

# BARRIERS TO HEALTHCARE INNOVATION DEVELOPMENT BY COUNTRIES OF DIFFERING INCOME LEVELS

OneHealth Integration

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## Introduction

A variety of common problems with healthcare innovation exist within different countries. Many countries have conducted independent research about these obstacles. However, no international systematic review of problems has been conducted to link these issues with economic development. We hypothesized that **countries of different income strata levels will be associated with different problems related to healthcare innovations**. To test this hypothesis, we conducted a systematic review of publications of the problems and categorized them based on country income level.

## Methods

We conducted two systematic reviews of problems in healthcare innovation. We searched for relevant publications in Scopus for assessing the international healthcare market (N = 267) and the Russian database (N = 181).

### FINAL SAMPLE SIZE

Income Groups	Number of countries
Low income (LI)	1
Lower middle income (LMI)	3
Middle income (MI)	2
Upper middle income (UMI)	14
High income (HI)	18

## Limitations

- The number of articles and databases used was limited
- Generally, databases publish articles with the most interesting data (publication bias). In this case, it is difficult to assess the true frequency and importance of problems.
- There is no way to fully explore the problems in the innovative economy without an expert survey, which was not conducted within this study
- For more developed countries, there are more publications that describe the problems the innovation industry faces, making it impossible to conduct a systematic review that is uniformly representative for each economic group

## Results

16 International key problems were identified [See Figure A].

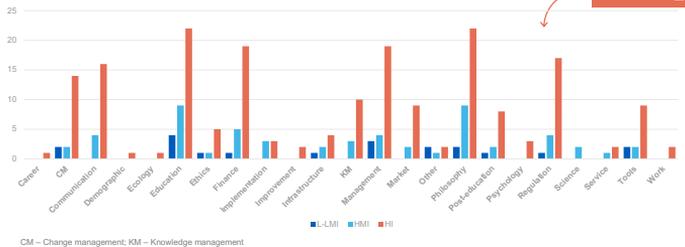


Figure A: frequency of problems in different countries.

CM – Change management; KM – Knowledge management

### MAIN BARRIERS FOR DEVELOPMENT

	L, LMI, MI	UMI	HI
<b>Change management</b>	Attitude, Guidelines	Patients behavior	Poor computer skills, Weak IT systems, Too much expectations, High speed of progress, slow CM, Hard to implement
<b>Communication</b>	X	Industry VS Academia	Different goals, Poor communication among stakeholders and collaboration between different disciplines, Industry VS Academia
<b>Education</b>	Limited resources and professionals, Quality	Complexity, Traditions, Complexity to conduct for rural areas, Cost	Curricula, Student management, Poor pedagogy, Cost and quality, Not innovation centered, Lack of entrepreneurship skills
<b>Ethics</b>	X	X	Distrust in entrepreneurs, Distrust in AI
<b>Finance</b>	Cost	Limited grants	Short-term budgeting, Cost-efficiency problems, High cost of failure
<b>Infrastructure</b>	Resource waste	Lack of laboratories	Rapid change of healthcare, Lack of facilities, Lack of internet access
<b>Knowledge management</b>	X	Too much data, Limited data analysis	Lack of data, Misinformation, No database of innovations, Different data formats, Weak systems capacity
<b>Management</b>	Resources	High security risks	Lack of time, instability, Security risks, High workload, Workers turnover, too much paper work, Very complex teams
<b>Market</b>	X	High competitions, Government influence	Lack of MVP, Lack of public engagement, Uncertainty, Lack of government support, Not linear innovation pathway, Fragmented healthcare market, Focus to software
<b>Philosophy</b>	Complex process of innovation development, Long process	Innovation centrality, Long process, Need of publications, Lack of academia support	Logic of innovative process. High risks, Orphans disease are customized, Inability to explain innovation without opening the competitive advantage, Complexity, Innovation centrality, Not focused on the problem, Innovation definition, High speed of progress, No innovations in academia (only for the industry), Very long process
<b>Post-education</b>	X	High requirements for professionals	Lack of Examples in the profession, Lack of access to employees, Poor computer skills, Lack of regular training, Lack of AI education
<b>Psychology</b>	X	X	Patient engagement, Workers burnout
<b>Regulation</b>	IPs	Uncertainty, Poor classification, Lack of control agencies, Long process, Vague	Fear of law, Different interpretations, Differences in jurisdictions, Poor standards, Fragmentations, Too much time to regulate procedures, Long certification, Penalties
<b>Specific Tools</b>	Lack of market analysis	Lack of business models	No tools for communication with the public, Outdated measurements for innovations, Limited IT systems, Poor AI

## Conclusion

- Although countries of varying development levels share common problems, these issues are different in nature.
- The most frequent problems among all countries are: education, ethics, finances, infrastructure, management, regulations
- There is a need for adequate unified training programs for teams of developers based on the best practices of High-Income countries in solutions of relevant problems
- Barriers of healthcare innovations can serve as a criterion to predict country development and identify its economical level

## Acknowledgements

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