

Machine Sector Innovation Analysis for Konya

-Executive Summary-

Since the 1950s Konya has been developing in industry and factories have been established in agricultural tools and machinery, leather and packaging sectors but also various machinery production. This process transformed Konya from an agricultural production centre into an industrial one. Today Konya has been active in production in a variety of sectors with its 9 organised industrial zones and 38 small industrial sites.

Despite having a breakthrough in industrial sector in the recent years and realising a large-scale technology transfer process, there is not data regarding Konya enterprises developing their own tech. In other words, it is important to identify if technology development is realised with a transfer or from a genuine idea.

Examining the studies, general hypothesis is technology transfer contributes to innovation. The main goal of this study is to test this through the data obtained from firms in the sample. Also another goal is to identify which technology transfer methods are more efficient in Konya and if tech transfer capabilities are in effect.

This study is limited in being completed in enterprises operating in general machinery, casting, milling machines and other foodstuff production sectors with a total number of 107, which are registered to Konya Chamber of Industry.

General Information About Sample Enterprises

Properties	f	%	Properties	f	%
Sectoral Breakdown			Enterprise Administration		
General machinery/Casting	59	55	Enterprise Owners	86	80
Milling Machines and Other Foodstuff Machinery	48	45	Professionals	2	1,9
			Owners and Professionals	19	18
Number of Years Active			Number of Employees		
≤5 Years	18	17	≤20 Employees	52	49
6-10 Years	18	17	20-49 Employees	32	30
11-15 Years	23	22	50 - 149 Employees	19	18
16-20 Years	17	16	150 - 249 Employees	3	2,8
21+ Years	30	28	250+ Employees	1	0,9
Target Markets					
Local/Regional	15	14			
National	33	31			
International	44	41			
Global	15	14			

n= 107

Properties	f	%	Properties	f	%
Number of Engineers/Technicians			Innovation Strategy		
None	18	17	Agressive	46	43
1-3 Employees	66	62	Defensive	35	33
4-10 Employees	19	18	Imitation	14	13
10+ Employees	4	3,7	Opoortunistic	11	10
R&D Share in Company Budget			Number of State-Financed R&D Projects		
0%	12	11	0	54	51
%3 or less	31	29	1-3.	46	43
%4-6	30	28	4-10.	6	5,6
%7-9	17	16	10+	1	0,9
%10+	16	15			
Method of Obtaining Tech					
Self	13	12			
Licensing/patent/franchise agreements	1	0,9			
Joint Investments	17	16			
Technical aid/Know-how agreements	1	0,9			
Machine Imports	75	70			

According to survey findings, nearly all of the enterprises in two subsectors are SMEs and administered by owners. It becomes clear when looking at the number of employees that the enterprises have weak institutional structure and organised as microscale workshops. The enterprises have a policy that is foreign dependent regarding technological level as opposed to developing their own.

In the SME framework, the number of technicians and engineers are average. However only 20% of the enterprises employ 4 or more engineers/technicians is worth noting. Also in nearly all of the firms, there is a dominant culture of craftsmanship and engineering culture is recently developing.

Another finding is the enterprises do not develop state funded R&D projects. R&D support plays an important role in realising innovative ideas of enterprises. Sample enterprises of this survey are in production sector and very open to innovation and since there are no ongoing projects the enterprises either do not have R&D activities or facilitate their own resources while doing so.

Some suggestions for Konya machine production sector are

- Konya firms are already moving towards institutionalisation. However, to reach the desired level of growth they have to increase the number of qualified personnel, hand over the administration power to professionals and invest in R&D simultaneously. Having qualified personnel with graduate degrees is very important regarding the development of high-tech products and increase of innovation capacity.
- A disadvantage for Konya industry on the global level is the low level of cooperation between enterprises and the universities. In this framework, there arises a need for analysis regarding mutual expectations and establishing a trust based environment. With the increasing level of cooperation it is evident that the development of a knowledge sharing environment and new R&D projects by increasing the flow of information between enterprises and the academia. Also it is of strategic importance to industrialise the academic works and create new jobs and sectors through this process.
- Another method of innovation for Konya enterprises is reverse engineering. The products developed through this method is mostly an imitation of an imported good. The process should be turned towards an understanding of using reverse engineering to develop innovative technologies. Examining the examples of S. Kore, Taiwan and China, these countries developed their own technology through the facilitation of technology transfer and their own R&D activities, and gained advantage in competitiveness in global economy.
- Firms must focus on systematic R&D activities in the light of more competition and reducing costs and increasing effectiveness. R&D activities are the most important method in developing an innovative business. It is important for the firms to utilise scientific methods to commercialise R&D activities.

These findings might shed some light on similar studies focusing on different sectors. The only way to verify the validity of these findings for other sectors is to compare the findings of future studies. Studies to be conducted in different sectors will be able to determine the methods of technologic innovations and which technology transfer method is more valid, thus will provide important projections for relevant institutions.