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Exploring embryonic sectoral innovation system: Case regenerative medicine

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Is your jaw missing?

- No problem!
- It is possible to create it for you in your abs!





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Research question

- How does innovation system framework support embryonic RM sector emergence?



Background

- (Sectoral) Innovation system framework
 - innovation, production and distribution-market subsystems
- Framework fits well for established sectors but not so well for embryonic sectors
- Need for a system that supports radical innovations and all what it needs
 - New business creation in a capital intensive sector
 - Venture capital, entrepreneurs, scientists, market demand



Introduction to RM sector

- Third stream of healthcare (beside medicine and surgery)
 - Cell therapy, tissue engineering, gene therapy, tools and devices, regenerative compounds, aesthetics medicine
- Based on stem cells → Major issues regarding ethics
- External cells vs. patient's own cells



Commercialization in RM

- Route to market from basic research through animal studies to clinical trials
 - Takes years
- Need for venture finance
 - Takes money before sales
- Need for specialized hospitals and day-care centers



Competence bloc theory

Actors	Tasks	Function in infrastructure
Customer	Active, competent and resourceful. Products are never better than customers are capable to demand.	Demand
Innovator	Connects technical specialities	Creation
Entrepreneur	Selects commercially potential innovations.	Selection
Venture capitalist	Recognize and finance commercially viable opportunities.	Recognition
Industrialists, business leaders and financial experts	Bring new product full-scale production.	Exploitation
Exit-market	Expectation for reasonable or better profit for those who are successful.	Incentive

Competence bloc theory is developed by Eliasson and Eliasson (1996)



Challenges

- Start-ups need funding for research, development, small-scale manufacturing, and early clinical trials
- Venture capitalists are not interested to invest firms until in later phases of clinical trials
- Small start-up company may not be big enough to conduct required trials



Conclusion

- Innovation system framework focus on established sectors
- With competence bloc theory innovation system framework could be complemented to meet embryonic sector needs
 - Infrastructure to create, select, recognize, diffuse and exploit new business ideas
- In embryonic sectors more focused view to innovation systems might be needed



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Thank you!