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Evidencing the benefits of cluster programmes – towards a framework of effects

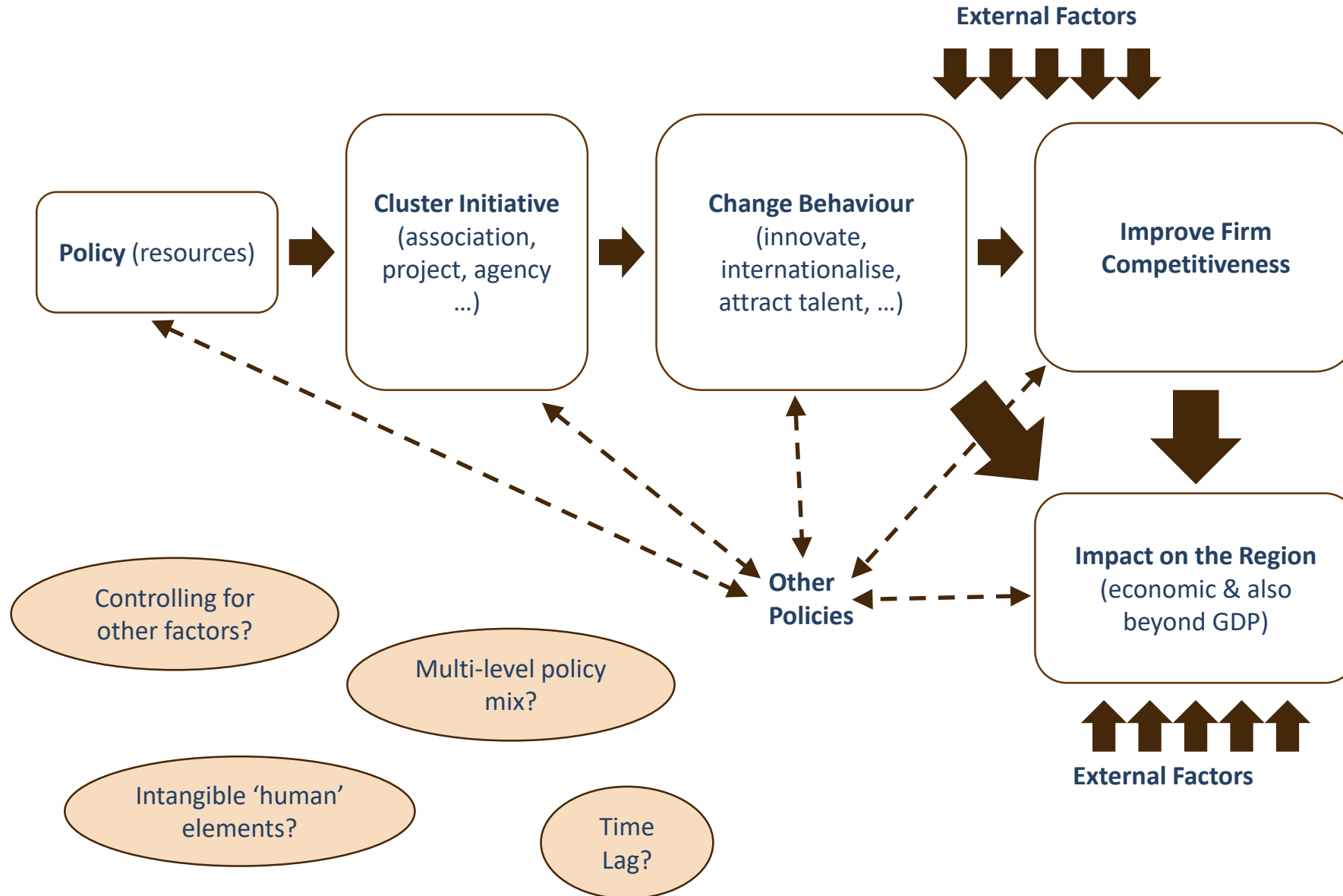
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Background and research problem

- Since 1990s, broad academic grounding and use of cluster-based programmes as part of industrial, innovation and regional development policies (Porter, 1998; Pitelis et al, 2006; Karlsson, 2007; Ketels et al, 2012; Aranguren et al, 2017; among many others)
- Recent revival through smart specialisation strategies, industrial modernisation and internationalisation efforts, as well as to address societal challenges (Aranguren & Wilson, 2013; European Commission, 2012; Saha et al, 2018)
- Although use of cluster policies widespread and expanding, no recognised norms for evaluation (Schmiedeberg, 2010; Uyarra & Ramloga, 2012; Smith et al, 2018)
 - Complex effect logic
 - Existing practice focused on firm-level benefits
 - Not capturing value of collaboration and regional systemic change
- Limits understanding of impacts and policy learning

Cluster policies: not a simple logic model



How can we frame the
different effects of cluster policy
to support better evaluation
practice and fuel policy learning?

Method

- Review of academic literature
- Comparative analysis of six cluster programme impact analyses in five countries
- Articulation of "framework of effects"
- Further development and testing through
 - TCI Cluster Evaluation working group (international groups of researchers, practitioners and policymakers)
 - Research project with Swedish Vinnväxt programme

Do clusters yield positive effects on firm performance?

A review of cluster programme effect analyses in Sweden and internationally

A study conducted for the Swedish Agency for Economic and Regional Growth (Tillväxtverket)

5 October 2017

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Synthesis of literature review

	IMPACTS OF CLUSTERING (THEORY)	IMPACTS OF CLUSTER POLICY (SPECIFIC POLICY PROGRAMMES)
INNOVATION IN FIRMS	Positive impact (driven by firm connections with other firms/actors within and outside of cluster)	Significant evidence of positive impact on firm-level innovation
PRODUCTIVITY OF FIRMS	Positive impact (particularly for smaller firms and new ventures)	Some evidence of positive impact on firm-level productivity
EMPLOYMENT IN FIRMS	Positive impact (but more limited evidence)	No significant evidence of impact on firm-level employment
WIDER REGIONAL IMPACTS	Some evidence of positive impact on wages and on employment growth	Evidence of impact on regional GDP growth, new ventures/entrepreneurial activities, and resilience

Source: Wise, Wilson and Smith (2017) *A review of cluster programme effect analyses in Sweden and internationally* for Swedish Agency for Regional and Economic Growth

Comparative review of cluster programme effect analyses in 5 countries

Effect analyses from 6 cluster programmes

- Innovation Network programme, Denmark
- Pôle de Compétitivité (PdC) programme, France
- Collaborative Network Programme (CNP), Northern Ireland
- Norwegian Innovation Clusters Programme*
- Regional Cluster Programme, Tillväxtverket, Sweden
- Vinnväxt – regional growth through dynamic innovation systems, Vinnova, Sweden

Results found across the case studies

- Innovation capacity, knowledge exchange and innovation performance
- New partners, new collaborative activities
- Improved economic performance (e.g. turnover, employment, export)
- Wider regional impacts (e.g. start-ups, reputation of the region, policy influence)

Selected results from case studies

	Denmark	France	Northern Ireland	Norway	Sweden (TVV)	Sweden (Vinnova)
Innovation	55% of companies have or plan to develop new products, services or processes as a result of cluster activities	2500 collaborative R&D projects generated innovations, of which 75% are new products or processes	56% of companies engaged in collaborative research, development or design activities	434 new collaborative research and innovation projects (2016)	65% of companies perceive cluster initiative supports innovation and renewal	27% of companies have introduced new products or services
Collaboration	Companies gain new collaborations with other companies (49%), with knowledge institutions (36%), with public sector actors (23%) and with international partners (14%)	60% of companies gained new collaboration partners as a result of cluster activities	54% of companies reported that CNPs had had a significant impact on helping companies establish and maintain business contacts	Each cluster company establishes an average of 11 new collaboration partners each year	57% of companies perceive cluster initiative contributed to new R&D contacts	50% of companies initiated new collaborations with other companies or reserach actors as a result of cluster activities
Economic performance	Companies in R&D collaboration increase productivity with an average of 9% a year over 9 years		Created turnover of £15,36 M; safeguarded £16,28 M	Cluster companies experience 7,3% higher sales revenue (compared to control group)	71,2% of cluster companies with higher revenue growth and 50,9% with higher employment growth compared to national average for the sector	Faster revenue growth per employee (over last 5 years) in cluster companies relative to control group
Other effects	Companies in clusters experience significantly higher probability of participating in other innovation programmes	Collaborative R&D projects led to creation of 93 start-ups	51% of companies reported that CNP has had a significant impact on improving the image of their sector	313 new international collaboration projects (2016) 114 new cluster-to-cluster collaboration projects (2016)	Cluster programme contributed to new collaboration between policy actors on regional and national levels and with clusters in other countries	Strengthened capability to manage structural change

An initial framework of effects

ELEMENTS OF DIRECT/BEHAVIORAL EFFECTS	EXAMPLE INDICATORS	ELEMENTS OF INDIRECT EFFECTS	EXAMPLE INDICATORS
<p>INNOVATION AND INNOVATIVE CAPACITY (BEHAVIORS, PERCEPTIONS AND PERFORMANCE EXPERIENCED BY INDIVIDUAL COMPANY OR OTHER ACTOR)</p>	<ul style="list-style-type: none"> • Competence development of staff • Knowledge exchange (between companies and universities/other actors) • Capacity to innovate; involvement in collaborative research and innovation projects • Introduction of new products/services 	<p>FIRM-LEVEL ECONOMIC PERFORMANCE (BEHAVIORS, PERCEPTIONS AND PERFORMANCE EXPERIENCED BY INDIVIDUAL COMPANY OR OTHER ACTOR)</p> <p>COMPETITIVENESS AND INTERNATIONAL ATTRACTIVENESS (INTER-ORGANISATIONAL/ GROUP/ COLLECTIVE LEVEL BEHAVIORS OR PERFORMANCE OF ACTORS DIRECTLY INVOLVED IN THE INITIATIVE)</p>	<ul style="list-style-type: none"> • Revenue growth • Productivity growth • Employment growth • Export growth • Entrepreneurship; new companies • Attraction of investment or talent • Entry into new markets
<p>COLLABORATION AND COLLABORATIVE DYNAMICS (INTER-ORGANISATIONAL/ GROUP/ COLLECTIVE LEVEL BEHAVIORS OR PERFORMANCE OF ACTORS DIRECTLY INVOLVED IN THE INITIATIVE)</p>	<ul style="list-style-type: none"> • Engagement of different actor groups (level/critical mass and diversity) • Linkages and dynamics of linkages between actors over time (# and types of collaborations) • Capacity to collaborate 	<p>SYSTEM LEVEL (CHANGES IN PERFORMANCE, STRUCTURES, POLICIES AND INSTITUTIONAL ARRANGEMENTS OF BROADER INNOVATION SYSTEM)</p>	<ul style="list-style-type: none"> • Broader spillover effects on the region (e.g. regional GDP growth, resilience/capacity for transformation) • Changes to regional/national innovation system or policies

Cluster programme framework of effects

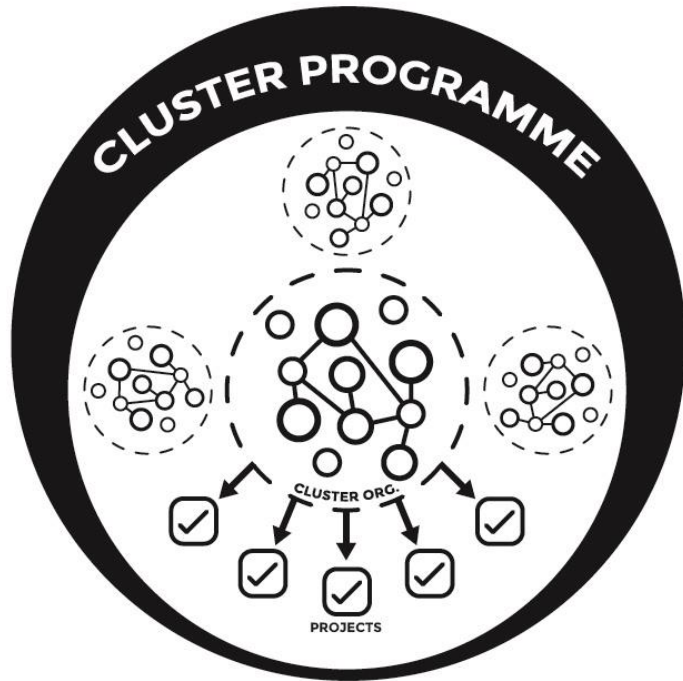
(following several iterations with groups of practitioners, policymakers and researchers)

Level	Short-term results (1-3 years) Cluster participants <i>(direct/immediate results claimed by cluster participants)</i>	Long term effects (3-10 years) Cluster participants & beyond <i>(indirect/subsequent effects that can be observed over time)</i>
Individual Actor (A)	Perceptions & Behaviours <ul style="list-style-type: none">- Competence development- Knowledge exchange- Capacity to innovate- Involvement in collaborative activities	(Economic) Performance experienced by individual actors
Collaborative Group/Cluster Initiative (C)	Perceptions & Behaviours <ul style="list-style-type: none">- Engagement of different actor groups- Dynamics of linkages over time- Perceived value of collaboration Collaboration Infrastructure <ul style="list-style-type: none">- Quality of cluster management- Leadership- Processes	
Territorial System (S)	Competitiveness and international attractiveness of innovation eco-system <ul style="list-style-type: none">- Changes in behaviours and performance of system Effectiveness of business and innovation support system <ul style="list-style-type: none">- Changes in structures, policies and institutional arrangements	

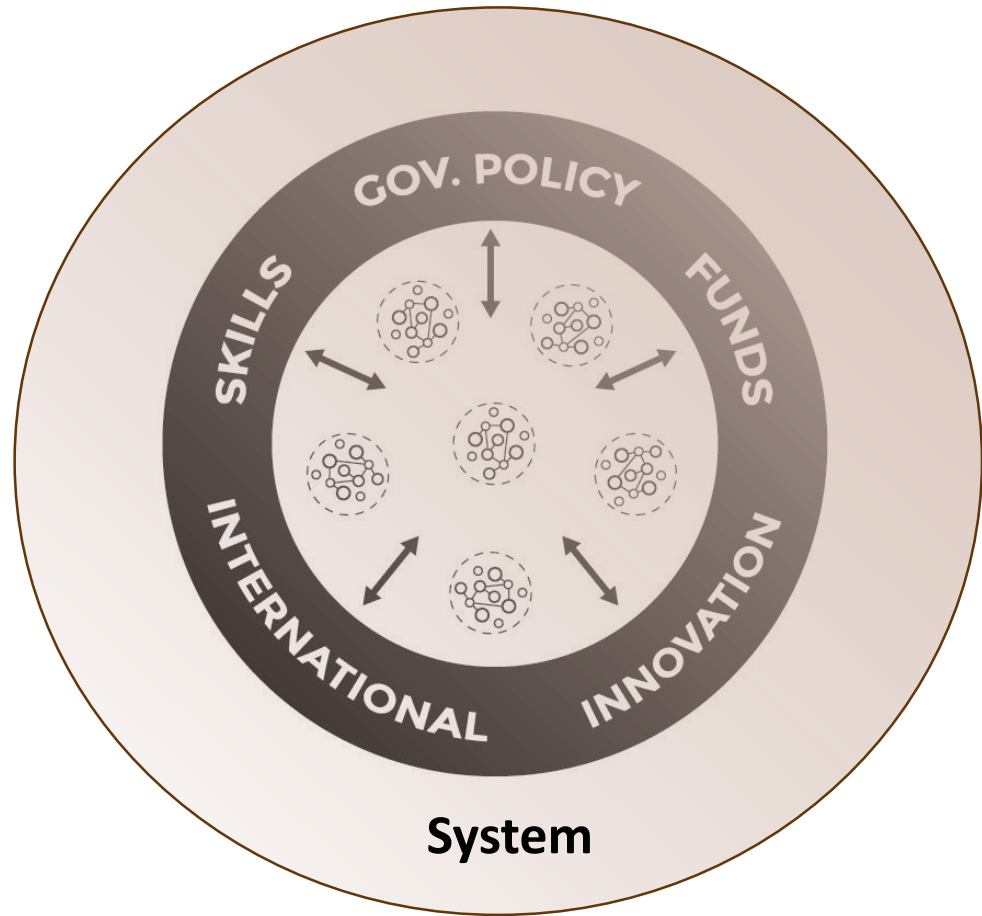
Framework of effects – example indicators

Level	Short-term results (1-3 years) Cluster participants <i>(direct/immediate results claimed by cluster participants)</i>	Long term effects (3-10 years) Cluster participants & beyond <i>(indirect/subsequent effects that can be observed over time)</i>
Individual Actor (A)	<ul style="list-style-type: none"> • Introduction of new products/services • Prototypes and patent applications • Articles (academic, other) • New markets and customers • Change in strategy 	<ul style="list-style-type: none"> • Revenue growth • Productivity growth • Employment growth • Export growth • Improved market share/position
Collaborative Group/Cluster Initiative (C)	<ul style="list-style-type: none"> • # and different types of actors engaged in the cluster initiative • #, types and volume of collaborative activities • New innovation partnerships • Willingness/perceived value of collaborating around a shared strategic direction • Labelling of cluster management quality (ESCA approach) 	
Territorial System (S)	<ul style="list-style-type: none"> • Devtpt of skills and education/labour market • Entrepreneurship/new companies • New investment • Devtpt of (R&I) infrastructure • Stronger international visibility/engagement • New connections between sectors/systems • Transition to low carbon/circular economy • Stronger social inclusion • Changes to structures or working practices among business/innov support actors • Changes to policies, standards, procurement procedures, etc. • Changes to (regional development) strategies, resource mobilisation and financial allocations 	

Scope of evaluation



Project



Organisation

**Programme/
Policy**

Conclusions and Next Steps

- No "one model fits all" for cluster evaluation
 - Different scopes (POP)
 - Different objectives and types/levels (ACS) of results to look for
 - Different types of data and approaches for data collection
- Resulting POP-ACS frameworks can be useful tools
 - To 'set boundaries' of evaluation efforts
 - To inspire efforts to evidence the range of effects/contributions from cluster programmes
 - To support learning (within and between cluster/collaborative initiatives and on policy level)
- Further research required
 - To elaborate types of system level effects
 - To test alternative methods for data collection and analysis of collaborative and system level effects – improving monitoring and learning processes

Thank you!



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