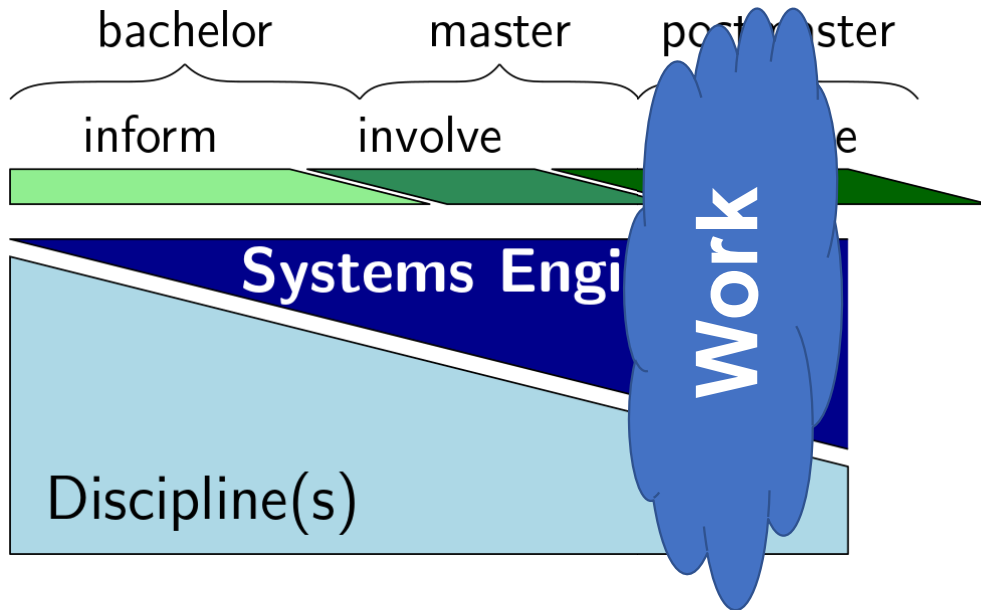


What do we need to DO?

On the different levels



Multi-Level Systems Engineering Education



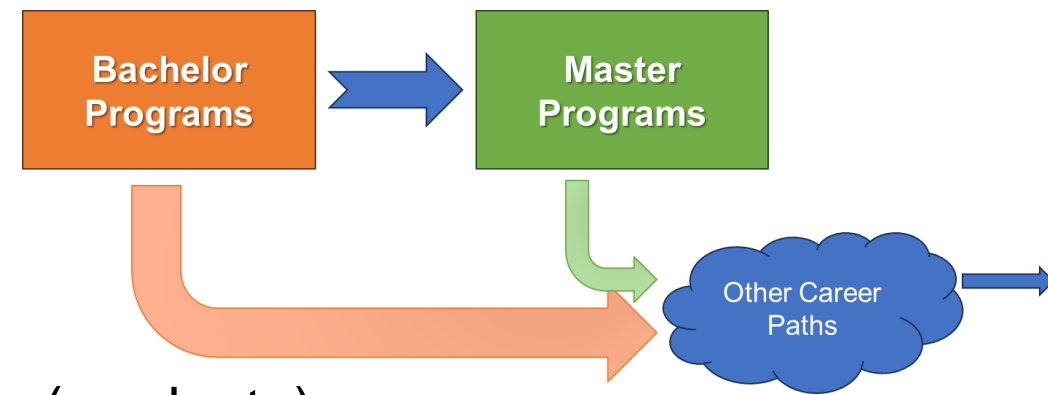
BSc and MSc SE education

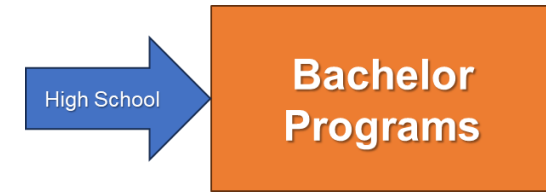
Bachelor (undergraduate)

- ▶ Introduction to SE
 - ▶ Basics (Process, Tools, Thinking)
 - ▶ Application on project/case
 - ▶ All Engineering programs
-
- ▶ Rationale: entice those that are SE potentials, inform those that will be working in SE environments

Master (graduate)

- ▶ Thorough treatment of SE
 - ▶ Deepening and widening of Engineering basis
 - ▶ Be involved in SE-project
 - ▶ Multidisciplinary and SE-specific programs
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- ▶ Rationale: let interested students experience SE and build the foundation

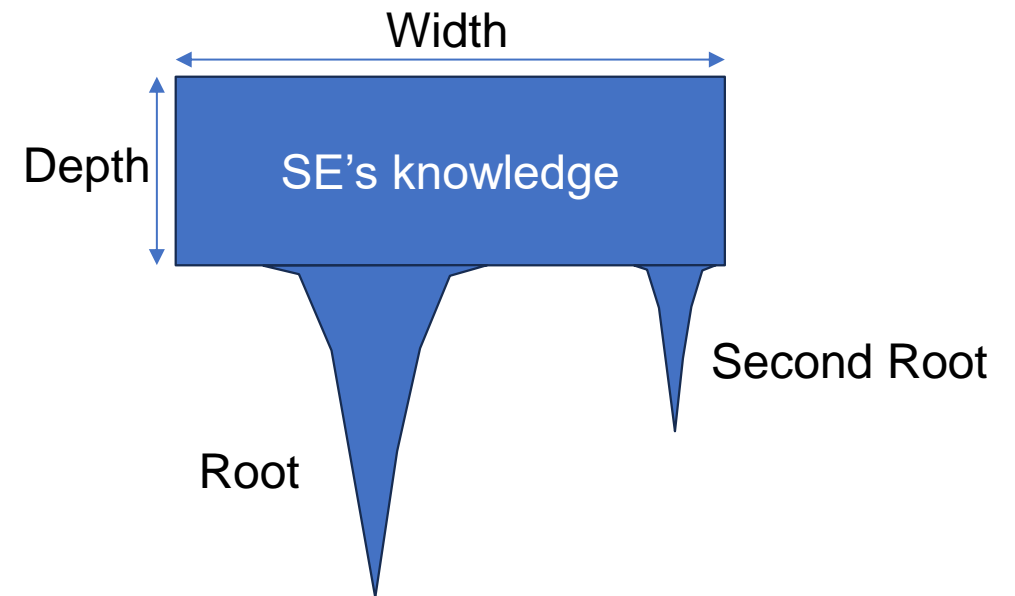




And Also...

- ▶ Promote the Systems attitude in high-school programs
- ▶ Show the attractiveness of SE to 15-17 year old

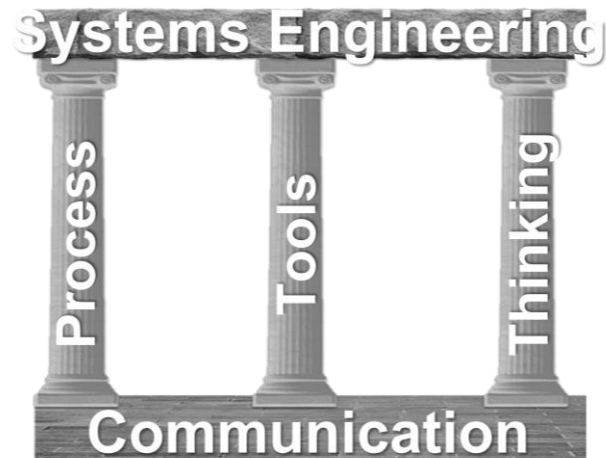
- ▶ But no SE-only Bsc programs



Picture inspired by Gerrit Muller
<https://gaudisite.nl/figures/MATfromSpecialistToSystemArchitect.html>

The Essence of Application

- ▶ The SE toolkit is not difficult:
 - ▶ Process
 - ▶ Tools
 - ▶ Thinking



- ▶ Value only shows in application of
 - ▶ Process
 - ▶ Tools
 - ▶ Thinking
- ▶ Multiple viewpoints
- ▶ Multiple images
- ▶ Multiple domains

How is this Implemented in Twente?

- ▶ Foundation in 1st year of BSc
 - ▶ Requirement specification
 - ▶ Separating what from how
 - ▶ Selecting from multiple concepts
- ▶ Basics of SE in 3rd year of BSc
 - ▶ Process, Tools & Thinking
 - ▶ Application in design project with large teams

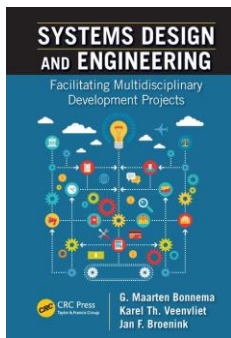
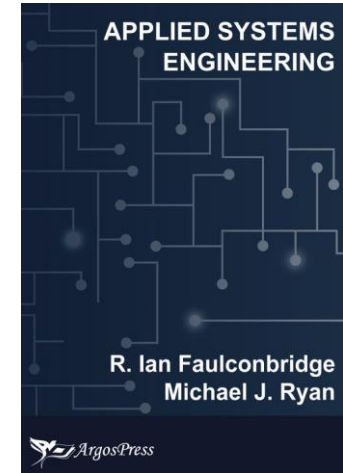
- ▶ Deepening in MSc
 - ▶ SE foundation
 - ▶ Use in application domains
- ▶ Extending in EngD
 - ▶ SDE course on SDE, Value Engineering, Societal Embedding, Requirements Management and more
 - ▶ For all UT EngD programmes

EngD in
Systems
Engineering and
Architecting

- SESAM @ASML
- Generic Post-MSc Trainings

- ▶ Further nurturing via LLL

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Thank You!

For more information:

www.utwente.nl/SEMD

www.utwente.nl/SEKCT

