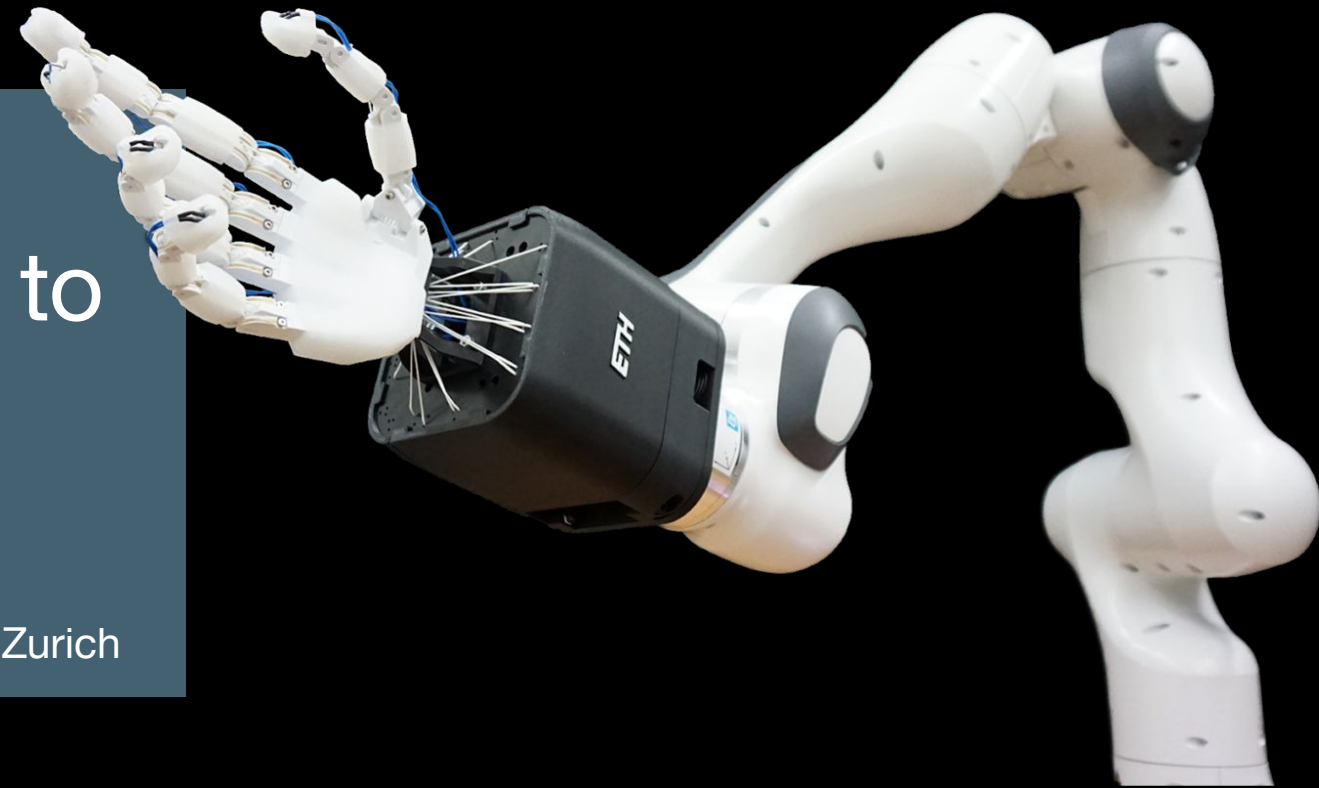




# Product Development: Bringing Your Prototype to the Market

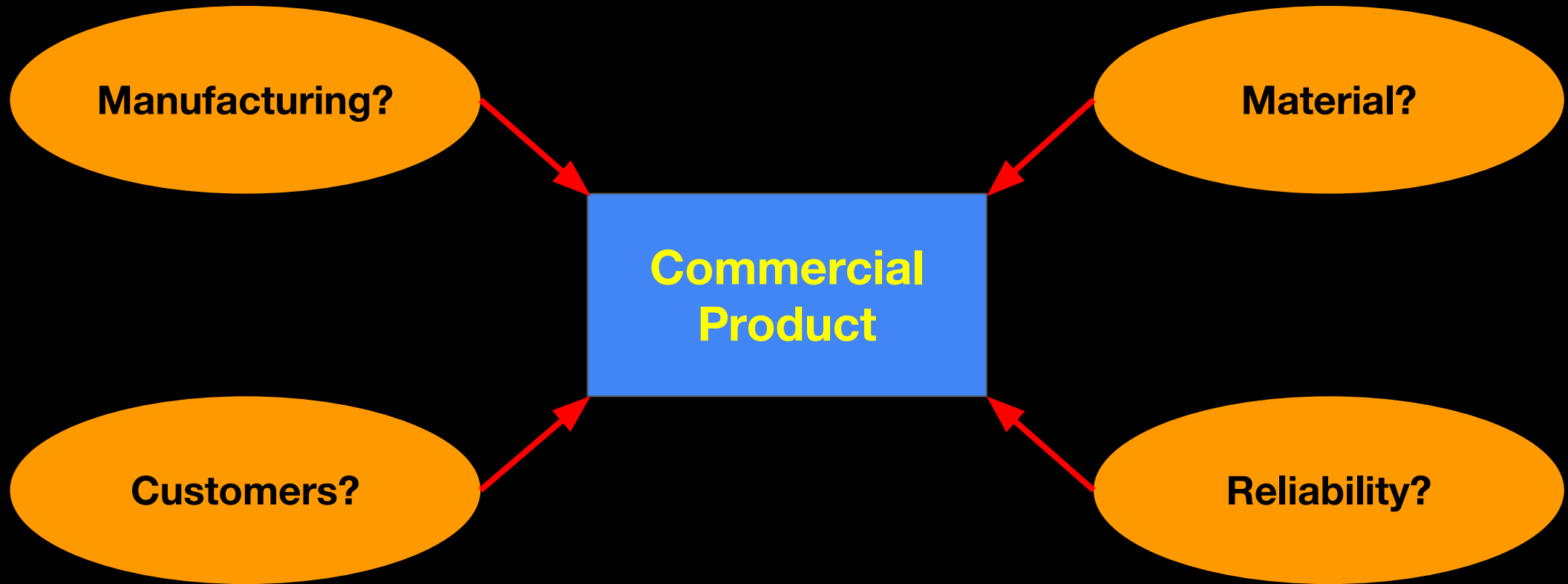
Prof. Dr. Robert Katzschmann, Soft Robotics Lab

Prof. Dr. Mirko Meboldt, Product Development Group Zurich

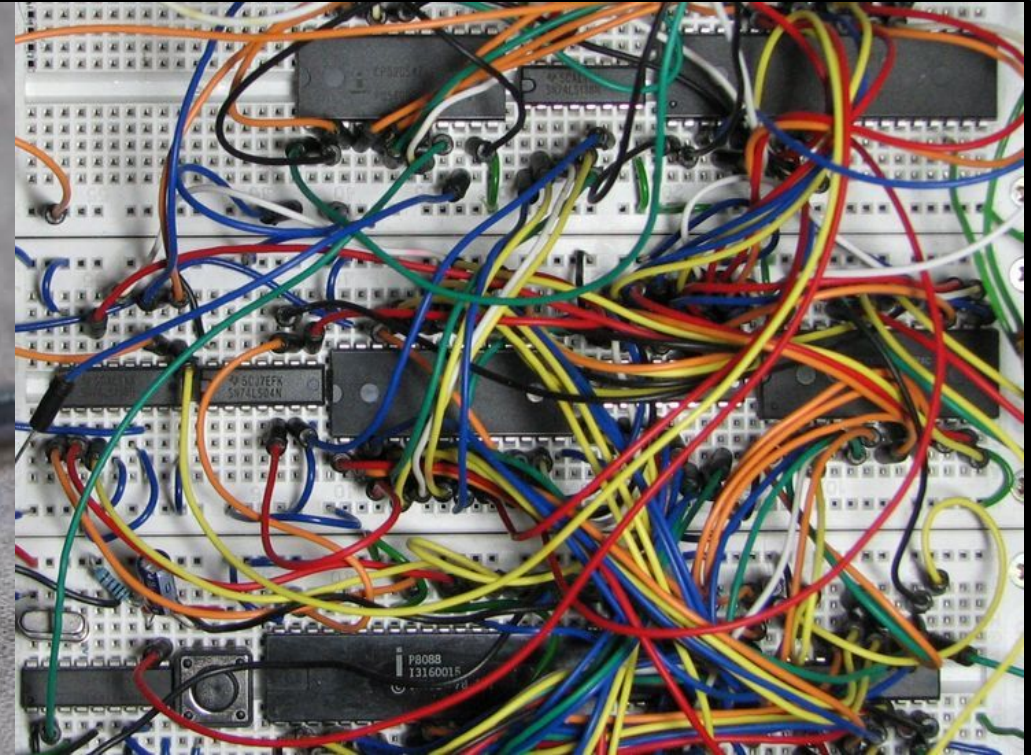
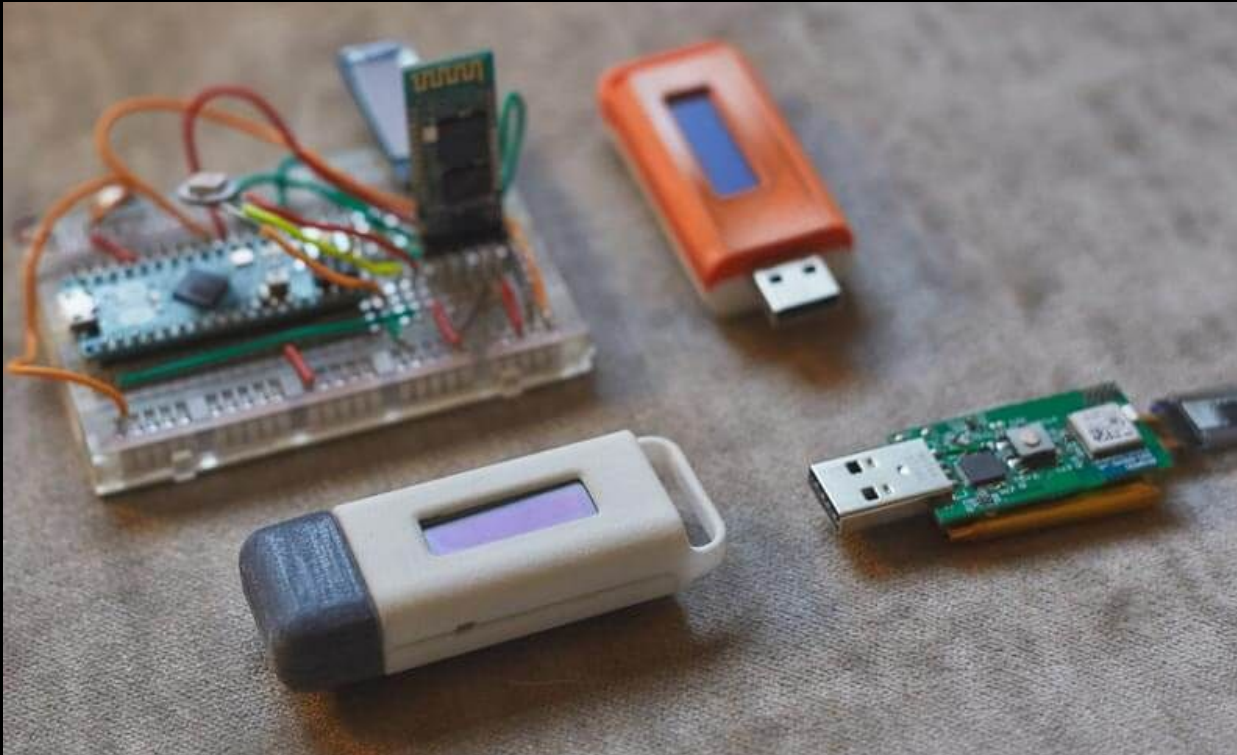


[Fiave Robotics](#)

# Next Step



# Transitioning a Prototype to a Real-World Product



[ideareality.design](http://ideareality.design)

[pinterest.com](http://pinterest.com)

Reliably ✓

Quickly ✓

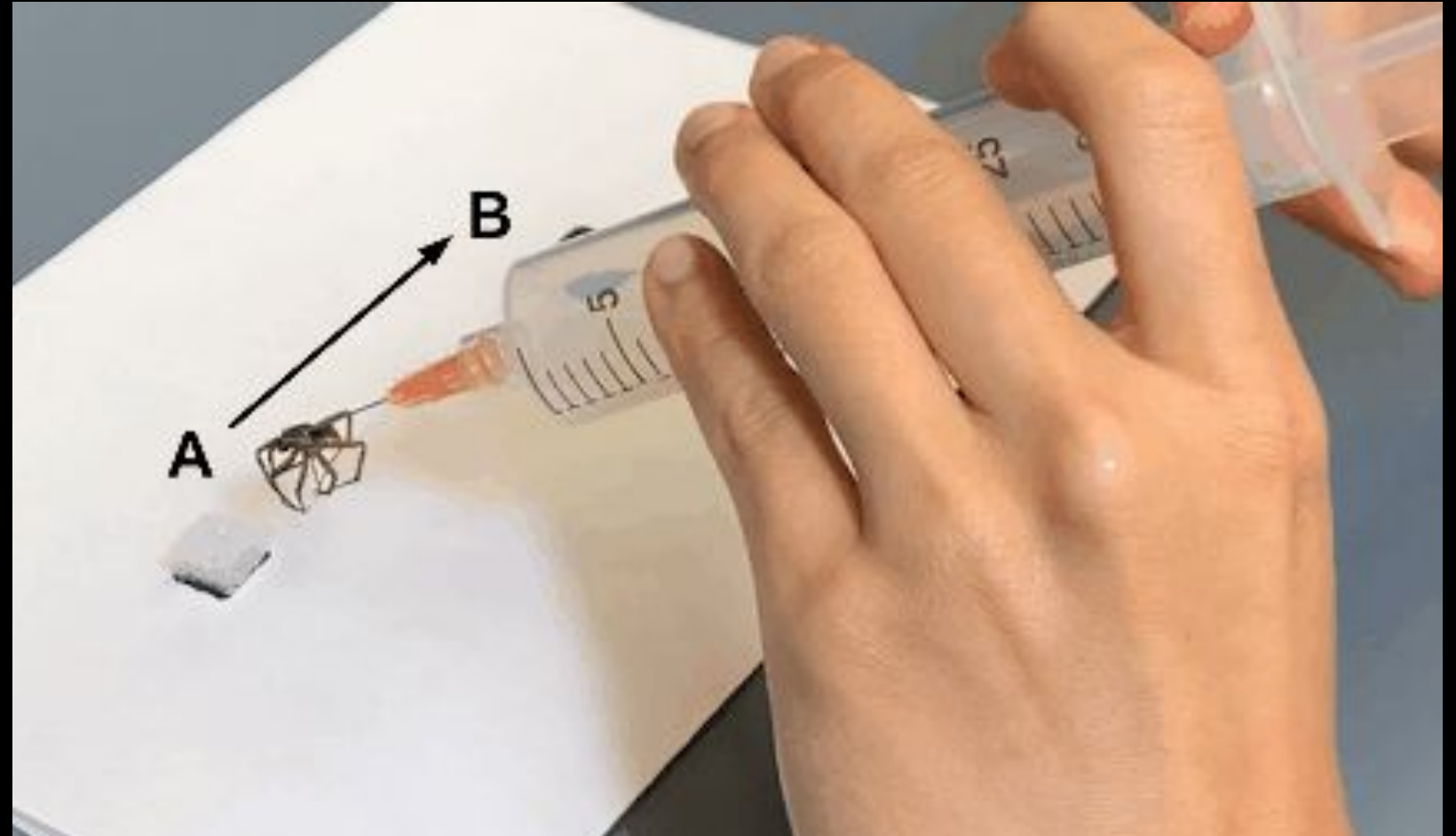


[EFSA](http://EFSA)



[Eu flag \(vectorstock.com\)](http://Eu flag (vectorstock.com))

# Differences and Challenges Between Research and Product Development



# Design for Robustness



Rigidity ✗

Toughness ✗

Minimize the impact of variation in a product ✓

## STANDARD DESIGN

CAD WORLD "everything is perfect"



QUALITY CHECK

## ROBUST DESIGN



QUALITY CHECK



# Examples of Swiss Robotics Startups - KIVA Systems



- Startup KIVA Systems, nowadays Amazon Robotics (acquired in 2012, name change in 2015)
- Founded in 2003, in Massachusetts, USA
- Prof. Raffaello D'Andrea is one of the founders






# Examples of Swiss Robotics Startups - ANYbotics

- ETH spin off
- Professor Marco Hutter's lab (RSL)
- Founded in 2016
- Robots for industrial inspection




**2009**  
**ALoF**  
Built as the first legged robot at ETH Zurich, this robot could walk, self-right, and crawl up sand dunes on its belly.




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**2012**  
**StarLETH**  
With the help of springs in all joints, StarLETH could not only walk, but also run and jump, and served as a durable research platform.




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**2015**  
**ANYmal Alpha**  
Designed for real-world demonstrations, the first ANYmal robot featured modular actuators and lidar-based navigation.




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**2017**  
**ANYmal Beth**  
Fully ruggedized and water-proof, the second generation of ANYmal could climb stairs and was tested in various environments for inspection tasks.




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**2018**  
**ANYmal B**  
With redesigned actuators and vision system, the ANYmal B was the first robot generation commercialized by ANYbotics and deployed off-shore.



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**2019**  
**ANYmal C**  
The newest ANYmal C features an expressive and rugged industrial design, powerful actuation, 360° vision, and autonomous docking for re-charging.





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**MORE**

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**ANYmal Alph**  
Designed for real-world demonstrations, the first ANYmal robot featured modular actuators and lidar-based navigation.



**MORE**







# Examples of Swiss Robotics Startups - Scewo

- Bachelor's focus project back in 2014
- D-MAVT, ETHz and ZHdK
- Wheelchairs that climbs stairs

Two Videos:

[Scewo BRO - Power wheelchair. The new generation. - YouTube](#)

[Scewo BRO | Remote Control - YouTube](#)

