



NATIONAL RESEARCH  
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# **The evolution of cluster initiatives in Russia: the impacts of policy, life-time, proximity and innovative environment**

Ekaterina Islankina  
Evgeniy Kutsenko  
Vasily Abashkin



Russian Cluster Observatory, ISSEK, HSE

**63rd Annual North American Meetings of the Regional Science Association International  
Minneapolis, November, 9-12 2016**



# Why clusters matter and what matters for clusters?

- Clusters in US-traded industries: **36%** of employment, **50%** of income, **96.5%** of patents
- **50%** of EU employment, higher productivity and patenting are in economic sectors that “cluster”

Harvard Business School, 2014; Ketels, 2014

- 1990-s: cluster initiatives (CI) appeared followed by cluster policy boost
- 2013: **2,580** CI around the globe
- Russia: **277** CI identified since 2008
- Cluster policy aims at overcoming systemic failures: "a mismatch between interrelated institutions, organizations, market conditions, or playing rules". CIs are able to organize the professional community, which, in turns, starts to provide additional expertise of new ideas and solutions.

Sölvell et al, 2003; Lindqvist et al., 2013; Russian Cluster Observatory, 2015; Andersson et al., 2004

- **32%** (2003) and **41%** (2013) of CI established under the influence of cluster policy
- **+11%** (2000-2004) in employment within CI that participated in the InnoRegio (Germany) programme

Sölvell et al., 2003; Lindqvist et al., 2013; BMBF, 2006

- CI improve their quality over time, involving new members, establishing management organizations
- However, economic benefits generated by the cluster are not permanent (‘museum’ cluster)

Hagenauer et al., 2011; Sölvell et al., 2003; INNO Germany AG, 2010; Menzel and Fornahl, 2007

- Concentration of industries in regions with the most favourable conditions for innovation

Sölvell Ö., 2009; Ketels and Protsiv, 2014; Chatterji et al., 2013



# What affects the emergence of cluster initiatives (CI) and their performance?

## Dependent Variables

### Emergence :

- Number of CI identified with 2008, 2012, 2015-databases

### Performance:

- Quantitative – average No. of employees within CI
- Qualitative – institutional development level of a CI (integral indicator of the Russian cluster mapping scorecard)

## Factors

National support programme of pilot innovative clusters (PICs)

Proximity to regions with previously launched CI

Duration of CI existence

Accumulated innovative capacity of CI home regions

3 levels: initial, medium, high

31 indicators

		Information blocks			
		About the Cluster	Participants (i.e. employment data) and Partners	Priorities and Projects	Management and Governance
Institutional development level	Initial	<b>1. Name of the Cluster</b> <b>2. Location of the Cluster</b> <b>3. Cluster constituent act</b>	<b>18. Participants (minimum 10)</b>	<b>12. Basic specialization of the Cluster</b> <b>13. Additional specialization of the Cluster</b> <b>14. Brief description of the key products and services of the Cluster participants</b> <b>15. Aims of clustering</b> <b>16. Cluster development priorities</b>	<b>19. Cluster manager information</b>
	Medium	<b>6. Cluster presentation content in Russian</b> <b>8. Web-site of the Cluster in Russian</b> <b>9. English Web-site of the Cluster</b> <b>10. Map or plan of Cluster participants location</b> <b>11. Logo of the Cluster</b>	<b>18. Participants (from 11 to 49)</b>	<b>24. Current joint projects of the Cluster participants</b> <b>25. Future joint projects of the Cluster participants</b>	<b>20. Cluster management and governance bodies</b> <b>21. CMO services</b>
	High	<b>4. Documents for the Cluster development (strategy, program, etc.)</b> <b>5. Cluster status (according to the state support programme - embeddedness)</b> <b>7. Cluster presentation content in English</b>	<b>17. Cluster membership regulations</b> <b>18. Participants (minimum 50)</b> <b>30. Domestic partners of the Cluster</b> <b>31. Overseas partners of the Cluster</b>	<b>26. Fulfilled joint projects of the Cluster participants, inter alia innovative</b> <b>27. Investment proposals by Cluster members of the Cluster</b> <b>28. Venture investment proposals by Cluster members</b> <b>29. proposals to corporations by SME Cluster members</b>	<b>22. Funding structure of the CMO</b> <b>23. Working groups on the Cluster development</b>

\*Indicators typed bold and underlined are obligatory to acknowledge a certain level of institutional development. Other indicators are used for informative purposes only



# Features of the study

1

**The unique database on cluster initiatives** identified in 2008, 2012 and 2015: covers almost a decade of clustering activity in Russia during which cluster initiatives emerged, disappeared or transformed

2

**Valid data sources:** requests by the Economy Ministry of Russia, Cluster applications, National cluster mapping project; **NO surveys** about the effectiveness of CI or the cluster members' satisfaction

3

**Analyses of the solid data** (year of establishment, workforce, the number of participants in cluster initiatives): no estimation features and relatively easy verification

4

**Comprehensive study object:** not only the state supported cluster initiatives (PICs), but also those developed independently. => Extra opportunity for comparison to study the impact of state intervention



# Database on cluster initiatives identified in 2008, 2012 and 2015

2008

**169 cluster initiatives (name, region of location, specialization)**

Compiled according to the information provided by regional government offices at the request of the Economy Ministry of Russia

2012

**92 cluster initiatives (name, region of location, specialization)**

Compiled according to the applications for the pilot innovative cluster (PIC) contest

2015

**107 cluster initiatives (information reflecting 31 indicators)**

Compiled according to the Russian cluster mapping project (<http://map.cluster.hse.ru/>)

+

**Russian regional innovative development rating** using the data on **83** regions in 2014: **37** indicators grouped into **4** thematic blocks: "Social and economic conditions of innovative activity", "S&T potential", "Innovation activity of organizations" and "The quality of regional innovation policy"



# Cluster initiatives mapping in Russia

Карта кластеров России

Карта

Реестр

О проекте

Контакты

КЛАСТЕРЫ

ВЫХОД

СПЕЦИАЛИЗАЦИЯ КЛАСТЕРОВ

УРОВЕНЬ ОРГАНИЗАЦИОННОГО РАЗВИТИЯ

ЧИСЛО УЧАСТНИКОВ

СТАТУС КЛАСТЕРА

**100** clusters mapped since September, 2015

More than **2000** members  
More than **1 mln** employees

Уровень организационного развития

● Начальный ● Средний ● Высокий

Статус кластера

И Пилотные инновационные территориальные кластеры  
П Промышленные кластеры  
М Кластеры, поддерживаемые ЦКР

**Инновационный территориальный кластер "Технополис "Новый Звездный"**

СВЕТЛОЯР: Пермский край | ГОД СОЗДАНИЯ: 2012 | ЧИСЛО КЛАСТЕРОВ: 44 | УРОВЕНЬ: Средний | САЙТ КЛАСТЕРА: <http://technopolisnzh.ru/>

**Общая информация**

Ключевая специализация кластера

- Космическая промышленность

Сопутствующие специализации кластера

- Авиационное
- Космическая промышленность
- Производство машин и оборудования (в т.ч. станки и спецтехника, подвижного и гидротехнического оборудования, роботов)

**Статус кластера**

Включен в перечень пилотных инновационных территориальных кластеров

**Ключевые игроки основной продукции**

**Менеджер кластера**

**Галишева Мария Мератовна**

АО "Корпорация развития Пермского края", Директор департамента кластерного развития

Россия, Пермский край, Пермь, ул. Петровская, 32

+7 342 212 17 47  
+7 952 339 66 46

[maria.galkacheva@yandex.ru](mailto:maria.galkacheva@yandex.ru)

**Кластер технологических отходов**

СВЕТЛОЯР: Пермский край | ГОД СОЗДАНИЯ: 2012 | ЧИСЛО КЛАСТЕРОВ: 44 | УРОВЕНЬ: Средний | САЙТ КЛАСТЕРА: <http://technopolisnzh.ru/>

**Менеджер кластера**

**Лавина Денис Сергеевич**

ООО "Удальский полиметалл", Специалист (Бизнес-развитие)

Россия, Пермская область, Пермь, Сосновый Бор, 1

+7 3842 77 88 70  
+7 906 923 27 54

[d.lavinin@udalmet.ru](mailto:d.lavinin@udalmet.ru)

**Индустриальный территориально-отраслевой кластер "Новые долины агротуризма"**

СВЕТЛОЯР: Пермский край | ГОД СОЗДАНИЯ: 2012 | ЧИСЛО КЛАСТЕРОВ: 44 | УРОВЕНЬ: Начальный | САЙТ КЛАСТЕРА: <http://technopolisnzh.ru/>

**Менеджер кластера**

**Кривошолова Ольга Игоревна**

АО "Корпорация развития Пермского края"

Россия, Пермский край, Пермь, Речниковская, 12

+7 342 212 17 47  
+7 963 883 26 56

[olga.krivosholova@yandex.ru](mailto:olga.krivosholova@yandex.ru)

**Кластер "Ижевский полиметалл"**

СВЕТЛОЯР: Пермский край | ГОД СОЗДАНИЯ: 2012 | ЧИСЛО КЛАСТЕРОВ: 44 | УРОВЕНЬ: Начальный | САЙТ КЛАСТЕРА: <http://technopolisnzh.ru/>

**Менеджер кластера**

**Иванов Александр Иванович**

Ижевский филиал ООО "Ижевский полиметалл"

Россия, Республика Удмуртия, Ижевск, ул. Коммунальная, 14

+7 352 260 01 20  
+7 900 147 54 12

[alexanderivanov@gmail.com](mailto:alexanderivanov@gmail.com)

**Кластер "Ижевский полиметалл"**

СВЕТЛОЯР: Пермский край | ГОД СОЗДАНИЯ: 2012 | ЧИСЛО КЛАСТЕРОВ: 44 | УРОВЕНЬ: Начальный | САЙТ КЛАСТЕРА: <http://technopolisnzh.ru/>

**Менеджер кластера**

**Курочкина Анна Николаевна**

АО "Корпорация развития Пермского края", Специалист (Бизнес-развитие)

Россия, Пермская область, Пермь, ул. Речниковская, 12

+7 342 212 17 47  
+7 922 327 08 07

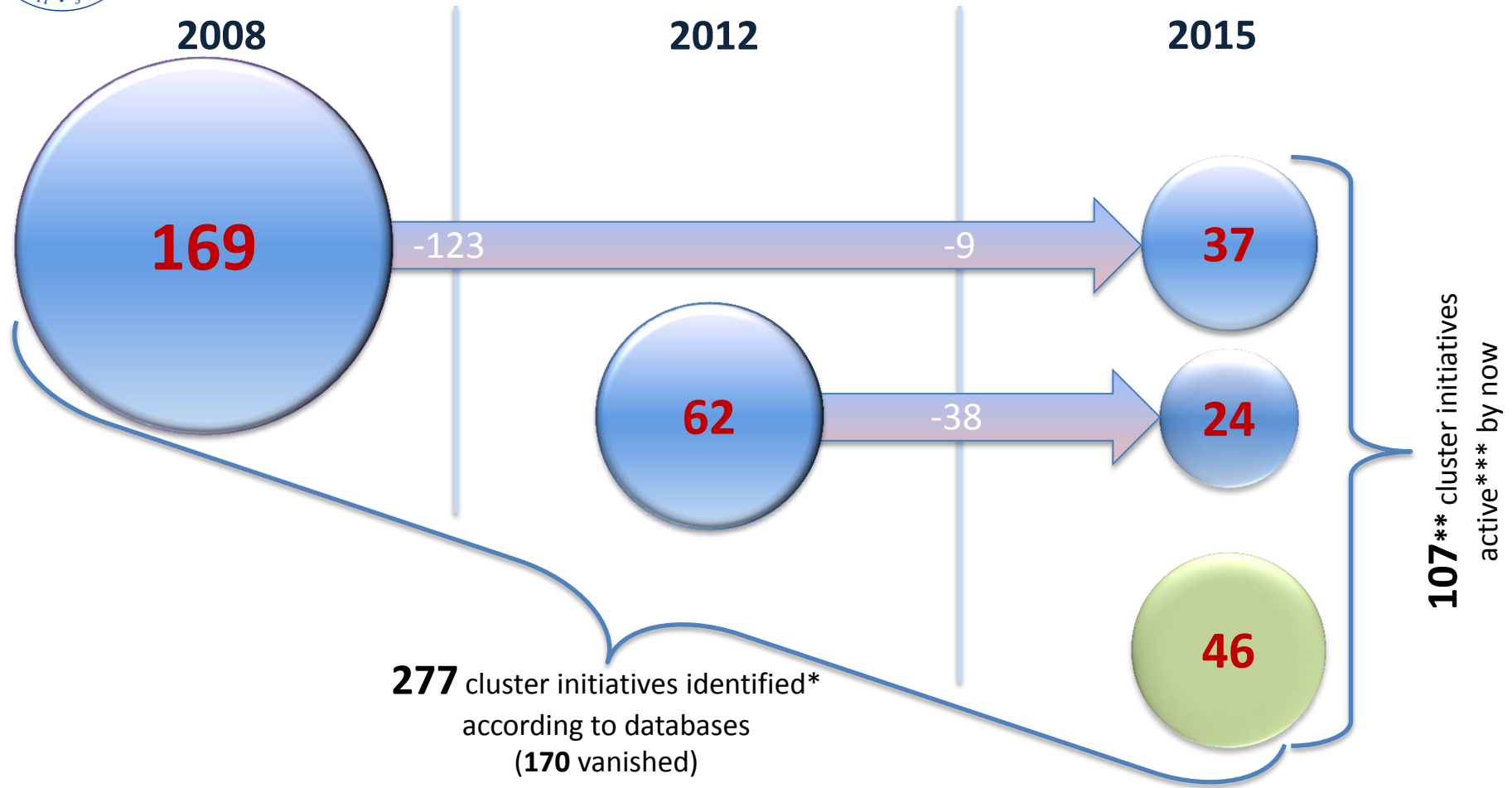
[anastasiya.kurочкиna@yandex.ru](mailto:anastasiya.kurочкиna@yandex.ru)



[map.cluster.hse.ru](http://map.cluster.hse.ru)



# The number of cluster initiatives in Russia in dynamics



\* Identification means the emergence of a cluster initiative in any of the databases analyzed

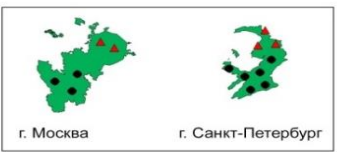
\*\* The calculations based on quality indicators (for cluster performance evaluation) were made using the data on 91 cluster initiatives – those having completed profiles on the Russian cluster map. The calculations based merely on the number of cluster initiatives were made using data on all 107 cluster initiatives from the Russian cluster map, including 16 so-called proto-clusters – the cluster initiatives registered in the cluster mapping system with partially filled or unfilled profiles.

\*\*\* A cluster initiative was defined to be active at the time of the survey (December 2015) if it was registered on the Russian cluster map

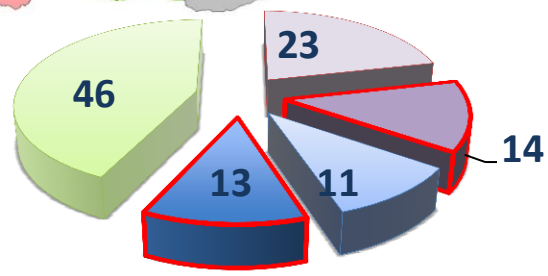




# Russian CI landscape: 25% of active CI are state supported (PICs)



- Регионы, в которых создан ЦКР
- Регионы, в которых есть КИ
- Регионы, в которых КИ были, но в настоящее время не видны
- Регионы, в которых не было КИ
- КИ, возникшие до 2008 года
- ▲ КИ, возникшие до 2012 года
- КИ, возникшие до 2016 года
- ИТК, возникшие до 2008 года
- ▲ ИТК, возникшие до 2012 года
- Протокластеры, возникшие до 2008 года
- ▲ Протокластеры, возникшие до 2012 года



■ CI-2008   
 ■ PIC-2008   
 ■ CI-2012   
 ■ PIC-2012   
 ■ CI-2015





# Russian cluster mapping scorecard

## Information blocks

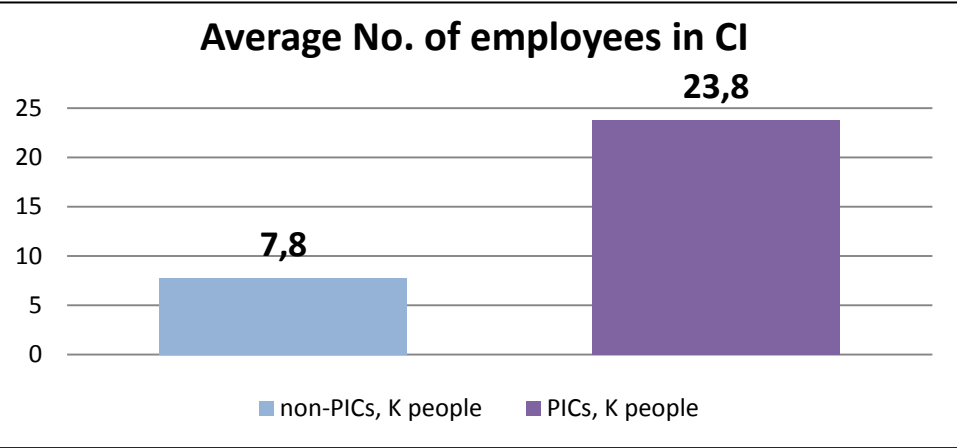
Institutional development level

	Participants (i.a. employment data) and Partners			
	About the Cluster		Priorities and Projects	Management and Governance
Initial	<u>1. Name of the Cluster*</u> <u>2. Location of the Cluster</u> <u>3. Cluster constituent act</u>	<u>18. Participants (minimum 10)</u>	<u>12. Basic specialization of the Cluster</u> 13. Additional specialization of the Cluster <u>14. Brief description of the key products and services of the Cluster participants</u> <u>15. Aims of clustering</u> <u>16. Cluster development priorities</u>	<u>19. Cluster manager information</u>
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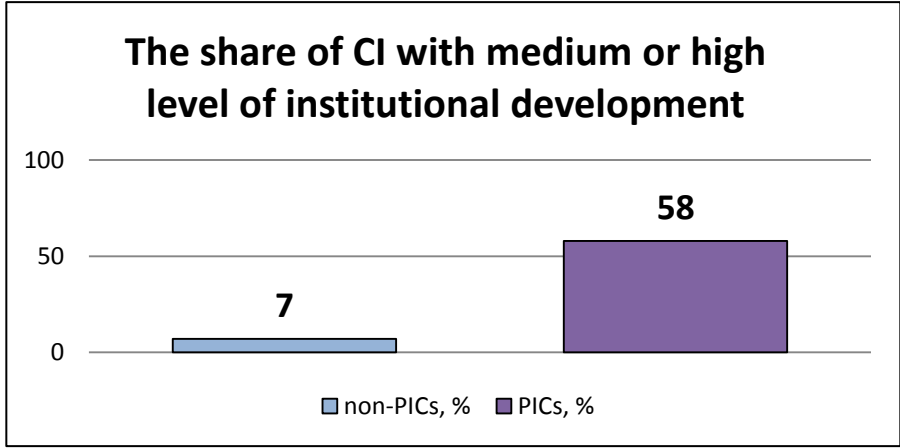
**\*Indicators typed bold and underlined are obligatory to acknowledge a certain level of institutional development. Other indicators are used for informative purposes only**

# Hypothesis 1. National policy has had a significant impact on the emergence of cluster initiatives and their performance

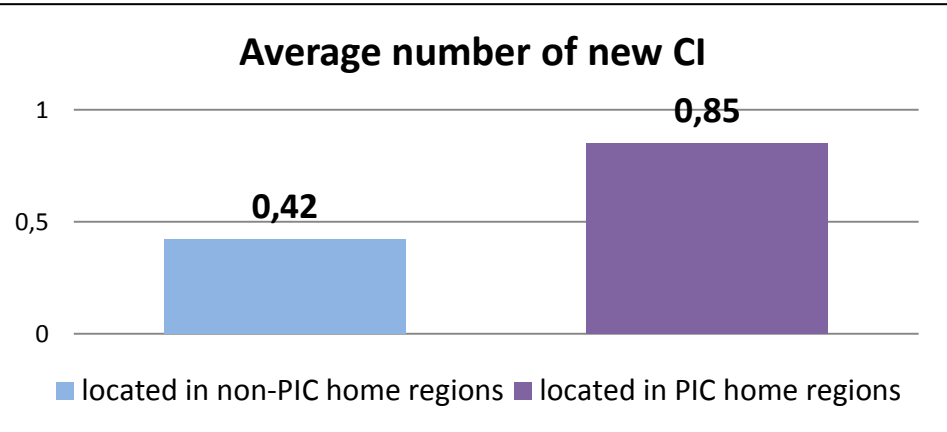
1 Average employment in the clusters supported by the state subsidy was **3 times higher** than in the clusters with private funding only



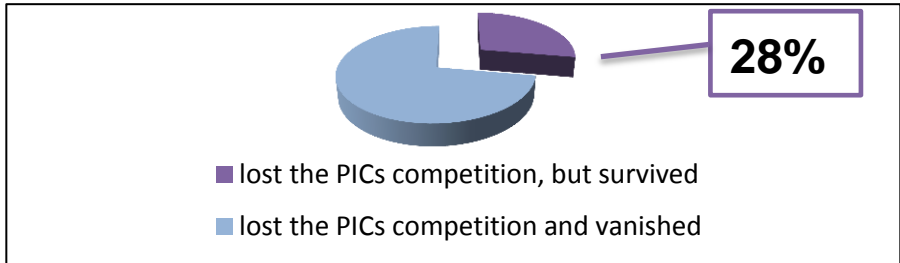
2 The share of PICs with high and medium level of institutional development is **8.29 times higher** than the respective share of non-PICs



3 In the regions of the state supported clusters (PICs) new cluster initiatives were created on average **twice as intensively** as in the other regions.



4 18 of 65 CI which had lost the contest **continued functioning, despite the lack of state support**



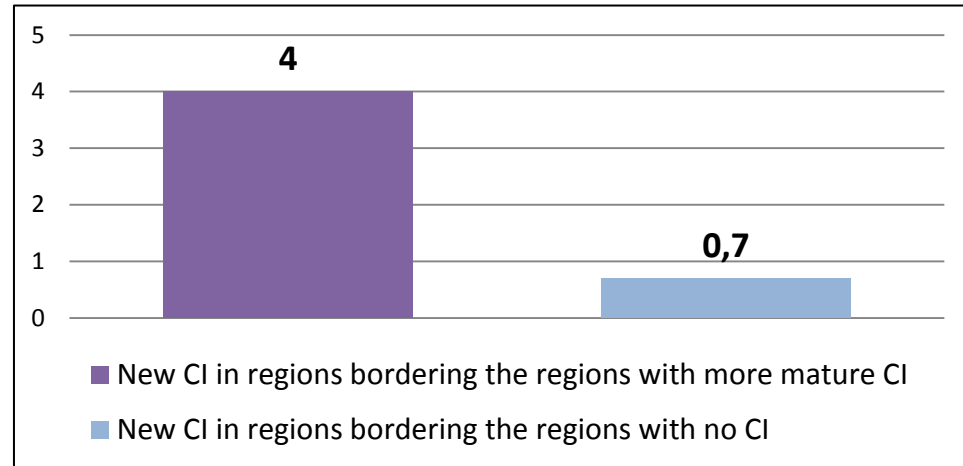
40% of the German cluster initiatives with rejected applications for InnoRegio programme contest still exist and implement their projects (Eickelpasch and Fritsch, 2005).



## Hypothesis 2. Proximity to regions with previously established CI influenced the emergence of new CI. However, no extra impact of the neighboring PICs on fostering the new CI creation was detected

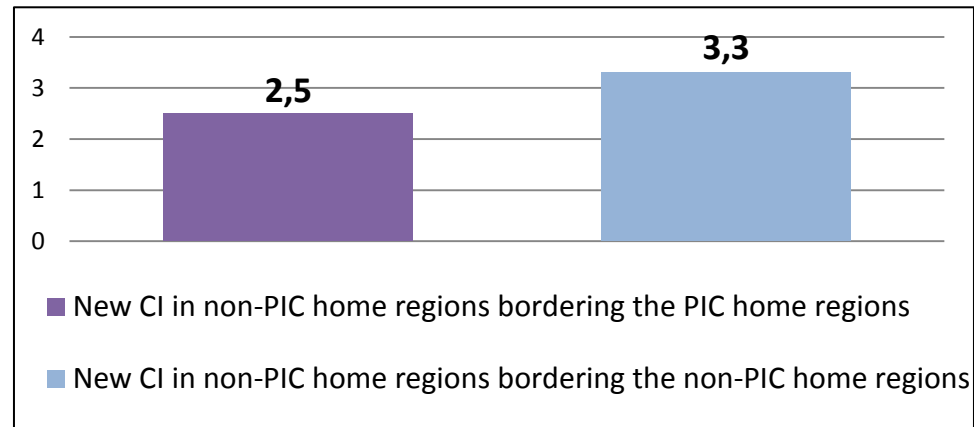
### 1 Proximity to more mature CI:

- in the regions bordering the home locations of more mature CI (2008 and 2012), there emerged **4** new CI on average
- in the regions bordering the locations with no CI there emerged **0.71** new CI on average



### 2 Proximity to the state-supported CI (PICS):

- an average of **2.46** new cluster emerged in the locations neighboring PIC home regions
- while **3.3** new clusters appeared in the regions bordering the non-PIC home regions



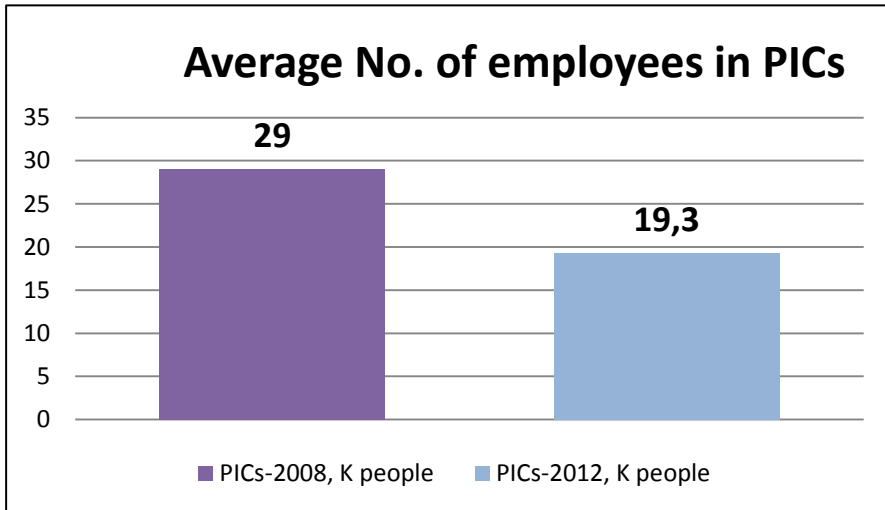
Such outcomes may occur because the cities of Moscow and St. Petersburg with 5 PICs border only the locations of PICs as well: Moscow, Kaluga and Leningrad regions.



# Hypothesis 3 (1). CIs` age is positively correlated with the average No. of employees only for state-supported clusters (PICs)

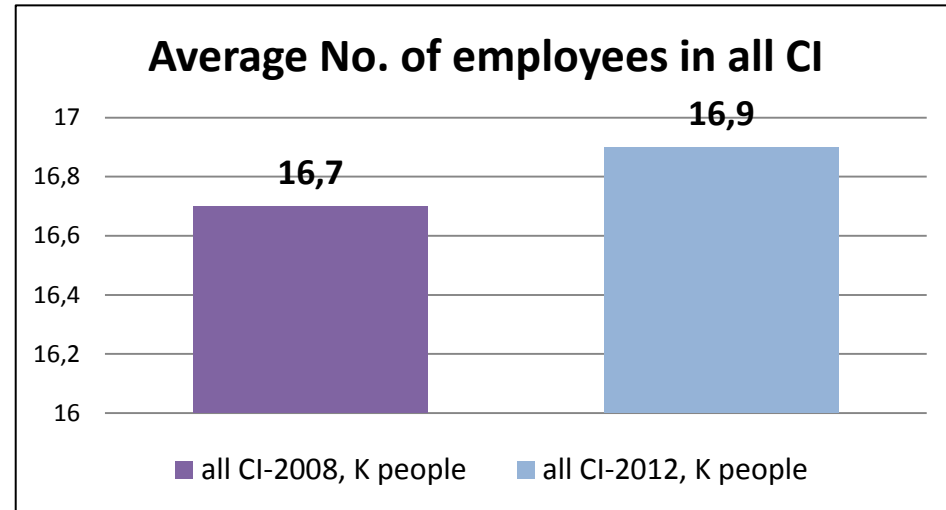
1

The PICs identified in 2008 are **34% stronger** in terms of average No. of employees than the PICs identified in 2012.

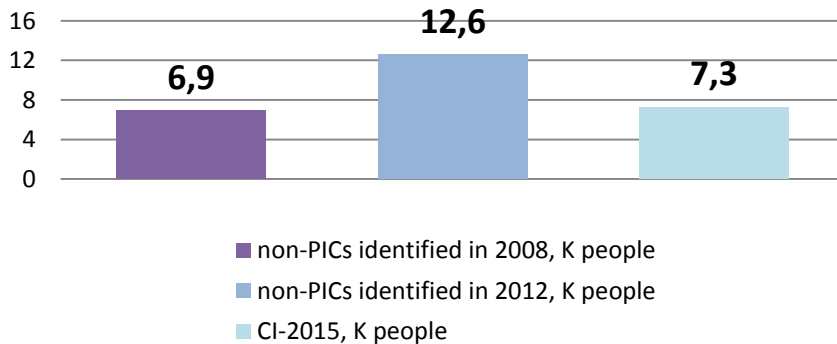


2

Average No. of employees in all CI was **practically constant** regardless of their identification period: 2012 or 2008



## Average No. of employees in non-PICs and new CI



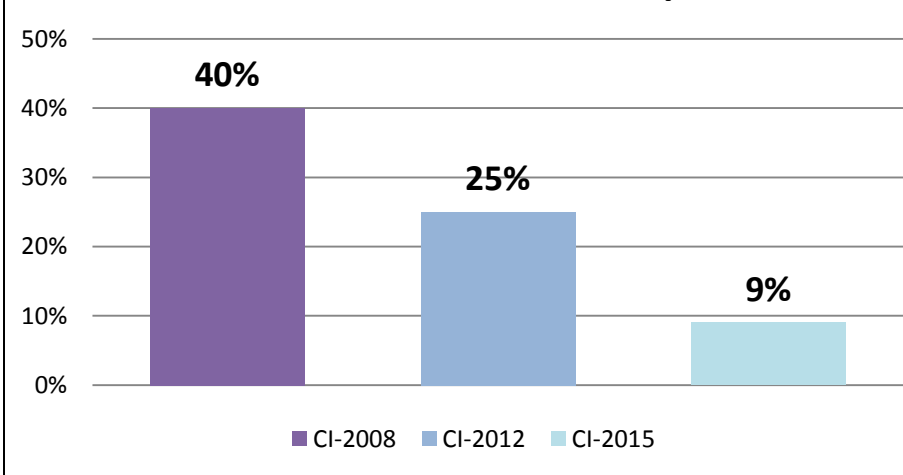
3

The oldest CI without state support (non-PICs-2008) demonstrated **the lowest employment characteristics** compared to the cluster initiatives identified later (non-PICs-2012) and even to new clusters (2015)

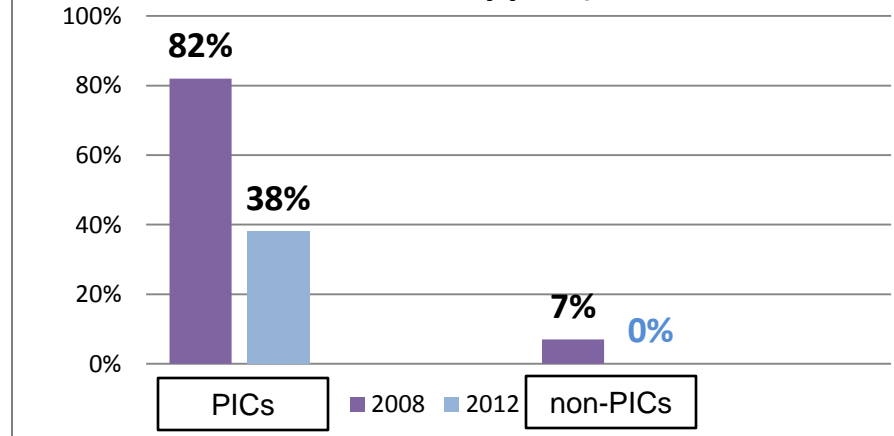


## Hypothesis 3 (2). The level of institutional development in earlier generated CI was, in all cases, higher than in the CI that emerged later, regardless state support

The share of CI with medium or high level of institutional development

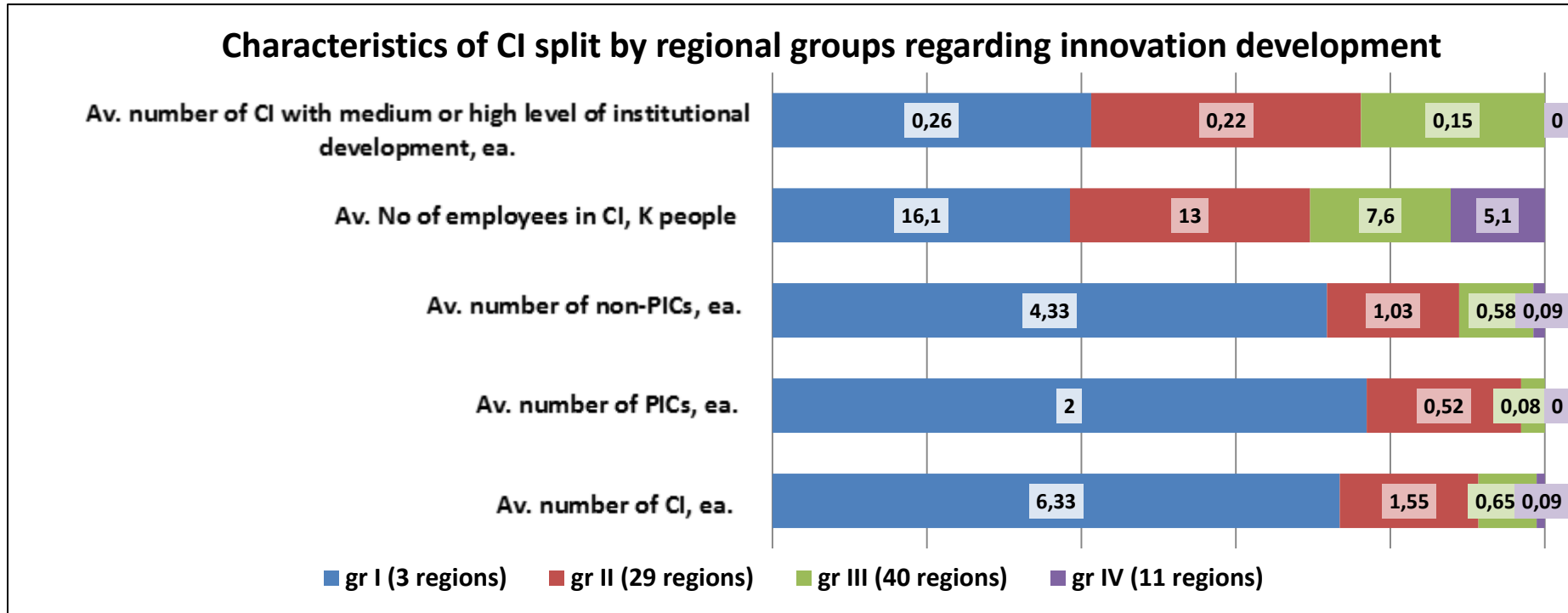


The share CI with medium or high level of institutional development (split by state support)





## Hypothesis 4. The innovative capacity of regions is closely linked to the number of CI located there. The majority of CI that received state support are located in the most innovative regions




- The average number of all CI located in the most innovative regions (group I) exceeds the number of CI in other regions (groups II - IV) by **7 times**, the number of PICs is **9 times** higher, the number of non-PICs is **3 times** higher
- The comparison of PICs and non-PICs revealed no significant difference between the innovation leaders (group I) and other regions (groups II - IV) in terms of the average employment or the average number of CI with high and medium levels of institutional development
- Despite that the state-supported CIs are concentrated in a few of the most innovative regions, the qualitative characteristics of all PICs are generally similar, regardless of the home region's group.







# Conclusions




**The number of new clusters in PIC home regions, the average employment in PICs and the share of PICs with high and medium level of institutional development were 2.02, 3.05 and 8.29 times higher, respectively, than the similar characteristics of cluster initiatives not supported by the State**



**The impact of proximity to the home regions of previously established CI on the emergence of new CI is empirically proved. In the regions bordering the locations where the cluster initiatives had appeared earlier, there emerged an average of 4 cluster initiatives. Meanwhile an analysis of proximity to the state-supported cluster home regions revealed no special influence**




**The length of cluster initiatives' existence is always positively correlated with their institutional development level, and only in the cases of budget funding - with No. of employess**




**The strongest CI are concentrated in regions with an adequate STI capacity, high innovation performance of businesses, well-developed innovative infrastructure and tangible financial support of innovation activity. BUT: the qualitative characteristics of state-supported clusters (PICs) are generally comparable among all groups of regions**


# Practical implications and future research ideas



Positive effects of cluster policy such as the increase of new cluster initiatives suggest the importance of long-standing cluster support programmes.



The government's role is not only in the allocation of funds, but also in the legitimation of relevant regional clustering initiatives and policies. Even with limited financial resources, cluster policy should remain the focus of the state agenda.



Over time some of the cluster initiatives become prone to grant-seeking behaviour and blocking disruptive innovations as alternative sources of competitiveness. If this hypothesis is true, then the government's contribution to overcoming systemic failures by supporting cluster initiatives will be insufficient for intensive economic growth



**Thank you!**  
**Questions, please!**

[eislankina@hse.ru](mailto:eislankina@hse.ru)