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Sports Engineering vs Sports Innovation

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Being a member of the International Sports Engineering Association, I have always presented myself as a 'sports innovation guy'. So why don't I present myself as a 'sports engineer' and what makes me believe there is a difference? Moreover, if there's a difference what does this entail and even more important; how can both disciplines benefit from one another? Afterall, preconceptions like the ones presented in the picture below might not be helpful in order to be competitive in the sports products arena.

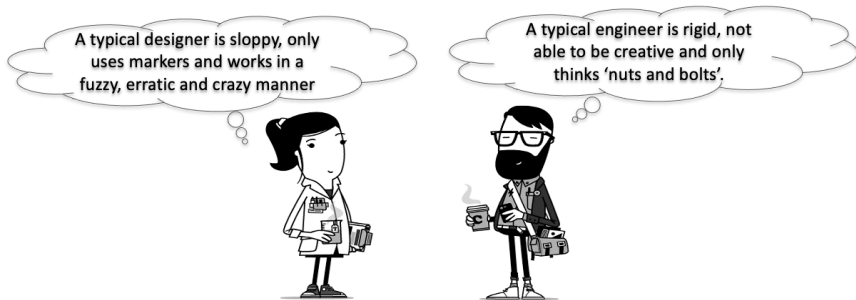


Figure 1 Preconceptions? After 'Stereotypes' by Spencer Wilson (2011)

Why not start with trying to find the definition of both? I would define sports engineering as the subset of engineering disciplines that focuses on applying engineering knowledge as well as engineering research to understand and solve a wide variety of sports related problems. I would argue that the results of applying sports engineering knowledge mainly leads to increased performance, increased athletes comfort, safety or well being, a reduction of costs or combinations of all these. Sports Innovation on the other side is not as easy to define, given the large number of definitions that pop-up when looking for the definition of the word 'innovation'. Innovation as such is still, even in 2021, (ab)used as a buzzword. A -slightly altered- quote by Dan Ariely helps me here. Ariely states: "*Innovation* (Dan here says 'BigData') *is like teenage sex; everybody talks about it, nobody really knows how to do it, everyone thinks everyone else is doing it so everyone claims they are doing it.*" The fact that innovation itself is such a buzz-word also contributes to the fact we don't teach it as such to our students at Delft University. So, what do we

teach them? Allow me to share two quotes. The first by Nyström [1] *“Creativity is the cause, innovation the effect”* and the second by Levitt [2] *“Creativity is thinking up new things. Innovation is doing new things”*. They tell me that you need to be a creative thinker in order to innovate and, also generally speaking, designers are expected to be creative. So, at Delft University we can’t teach our students ‘innovation’, instead we teach them innovation methods (so the process), how (and when) to apply a wide variety of creativity methods and various fields of engineering, ergonomics, visualization skills and business models. Students then integrate these fields into user centric design solutions. In our design courses, students are confronted with ill-defined questions from which they have to come to user requirements. And here is where I believe the difference between engineering and design (or innovation if you like) approach really becomes visible; engineers generally start from readily defined requirements whereas designers are used to defining them from scratch. The difference between the two disciplines therefore might best be understood by looking at where they are positioned in the product (or product service combination) development process. This also teaches us where they can benefit from each other most.

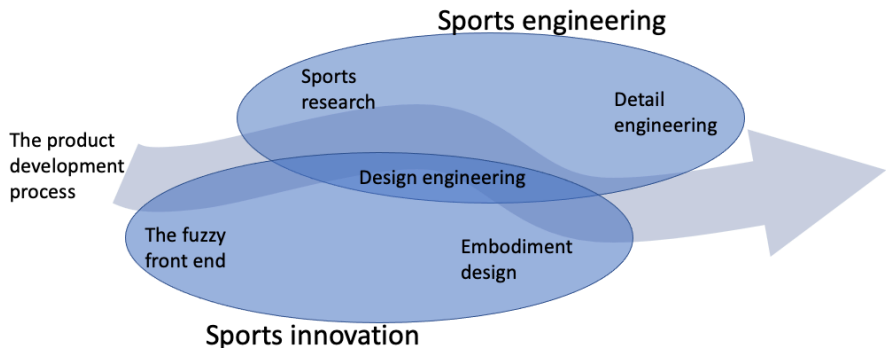


Figure 2 The relation between sports innovation and sports engineering in the product development process.

1. Nyström, Harry (1979) *Creativity and innovation*, Wiley, New York.
2. Levitt, Theodore (2002) *Creativity is not enough*, Harvard Business Review.