



Moscow Innovation Cluster: Key Concept Features and Coronavirus Stress Test

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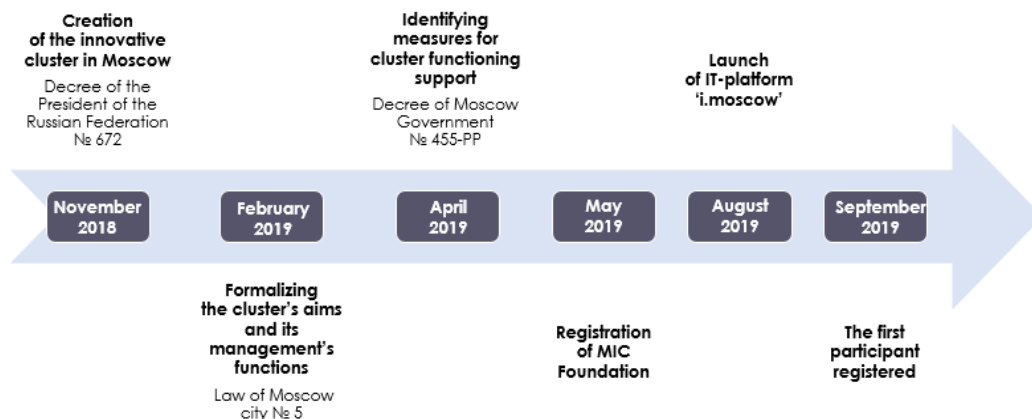
Research goals and empirical strategy

- The goals of the paper are to reveal theoretic framework of a cluster functioning in large cities and how it works in an unstable situation like pandemics
- To do this, firstly we tried to elaborate on the existing economic, clusters and innovation development theories and selected those which could better apply for describing a cluster in a large city
- Secondly, we explored the revealed features on an example of a concrete cluster and then analyzed such specifics in the context of COVID crisis - for this we addressed to open statistical and descriptive information published on the official websites
- In this respect, we used the systematic literature review method combined with a case-study approach, as far as our research aims to combine practical insights with theory propositions

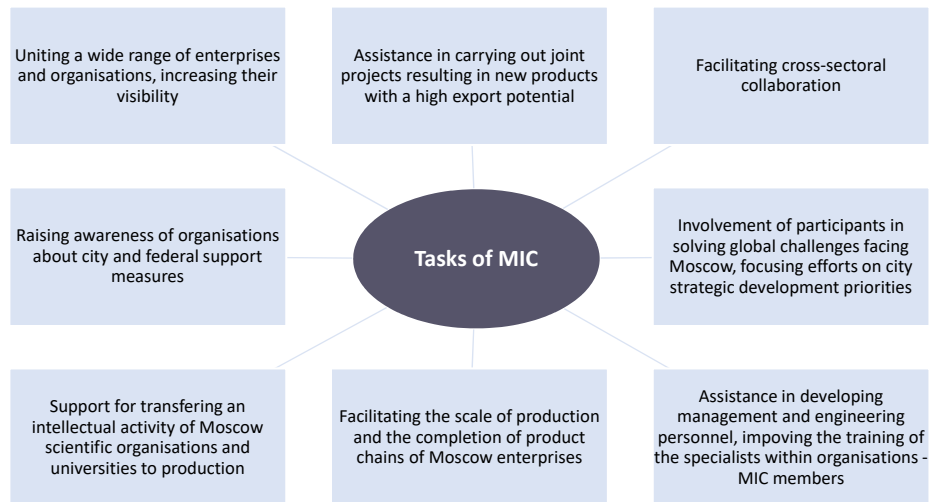
Special cluster policy for megapolises: new features to capture specific urban effects and benefits

| Expected features of an urban cluster (WHAT) | Effects and benefits urban clusters aimed to capture (WHY) | Theoretical underpinning (PROOF) |
|--|--|---|
| 1. Broader initiatives with large number of participants (1000+) | Agglomeration effects (not just variety of fragmented cluster initiatives) | (Marshall, 1920), (Krugman 1991), (Mayneris et al., 2008), (Fujita et al., 1999) |
| 2. Open membership for different industries, special interest in cross-sectoral topics | Jacobs' effects (not just MAR) Economic complexity (not just relatedness) | (Jacobs, J., 1969), (Hidalgo & Hausmann, 2009) |
| 3. Transaction costs reduction is a core activity | Easy and cheap transactions and spread of tacit knowledge | (Couse, 1937), (North, 1992; Eggertsson, 1990) (Polányi, 1966) |
| 4. Set of financial incentives for cooperation in innovation sphere | Launch of new collaborative innovation projects (not just networking or project acceleration) | (Lämmer-Gamp et al., 2011), (Sölvell et al., 2003), (Gallié et al., 2013), (Laur, 2015) |
| 5. Participation of partners from outside | 'Local buzz' + 'global pipelines' (External relations are more important for cities due to their 'compactness' than for regions and countries) | (Bathelt et al., 2004) |
| 6. Strong and permanent role of regional / city authorities | Preventing cooperation failures as a new public good Cluster initiative as a nudge agent for cooperation | (Samuelson, 1954), (Sunstein & Thaler, 2014) |
| 7. Promotion of open innovation practices for all parties of triple helix | Different types of proximity - social, organizational, institutional and cognitive – are needed | (Boschma, Balland, de Vaan, 2014) (Chesbrough, 2003; Chesbrough, 2014), |
| 8. Coordination, common priorities and agenda building | Clusters as meta-organisations (high-level coordination, not just set of unrelated collaborative projects) | (Ahne & Brunsson, 2005, 2008); (Gulati et al., 2012); (Berkowitz and Dumez, 2016); (Berkowitz, 2018); (Lupova-Henry et al., 2021) |

Case presentation: Evolution of Moscow Innovation Cluster



Case presentation: Tasks of Moscow Innovation Cluster

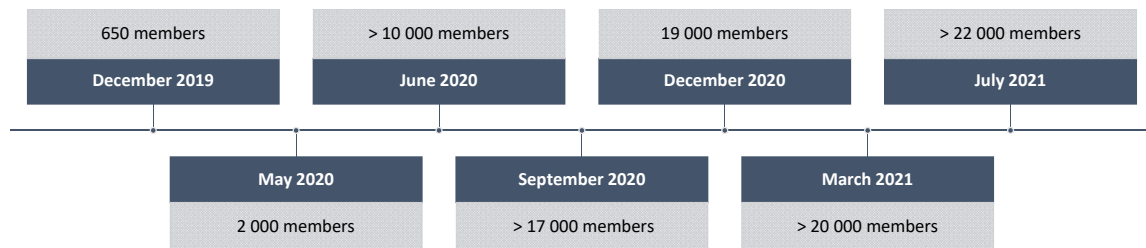


Features of MIC

- MIC unites a large number of participants
- The membership in MIC is open for different industries
- MIC has a digital communication front-office in its core
- MIC sub-clusters as a space for personalised inter-firm interaction
- Financial state support of MIC members' cooperation
- Companies from other regions can participate in MIC as its partners
- MIC as a nudge agent for open innovation model

MIC unites a large number of participants

- The number of participants increased 20 times



- In December 2020, MIC opened registration for individual participants to facilitate access to its services, further capitalizing on the cluster's strength
- There is no member fee for MIC participants

The membership in MIC is open for different industries

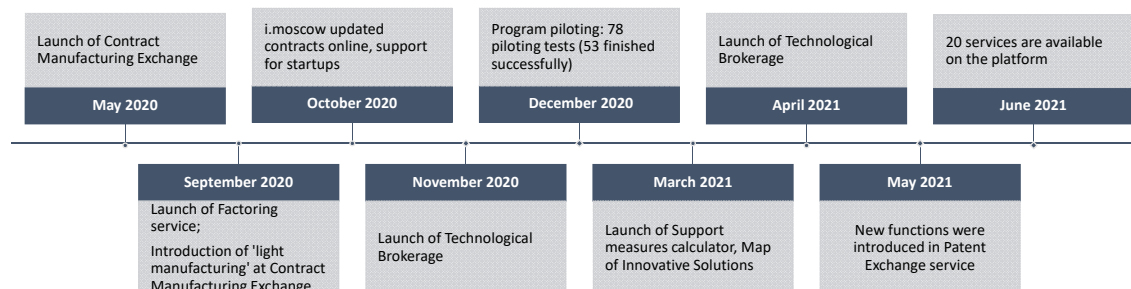
- Now among 15800 members (without partners) 48% are specialised in services, 16% - in whole and retail trade, 14% - in industrial sector, 7% - in IT-spheres, 7% - in science and research and 2 % in education (6% - others).
- At the end of 2020 170 innovation projects were presented on the platform, 32 of them belonged to medicine, 28 – to IT and AI, 13 – to aviation.
- Light manufacturing was introduced at contract manufacturing exchange in September 2020 and in a half a year involved 302 companies from 42 regions.

Priority fields of MIC sub-clusters:

| 1 cluster | 2 clusters | 3 clusters | 4 clusters | 5 clusters | 6 clusters | 7 clusters |
|---|---|---|---|--|---|--|
| <ul style="list-style-type: none"> •Nuclear technology •Energy •Textile •Industrial design •Printing •Optics and photonics •Education •Architecture | <ul style="list-style-type: none"> •Food industry •Metalworking •Aerospace | <ul style="list-style-type: none"> •Ecology and nature management •Pharmaceuticals •Nanotech | <ul style="list-style-type: none"> •Chemical industry •Medtech •Media •Mechanical engineering •Materials | <ul style="list-style-type: none"> •Robotics •Biotechnology •IT | <ul style="list-style-type: none"> •Electronics and microelectronics •Instrumentation | <ul style="list-style-type: none"> •Scientific research |

MIC has a digital communication front-office in its core

- There has been an evolution of digital services:



- In April-May 2020 i.moscow was used as an operator of the system of employees' digital passes which was temporarily introduced by the authorities. Company executives could verify the information on the digital passes and prevent their employees from being blocked.
- Since the end of June 2021 the platform has run a special register for restaurants, cafes and other public catering services which can serve only vaccinated citizens by checking QR-codes beforehand.

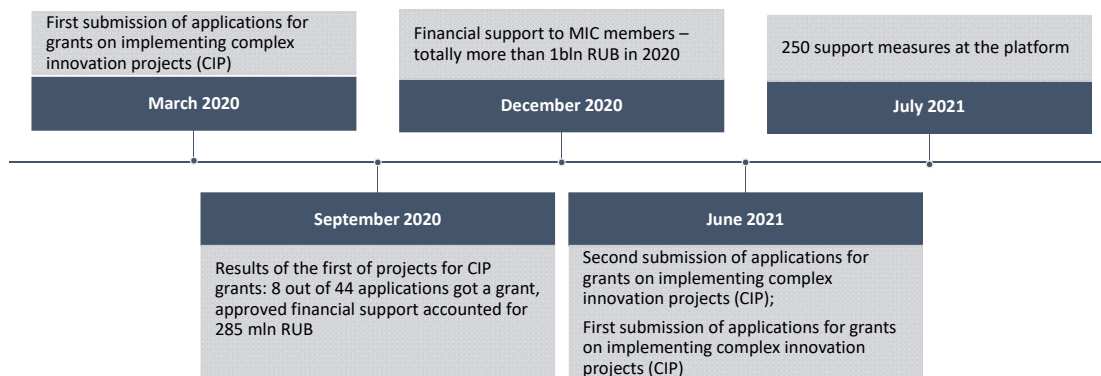
MIC sub-clusters as a space for personalised inter-firm interaction

- MIC members can gather into a sub-cluster (a bottom-up process) for the sake of making joint innovation project (or projects) in one or several economic fields.
- The requirements for creating a sub-cluster: initiation by a MIC member; at least 30 organisations – MIC members; common goal for uniting and at least one innovation project between two and more cluster members
- To present, 10 clusters have registered in MIC since the first one was created in June 2020

| Name | Number of participants | Number of projects |
|--|------------------------|--------------------|
| Troitsk Innovation Cluster 'New Materials, Laser and Radiation Technologies' | 36 | 1 |
| Innovative Territorial Cluster 'Zelenograd' | 44 | 1 |
| Moscow Innovative Intersectoral Cluster of Sports Industry (SportTech) | 78 | 3 |
| Innovative Food Cluster | 44 | 6 |
| Interdisciplinary Cluster of Biopharmaceuticals and Medical Technologies | 57 | 1 |
| Development of Artificial Intelligence | 53 | 2 |
| Traumatology and Orthopedics | 42 | 2 |
| Moscow Composite Cluster | 39 | 2 |
| Automotive and Sports Cluster of ANO 'SMP' Motorsport and Racing' | 32 | 2 |
| Innovative Intersectoral Cluster 'Green Moscow' | 46 | 5 |

Financial state support of MIC members' cooperation

- In March 2020 was the first submission of applications for grants on implementing complex innovation projects (CIP).
- In June 2021 a new program for sub-clusters was introduced – a grant for implementing complex cooperation innovation projects along with individual ones.



Companies from other regions can participate in MIC as its partners

- Since May 2020, when cluster services became available to regional companies, 73 regions have already entered the cluster: the Moscow region, St. Petersburg (70% from these two regions), Vladimir, Kaluga, Nizhny Novgorod, Tula and Tver regions, Krasnodar Territory.
- The number of partners grew to more than 6500 in July 2021.

| Platform services | Possibilities for regional partners |
|-----------------------------------|-------------------------------------|
| Support measures navigator | Limited access |
| Support measures calculator | Limited access |
| Contract manufacturing exchange | + |
| Renting premises | + |
| Sub-clusters | Limited access |
| Investment packaging | - |
| Venture academy | - |
| Piloting | Limited access |
| Patent exchange | Limited access |
| Moscow accelerator | + |
| Technological contests | + |
| Factoring | + |
| Marketplace of goods and services | + |
| Map of innovative solutions | + |

- International projects – agreements with the Joint Stock Company Zhongguancun Development Group, ZGC Group (China), Qatar International Financial Center (Qatar), Fintech Hub Limited (Kazakhstan)

Discussion: micro-level collaboration or broad coordination?

Micro level collaboration

- Joint projects support
- Cooperation at a digital communication platform
- Fostering sub-clusters formation (around 30-70 participants in each sub-cluster)

VS

Collective action as mesa-level coordination (meta-organization view)

- Common strategy
- Common action plan
- Megaprojects
- Project groups
- Broad discussions