

Frugal innovations in circular economy: Exploring possibilities and challenges in emerging markets

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This presentation

- Background: The New Global –project
- Rationale: combining Circular Economy and Frugal Innovation
- Research focuses:
 - How to facilitate new innovations in practice?
 - How innovations can contribute to reaching a circular economy?
- A case-study: Practices of Unicef Innovation in Eastern Africa
- Preliminary observations
- Discussion & conclusions

Background: The New Global –project

- Big strategic opening by Finnish Funding Agency for Innovation TEKES, 2014-18
- Interdisciplinary action research addressing profound sustainability challenges in **complex global systems**
- Scholars in sustainable business, architecture and design, renewable energy, and water development
- Focus on **new sustainable innovation capabilities** in emerging markets, especially in Eastern Africa and rural India
- Academic research and practical collaboration with pioneering companies (from start-ups to MNCs)

Combining Circular Economy and Frugal innovation

- Focus in complex global systems:
 - **No:** old-fashioned division between developed and developing countries
 - **Yes:** better understanding of systemic threats and interdependencies between continents and regions
- Urgent systemic interdependency: **Resource scarcity**
 - Has different meanings and implications around the world
 - Can mean e.g. lack of certain materials, expertise, financial opportunities, energy, education, health care, time...
- Two concepts view this phenomenon from different perspectives:
 - **Circular economy (CE)** and **Frugal Innovation (FI)**
 - In brief: a combination of macro (CE) and micro (FI) perspectives
 - Argument: Both are needed to understand resource scarcity in complex global systems

Combining Circular Economy and Frugal innovation

- **Circular Economy (CE)**
 - Resource scarcity as a *premise of an economic system* (e.g. Ellen MacArthur Foundation 2012)
 - Imperative that must be taken into account in the development of societies and industries
 - Focus in materials' management, but also in questions related to energy- and education systems and consumer behavior
 - CE literature builds on European tradition and examples
- **Frugal Innovation (FI)**
 - Resource scarcity as a *source of innovation* (e.g. Prabhu and Radjou, 2015)
 - The idea of doing more with less
 - Focus in innovative utilization of what is available, but also in questions related to social sustainability (e.g. through affordability and education)
 - FI literature builds on experiences from Global South

Combining Circular Economy and Frugal innovation

Why we need to consider CE and FI simultaneously?

- The most promising opportunities for circulation of resources differ from place to place
=> A need to understand what resource scarcity means locally
- **Scarcity of what? How to handle with scarcity?**
- The logic of FI helps to define what CE can mean at the local level conditions
 - In addition to increased recycling, promotion of CE can mean e.g.:
 - Reduction of material input in production, different reuse and reproduction opportunities, intelligent resource management and changes in consumer behavior and business models
 - All of these can have countless forms in localities around the world
- Thinking that combines CE and FI can help to identify business opportunities capable of tackling different forms of resource scarcity in novel ways

How to facilitate new innovations in practice?

Based on earlier research we know that:

- Central issue is **knowledge** of what resource scarcity means at the local level, which requires:
 - In-depth understanding of cultural, institutional and social factors
 - Capacity to systemic challenge identification
- Information must be collected through networks of actors and collection must be organized systemically and professionally
- New solutions should be co-created with local people
 - Solution development should be targeted to locally identified problems
 - Innovation processes can be self-organized but they should be professionally managed and supported

But: How to manage all this in practice?

Practices of Unicef Innovation in Eastern Africa

- **Unicef Innovation Unit / Office of Innovation**
- Focus in the “*identification and promotion of innovation to advocate for and safeguard the welfare of the world’s 2,2 billion children*” (Amatullo 2015, 5)
- Our preliminary RQs:
 1. **How do they enable and facilitate innovation in practice?**
 2. **How they use data to inform innovation activities?**

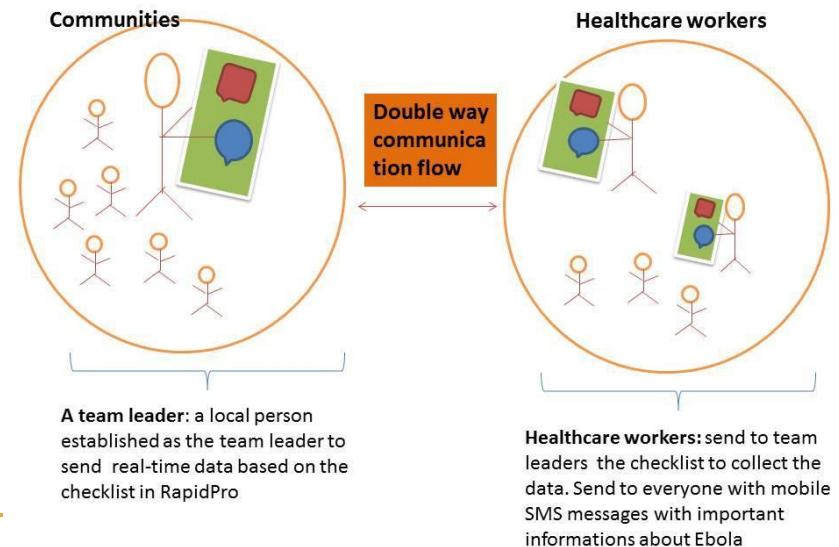


Data and Analysis

- Case-study:
 - How does the innovation team work?
 - Ways of coordination between organizational levels
 - How do they engage locally?
- Semi-structured interviews (started in May 2016):
 - Regional office in Nairobi
 - Country offices in Dar es Salaam and Nairobi
 - HQ in NYC
 - Representatives of three teams (Futures, Ventures, Scale up)
 - Other organizational layers, additional country offices / labs

Examples of Innovations

- Sms-based birth registration system
- Ureport: Sms-based social monitoring tool for community engagement (ureport.org)
- Internet of Good things: Packed information content which is available for free on low-end devices
- RapidPro: Double way communication tool



New internal operative structure

“UNICEF combines local understanding with global knowledge to innovate new, scalable solutions.” (Unicef, 2014, 3)

But how do they operate?

- Three rather independent teams that support innovations in different stages:
 - “Futures”, located in San Francisco, looks for new opportunities and technologies
 - “Ventures”, located in NYC, invests in early stage innovations
 - “Scale up”, located in Bangkok and Nairobi, identify and support pilots with potential to scale
- Five focus areas:
 - Real-time information
 - Youth empowerment
 - Access to information
 - Infrastructure
 - Physical products



Early Analysis of the operations

They refer to design thinking

Innovation design principles:

1. Design with the user
2. Understand the existing ecosystem
3. Design for scale
4. Build for sustainability
5. Be data-driven
6. Use open standards, open data, open source, and open innovation
7. Reuse and improve
8. Do no harm
9. Be collaborative

The operations resemble systems thinking

Interpretation of general themes:

1. Collaboration
2. Intensive utilization of data
3. Sustainability and resource efficiency

Preliminary observations

- **Information collection practices**
 - Efficient practices in data generation and handling
 - Feedback loops (data is collected in “both directions”)
- **Simultaneous consideration of macro and micro developments**
 - Macro (CE perspective) from higher levels of organization and micro (FI perspective) locally
- **Long-term engagement in local development**
 - Problem-based learning and ongoing development of activities
 - Innovations can offer “shortcuts”, but they are still considered partial solutions in the big picture (e.g. information gathering)
- **Systems thinking and efficient mobilization of local resources**
 - Ecosystem mobilization: universities, authorities, companies
 - Institutional and financial mobilization: innovation fund with big players
 - Engagement with state actors and governments

Discussion & conclusions

- **Practical implications:**
 - “Neutral” organizations taking a facilitating and coordinating role
 - Companies need to collaborate with organizations capable of systemic challenge identification and process facilitation
 - Range of new funding instruments for FI type of process
 - Without systemic approach in coordination, there is a risk for undesired outcomes and impacts
- **Theoretical implications:**
 - Literatures on CE and FI describe the phenomenon of resource scarcity from different perspectives and thus they can complement each other
 - This paper contributes by identifying the capabilities and activities needed to further CE and FI simultaneously
 - Conceptually, we also show the interdependence between the two concepts

Some topics for discussion

- Focus on “innovation process” or the “qualities of an organization”?
- How to deal with the “scarcity of what?” question theoretically?
- We find that Unicef Innovation has systemic view on innovation governance/management/leadership
 - Should we use systems theory for the analysis?
 - Or should we focus on organizational theorization?

Thank you!

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