

Why are all the softies in Europe? A discussion of the lack of penetration of soft OR in the US

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Introduction

- ❑ “Problem solvers have been ... using a predominantly **technical** perspective to address complex problems since the advent of large-scale systems in the fledgling radio, television, and telephone industries in the United States during the 1930s”
 - ❖ Hester and Adams (2014)
- ❑ ... but then came WWII
- ❑ ... and Operations Research emerged
- ❑ ... but we have regressed back
- ❑why?

What is Soft OR?

- ❑ What is OR?
 - ❖ “Giving analytical support to the decision-maker”
 - Collins and Currie (2013)

- ❑ What is Soft OR?
 - ❖ “Any **qualitative** approach to giving this analytical support”
 - ❖ E.g. Soft systems methodology, matrix games, SODA, morphological analysis, drama theory, etc.

- ❑ Easy to define?
 - ❖ Not everyone agrees with definition above.
 - ❖ OR is “the application of scientific principles to business management, providing a quantitative basis for complex decisions”
 - Office Professional's Guide
 - ❖ OR = Optimization
 - Who are these people? (Get to this later)

Really?

- If OR is just optimization, then either

1. Wicked problem can be optimized!
2. OR does not cover wicked problems

- We believe that OR covers

- ❖ Any decision-maker with any problem
- ❖ If not OR then who?

- Splitting hairs

- ❖ “the discipline of applying **advanced analytical** methods to help make better decisions”
 - <http://www.scienceofbetter.org/what/>
- ❖ What is advanced? Are analytical methods all quantitative?

Why do we need Soft OR?

- ❑ When it is difficult to determine what problem actually is
 - ❖ Problem Structuring

- ❑ Qualitative Issues
 - ❖ “New Coke” led to bereavement by some Coca-Cola customers

- ❑ “We can't solve problems by using the same kind of thinking we used when we created them.”
 - ❖ Albert Einstein

What is the problem?

□ Academic OR is not used

- ❖ “Returns on Operations Management [a field related to OR] research effort appears to be low”
 - Tang (2015)
- ❖ How many of you still regularly read the OR journals?
 - How many used to read them?
- ❖ Disconnect between the theory being produced and the need

□ Building the wrong models

- ❖ Thus solving the wrong problems
 - Limiting assumptions
- ❖ Academics teach toy models
 - Workforce being trained under the false impression on what a “real” problem is
 - Leads to belief that only one optimal solution
 - But what if you make the toy models slightly more complex?

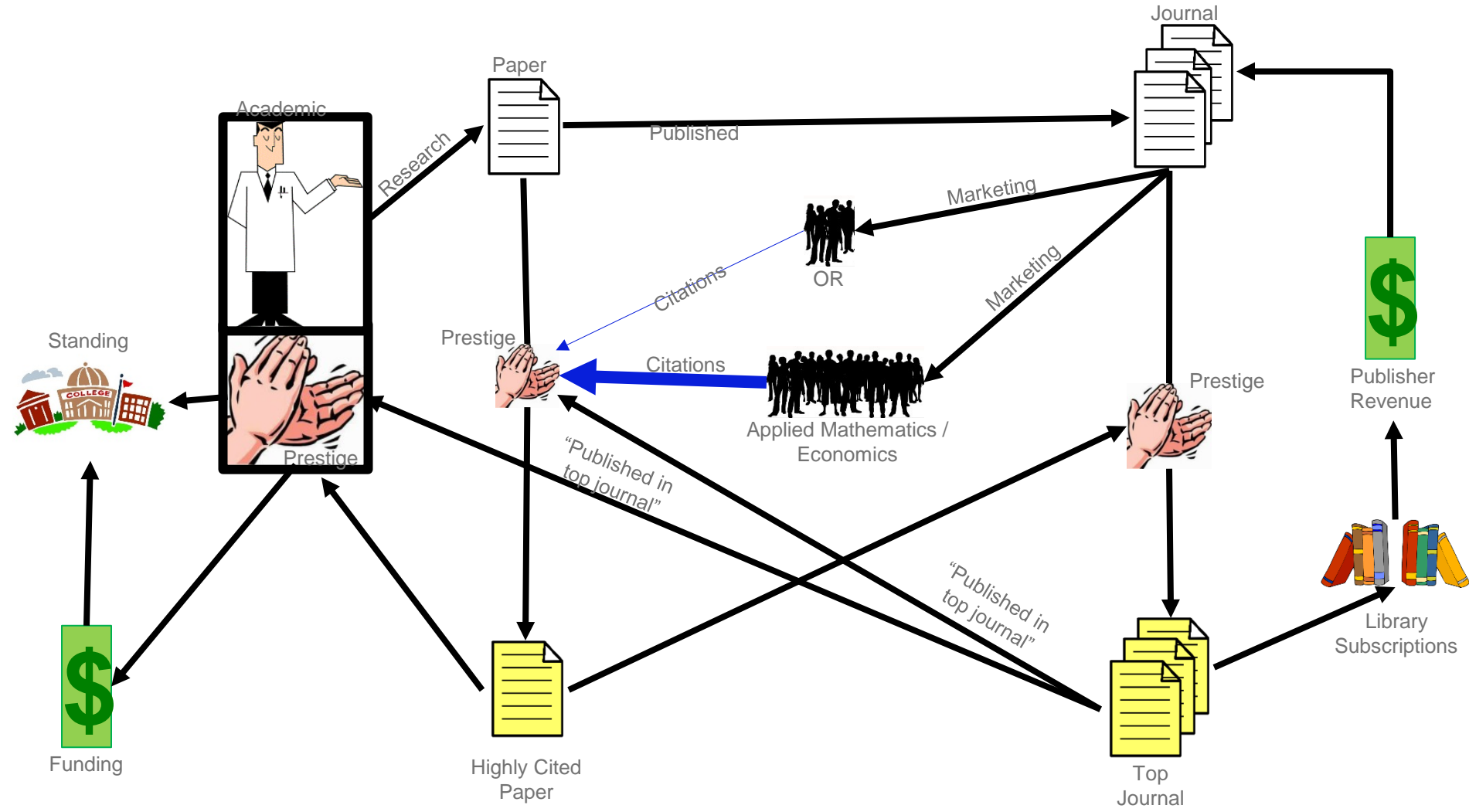
How did it come about?

- Academics write for other academics
 - ❖ Academics, papers, journals, departments, and subjects **all ranked**
 - Usually by citations
 - H-index and impact factor
 - ❖ Academics cite other academics work
 - Publish or perish
 - ❖ Practitioners do not

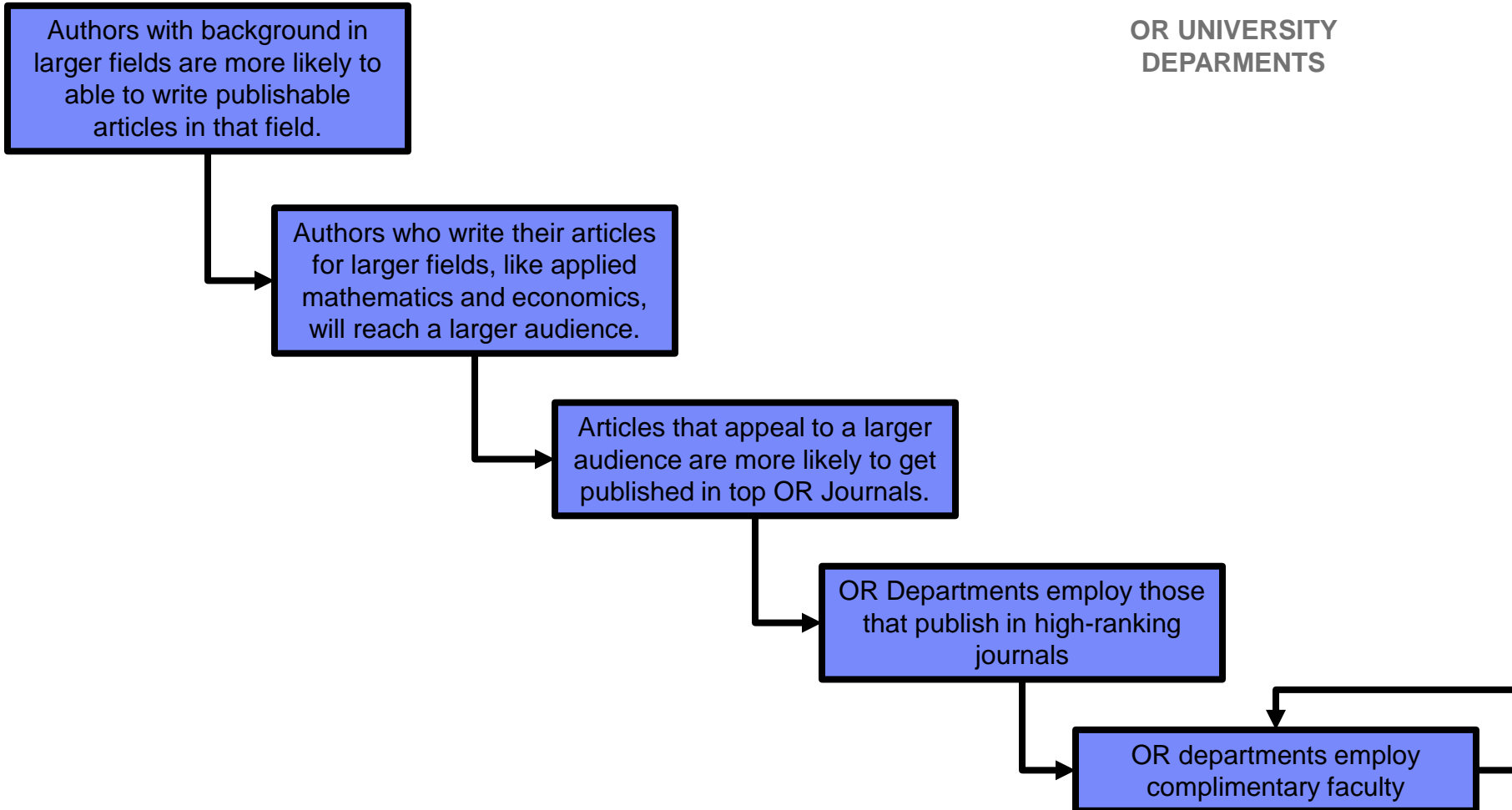
- Larger fields have more academics working in them
 - ❖ Applied mathematics and economics
 - ❖ More academics means more chance of citation

- Why do larger “ivory tower” fields care about OR journals?
 - ❖ OR is a “practical subject”
 - ❖ Chance to fulfil the “broader impacts” of research to get funding
 - Their current funding space too crowded

The Business of Academia



Departmental Take-over



US Institutions

❑ US Universities are different

- ❖ 3 x as many as in UK *per person*
- ❖ $\frac{3}{4}$ are private
 - Trump University

❑ University Accreditation

- ❖ Used to distinguish self from herd
- ❖ Accreditation bodies private or non-profit
- ❖ Follow strict criteria
 - OR acceptable, Management Science not
- ❖ OR departments usually judged under engineering (quantitative)
 - All is judged: faculty's Ph.D., programs, courses, etc.

What is the consequence?

- ❑ Disconnect between academic OR and practitioners
 - ❖ “Increasing gap between the embedded science and influence capabilities of the [practicing] analysts”
 - Westermann (2013)
 - ❖ INFORMS now $\frac{3}{4}$ academics

- ❑ OR departments taken over by quantitative subjects
 - ❖ Exclusive quantitative OR courses leads to a quantitative workforce
 - How many of you learnt Soft OR after your graduate education?

- ❑ Why need OR when already got quantitative subjects
 - ❖ National Science Foundation
 - OR program absorbed into “Service, Manufacturing and Operations Research” program
 - ❖ How long will academic OR survive?
 - And without post-graduate courses to teach the next generation, how long will OR survive?

What can be done?

- ❑ Academics connect with practitioners and understand their world
 - ❖ Summer internships

- ❑ Practitioners connect with academics and understand their world
 - ❖ Not good enough to say “I have a problem”
 - ❖ Industry can influence senators

- ❑ If you want “better” soft OR techniques, you need to help academics focus on them

Questions



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