RESEARCH CENTER *for* SCIENCE *and* TECHNOLOGY POLICIES

Readiness for Digital Transformation: The Case on Turkish Automotive Industry?

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***May 8, 2024, ITU Workshop on* "Workshop on digital skills development: policies, strategies, and national experiences for a better future»**

MIDDLE EAST TECHNICAL UNIVERSITY
ORTA DOĞU TEKNİK ÜNİVERSİTESİ

BACKGROUND & INTRODUCTION

- The main peculiarity of the digital transformation is on the
  - production,
  - consumption and
  - marketing of the goods and services.
- However, what is deep inside is the restructuring of human-human and human-machine interactions in a wider context.

- In fact, digital transformation strategy should be rooted at micro level firm strategy.
- However, the governments must consider the wider impacts at meso and even at macro levels.
- The policies and specific public strategies have to enhance the applicability of micro strategies especially in emerging countries like Turkey.
- As noted by OECD (2005) with a special appendix, one of the major shortcomings of developing countries in terms of innovative activities is the existence of problems in the *innovation landscape* especially for the weak innovation systems as compared to the developed world.

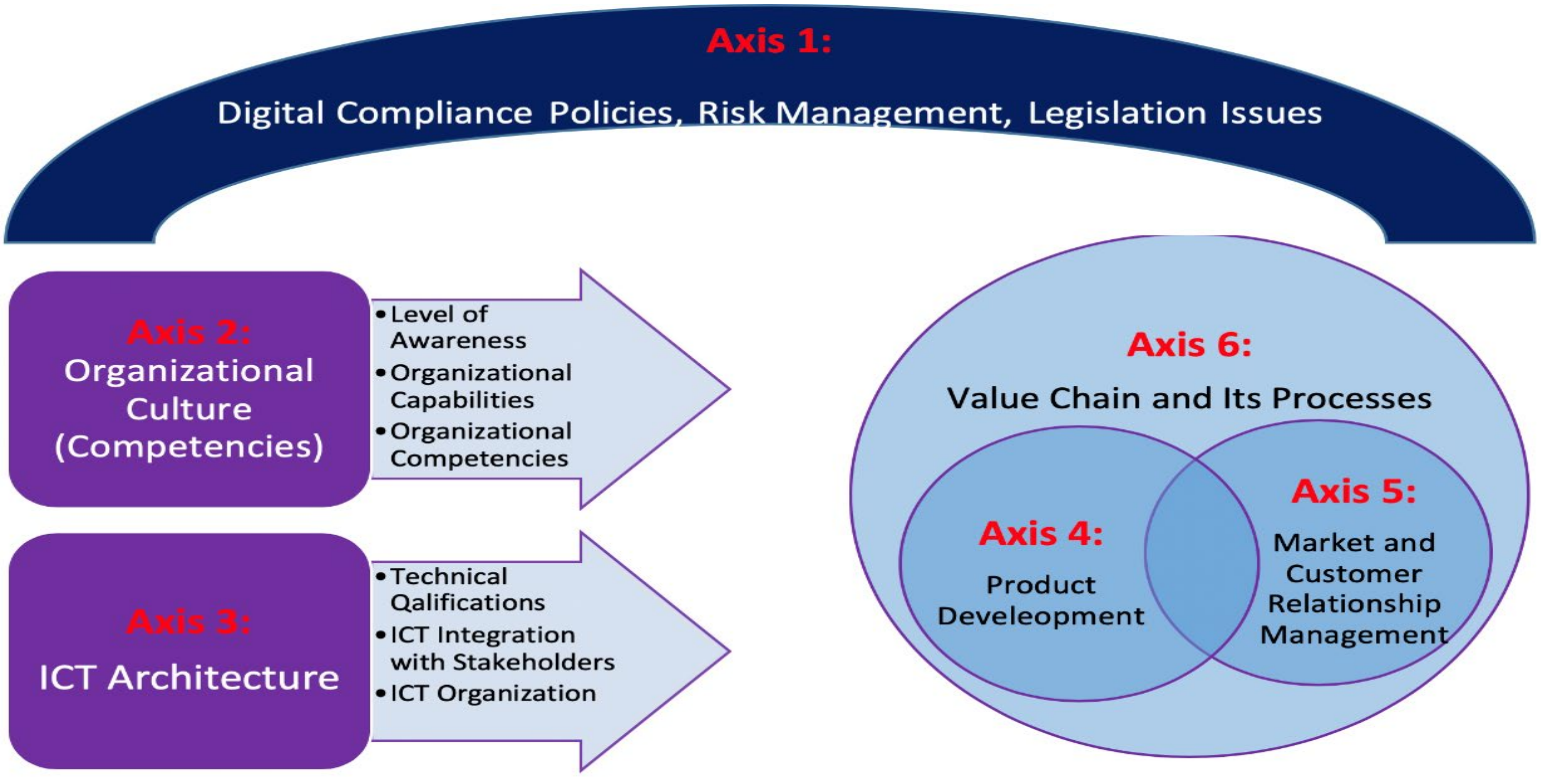
- Another connected issue is the capacity and capability of qualified personnel needed for the digital transformation.
- As evident from the data, the emerging economies have also problems with the education system.
- In the context of emerging economies, not only the value but also supply chains are still relevant for the policy concerns since most of these countries has not already enjoyed the full advantage of the so-called ICT Revolution.
- These problems necessitate strategic public intervention for the realization of digital transformation, otherwise the results for some of the developing countries may be detrimental and traumatic.

AIM

- **The study measures the readiness with a novel approach in six dimensions/axes,**
  1. the product and service portfolio;
  2. customer relations management;
  3. value chain and processes;
  4. ICT architecture
  5. digital compatibility, legal processes, risk management and security;
  6. organizational culture;

  GENERAL READINESS

CONCEPTUALIZATION



Cross-Sectional Problems and Policy Recommendations

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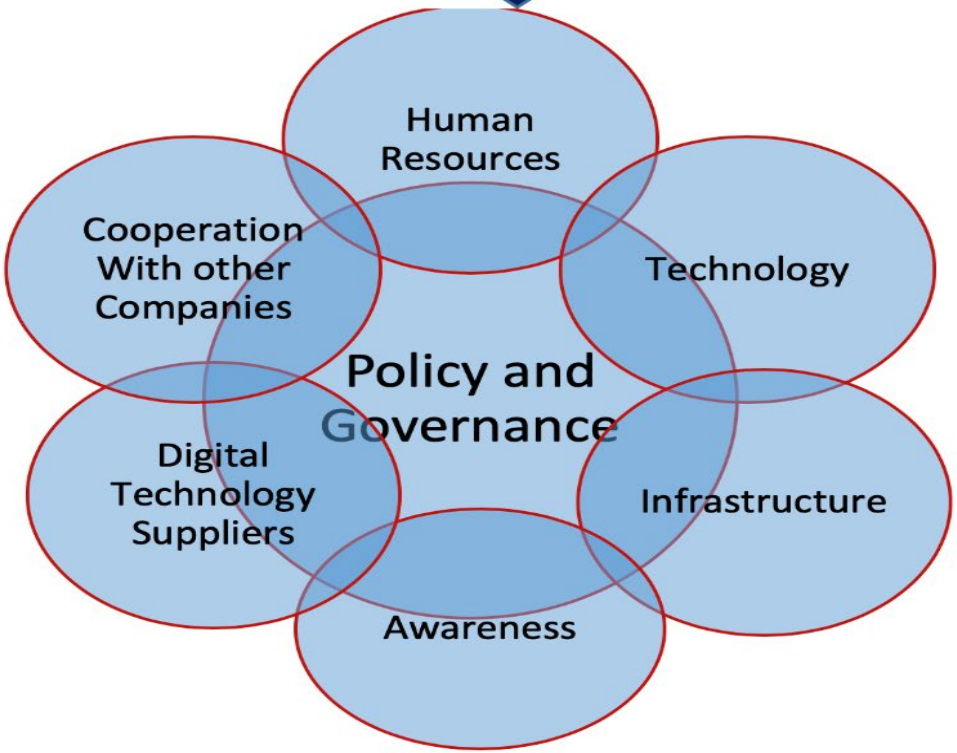
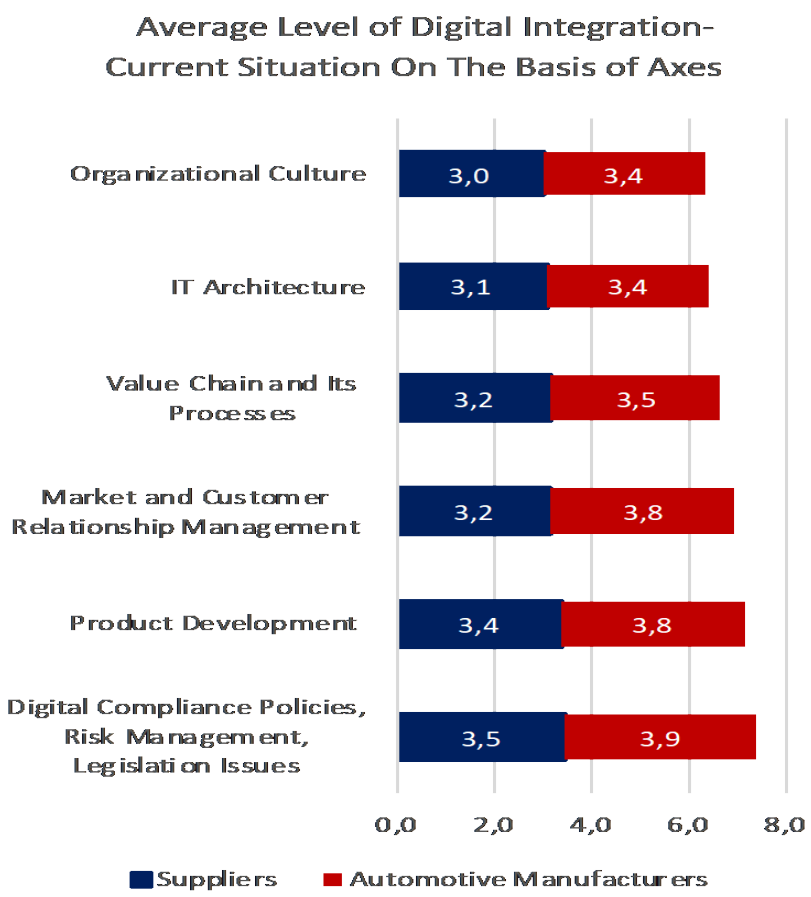
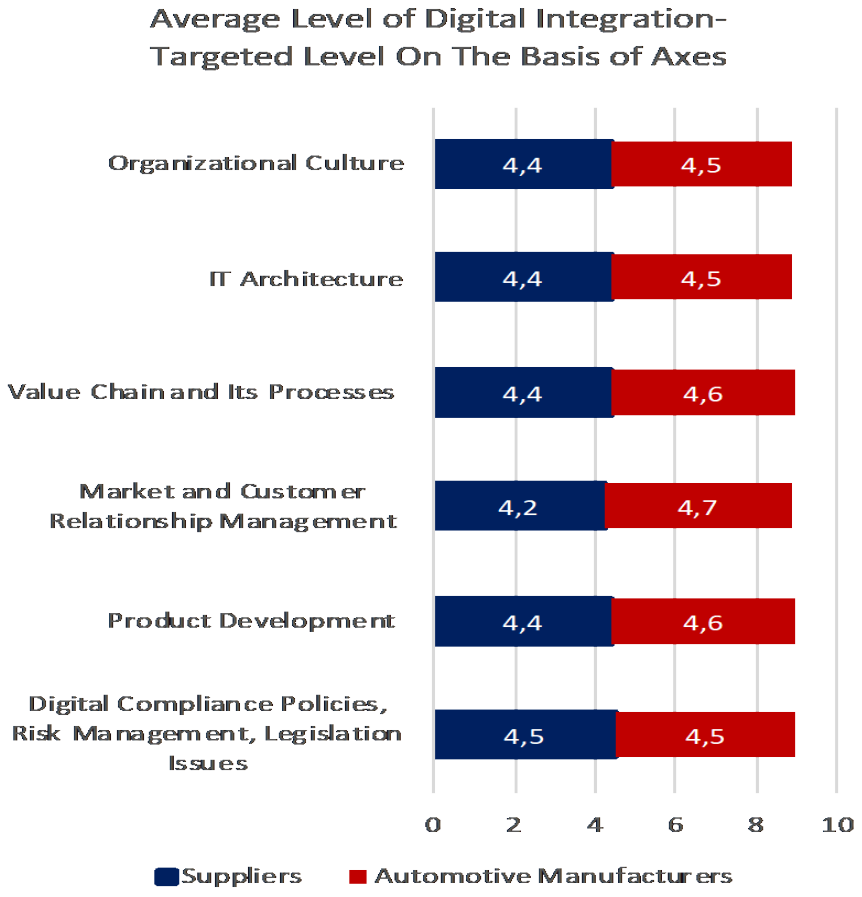
Thematic Problems and Policy Recommendations

- Barriers to Digital Transformation
- Areas To Be Improved Within the Ecosystem
- Areas Which Require Government Intervention

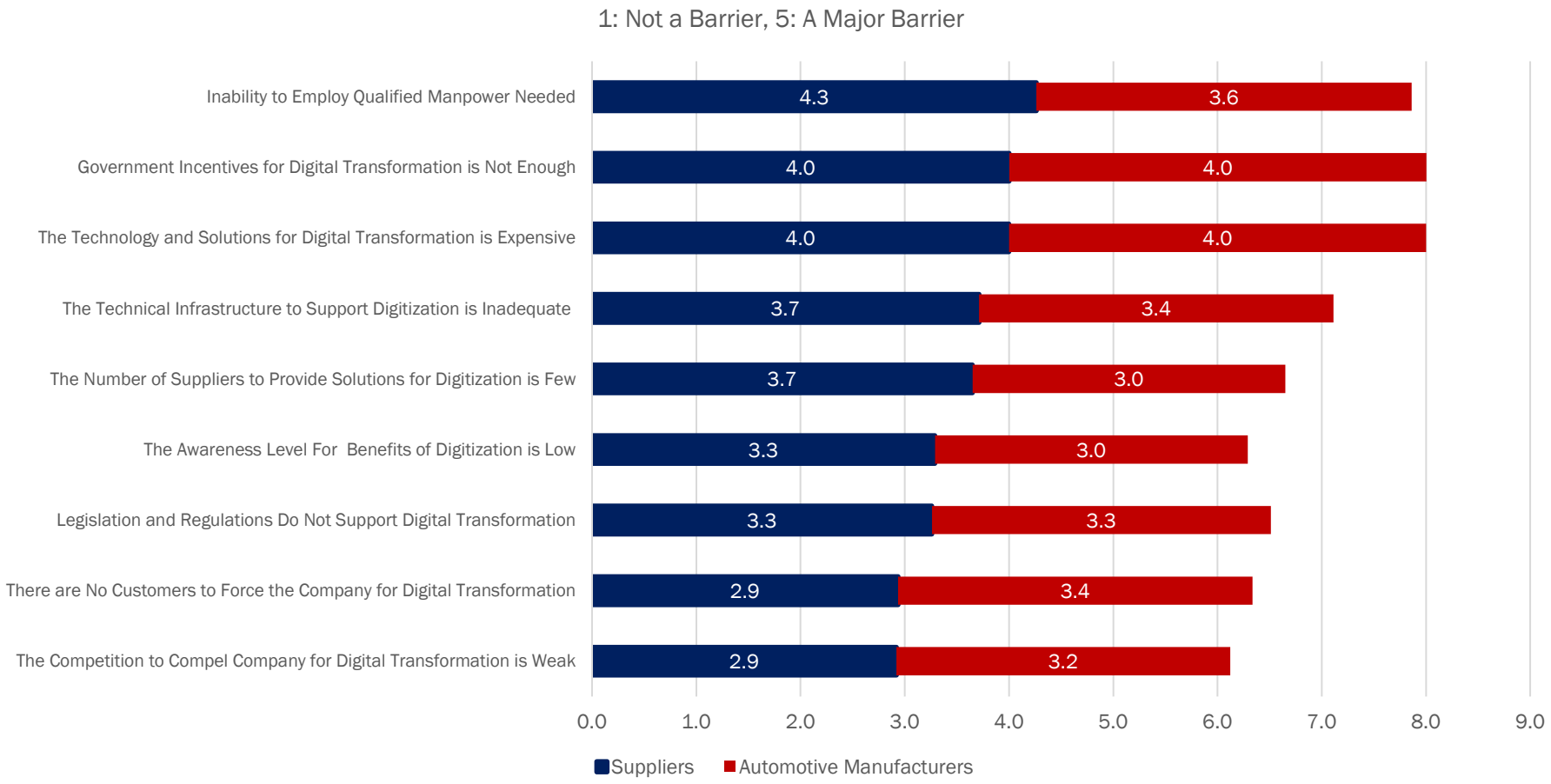


TURKISH AUTOMOTIVE INDUSTRY

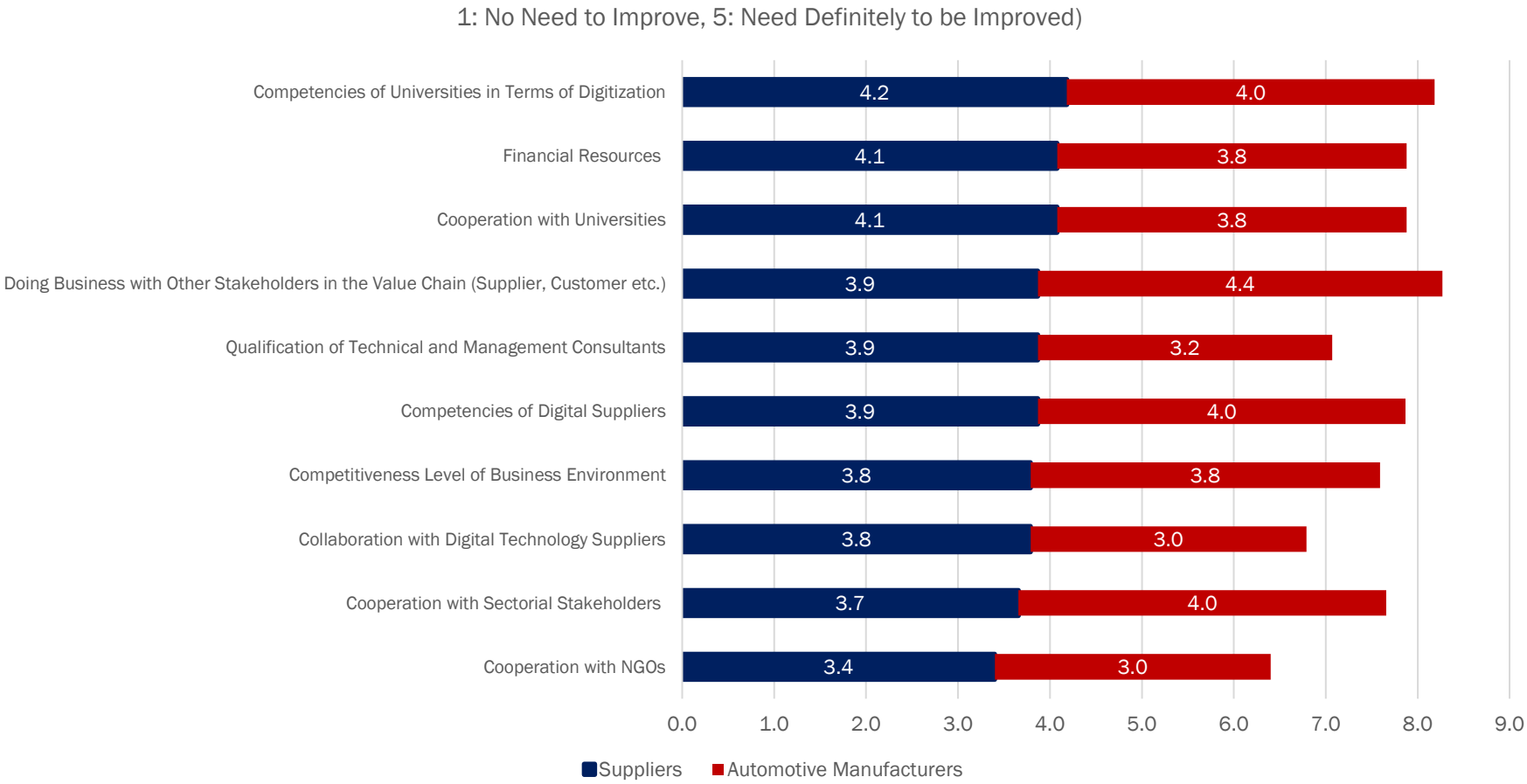




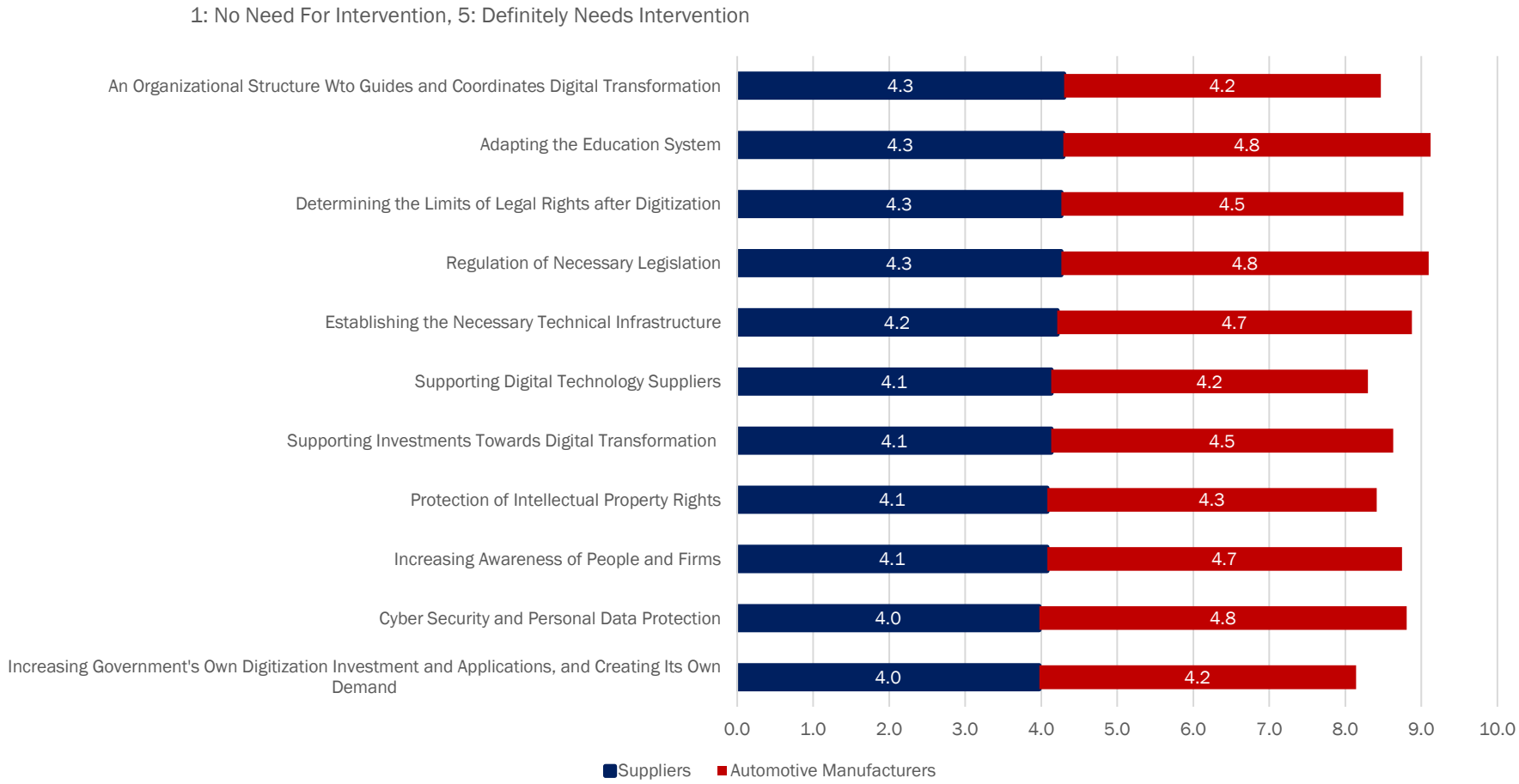
Factors Seen as Barriers to Digital Transformation



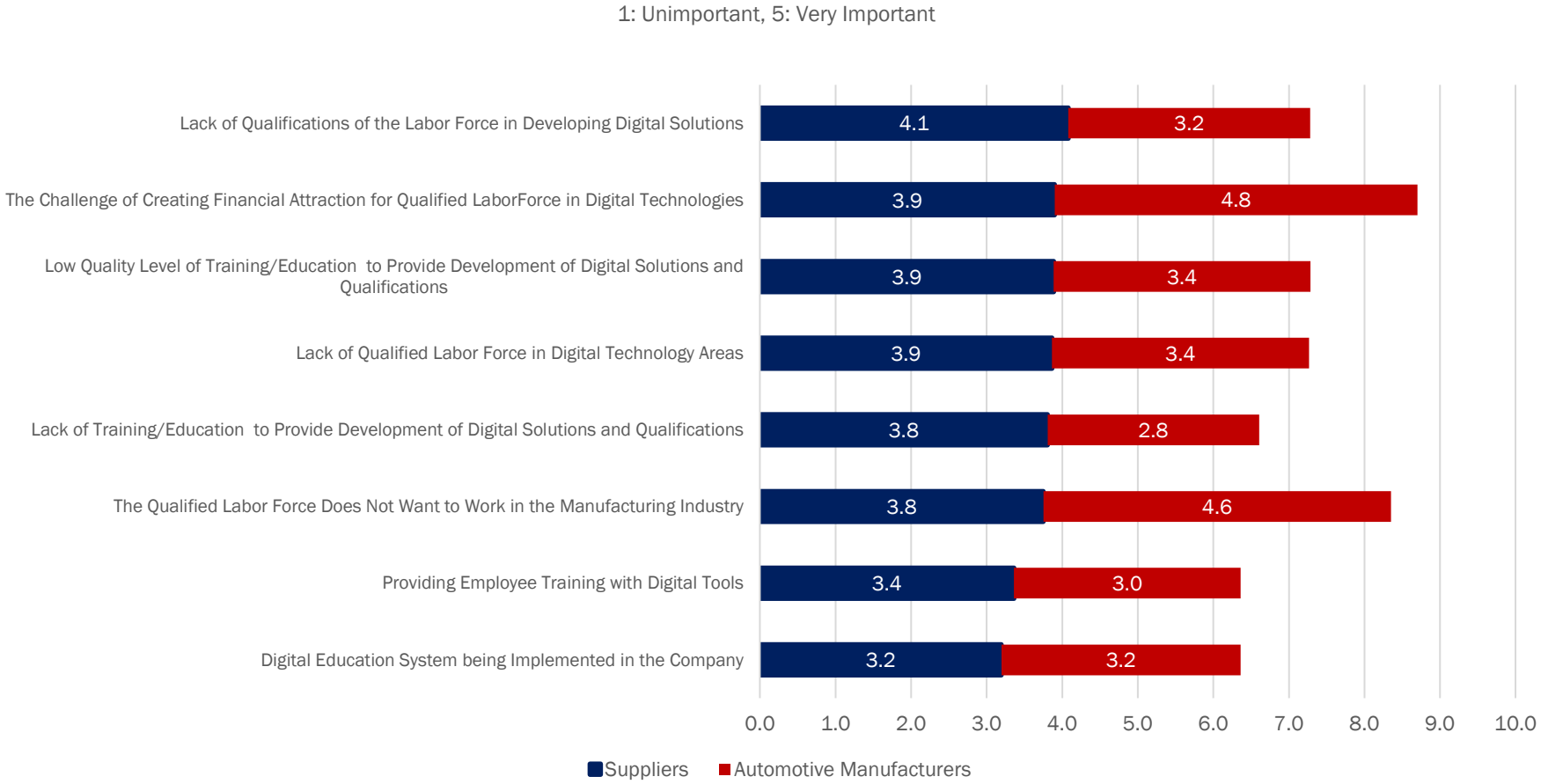
Priority Areas to be Improved Within the Ecosystem



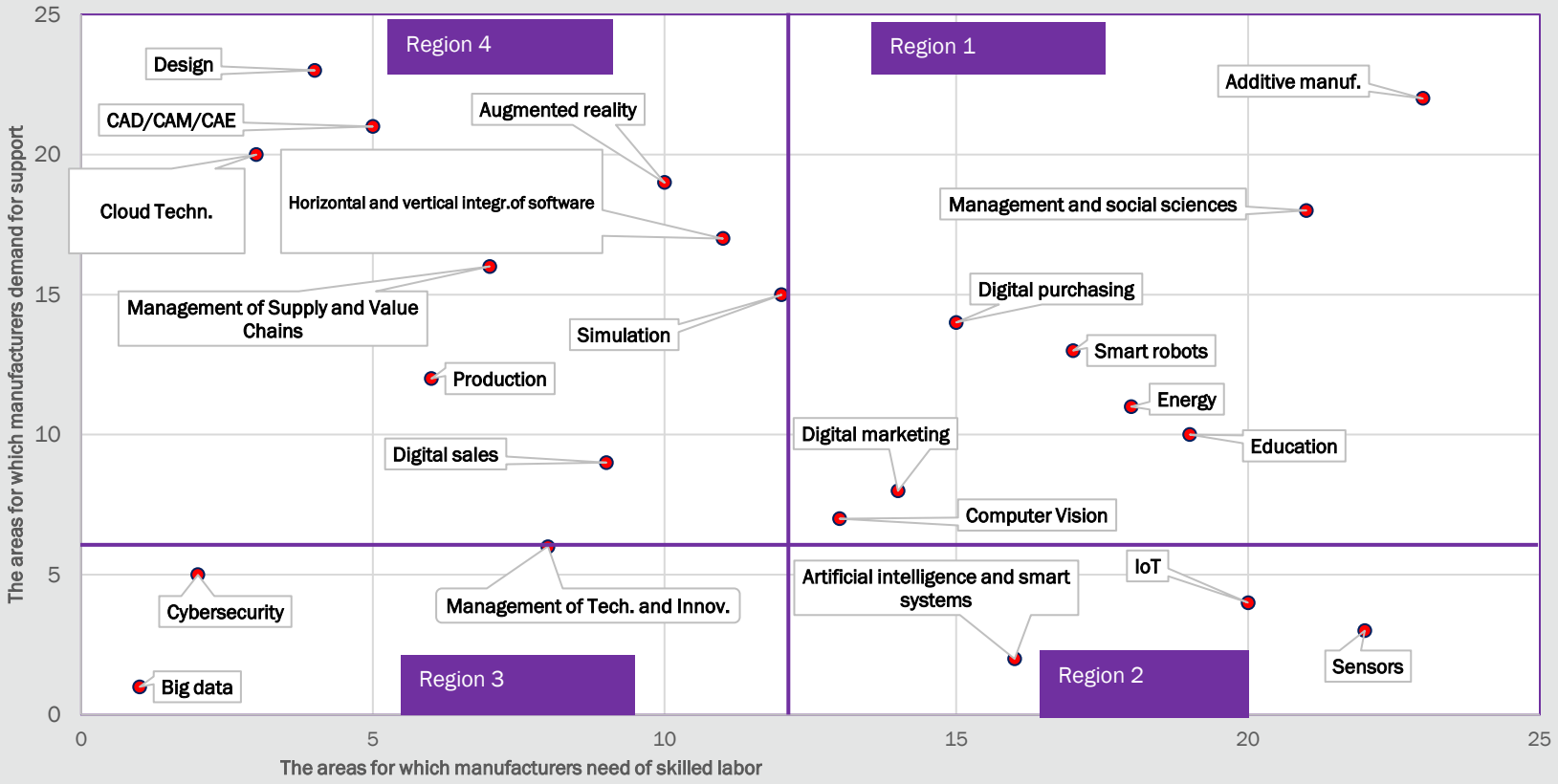
Areas for Government Intervention



The Main Problems Regarding Human Resources for Digital Transfromation



Priority Rankings of Manufacturers: Demand for Support and Skilled Labor



POLICY RECOMMENDATIONS

- Awareness
- Digital Compliance Policy and Governance
- Human Resources
- Digital Technologies
- Infrastructures
- Digital Technology Suppliers
- Cooperation

Human Resources

Problem Definition: ***The quality and quantity of human resources in automotive industry to enable digital transformation and its sustainability should be enhanced.***

Policy Level	Policy Recommendations	Aims	Policy Tools
Mezzo	1. Determining the required capabilities and competencies	1.a Preparing needs assessment for capabilities and competencies	Field surveys will be held to determine the required capabilities and competencies for all the tiers of the automotive industry. Results of the survey will be analysed in terms of its impacts on primary, secondary, vocational and higher education systems and published.
Macro	2. Training of human resources for digital transformation and its sustainability	2.a Changes in education system for the needs of digital transformation	Changes in primary education curriculum concerning the importance and impacts of digital transformation will be introduced. Practical training on sector-specific competencies for digital transformation for the students of vocational schools will be provided. New areas in vocational schools such as additive manufacturing, 3D printers etc. will be established by considering the sectoral clusters. A curriculum advisory board will be established for higher education to meet the needs of digital transformation and to change the curriculum. New departments and/or courses will be established for new technology areas of digital transformation.

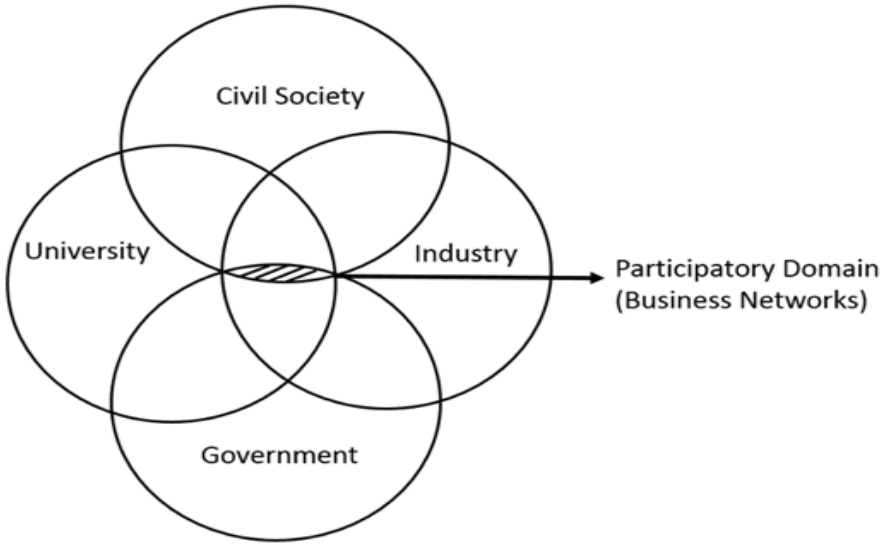
Human Resources- *Continued*

Problem Definition: ***The quality and quantity of human resources in automotive industry to enable digital transformation and its sustainability should be enhanced.***

Policy Level	Policy Recommendations	Aims	Policy Tools
Micro	3. Encouring the employment of labor with digital competencies in automotive industry	2.b Improving the competencies of existing human resources	Training of trainees programmes on digital transformation will be provided for firm and sectoral levels, vocational schools, higher education institutions by national and international experts. Digital competencies certificate programmes will be organized by continuing education centers of universities with regard to findings of field survey. On-site visits will be organized to observe the best practises (such as Fraunhofer Institute) on the global scale.
		3.a Revising R&D and employment support mechanisms for the needs of digital transformation	Needs assessment studies will be held in order to increase the attractiveness of employment of skilled digital labor in the automotive industry. R&D support legislation will be revised to increase the employment of skilled labor for digital transformation with regard to findings of field survey.
		3.b Promotion of opportunities of employment in automotive industry	Firs will be informed about the human resources practises and improving the working conditions to attract skilled labor with digital competencies The work environment, working conditions and opportunities offered in the automotive industry will be promoted through social media and career fairs will be organized.

CONCLUDING REMARKS

- The findings lead us to conclude that, there is an increasing awareness and attempts to deal with the consequences of the transformation on the side of relevant parties. What is surprisingly important observation is that the issue is handled with a quadruple helix approach.



Source: Göksidan, Erdil and Çakmur, 2018

CONCLUDING REMARKS

- This model is potentially “open” to support economic development since these different actors have various skills and knowledge.
- The model also develops open innovation’s dialect with a new development approach in that of innovations are pertinent for users who drive the innovation processes. In line with this perspective, new innovative products, services and solutions are developed with the involvement of users in their role as lead users, co-developers and co-creators
- In this sense, the current situation in Turkey is promising for policy development and innovative sustainable policy-making.
- However, the most significant problem is the intensive participation of sub-tiers in the domain of these actors such as SMEs, university research centres, etc. in policy making and probable transformation actions.

Thanks!

For Q&A

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