

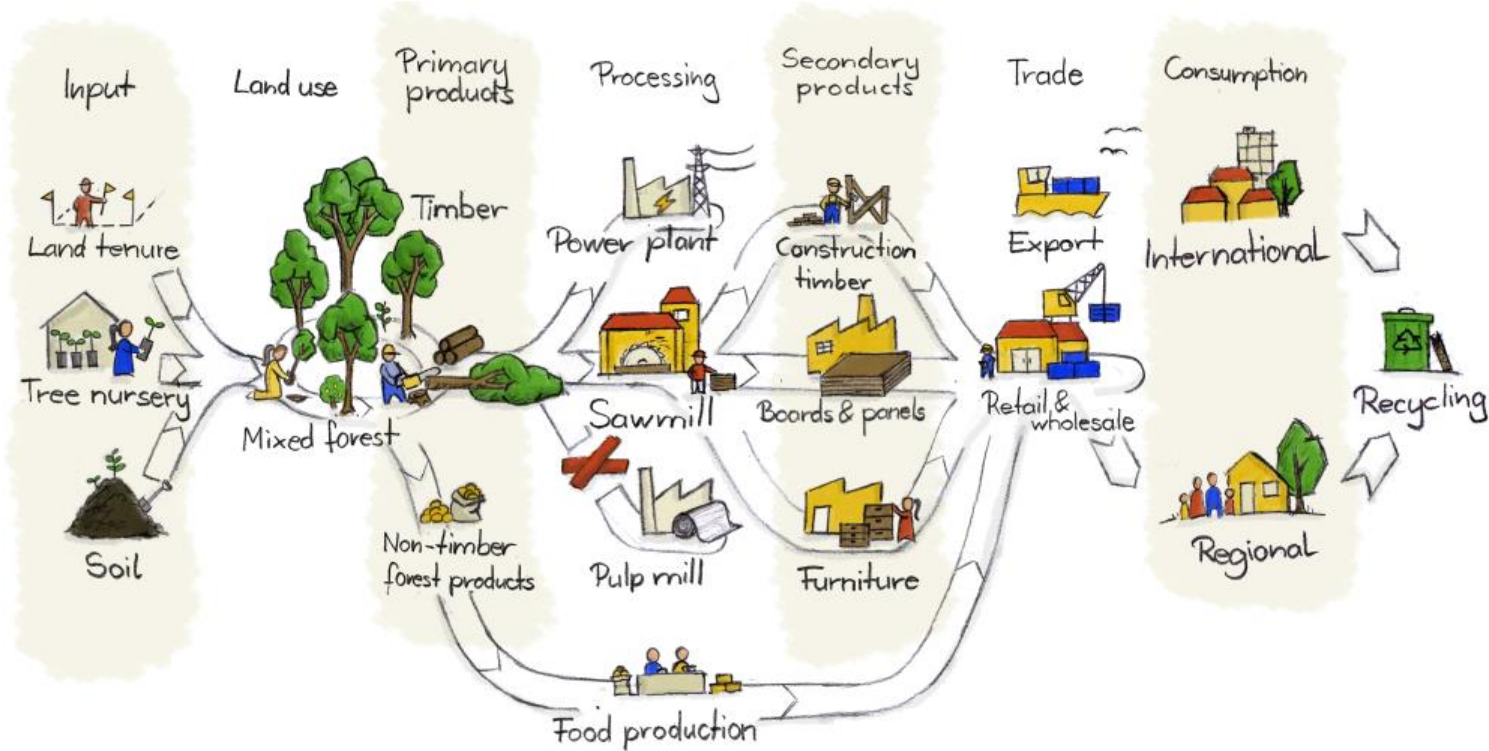
S
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Sustainable Local Economic Development

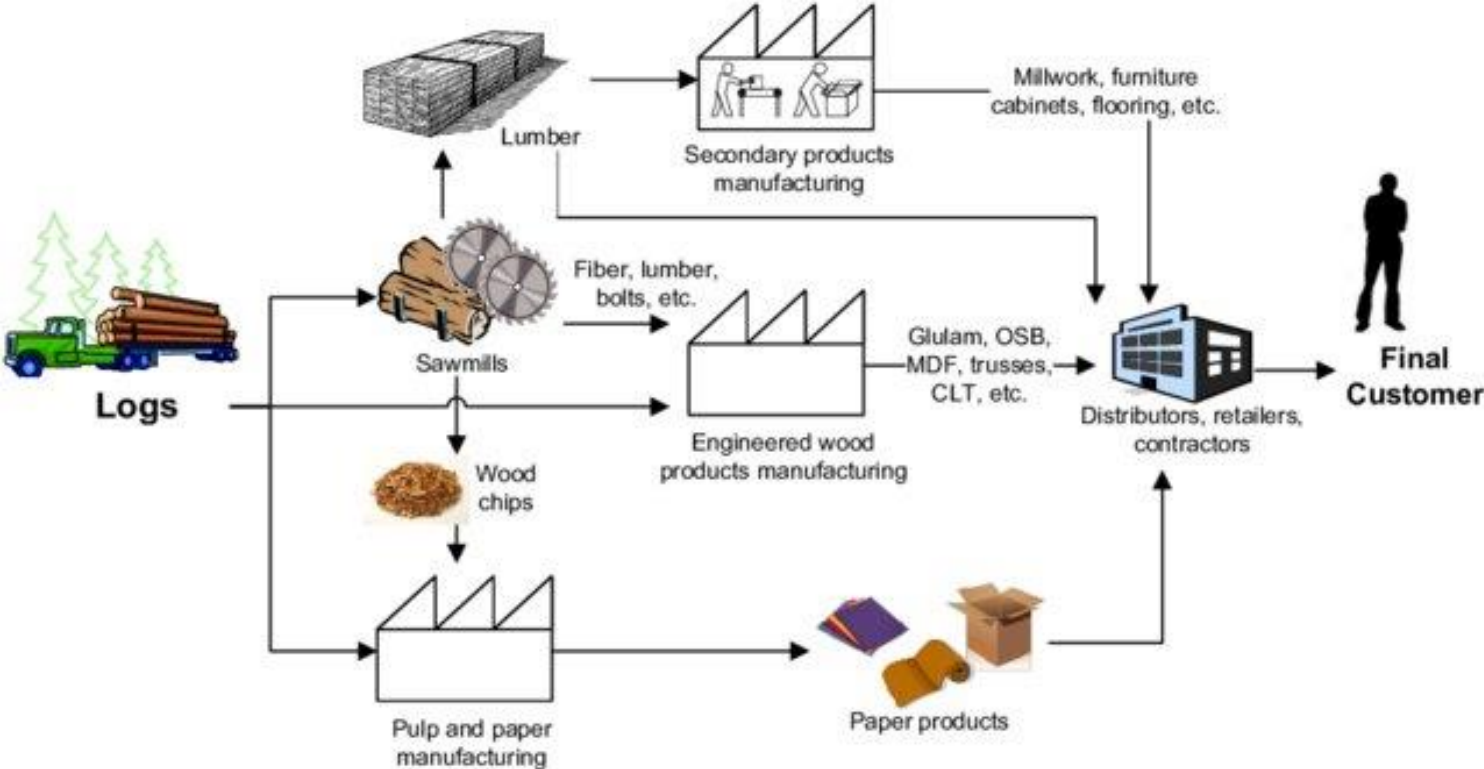
Clusters and value chains

Dr. Maksadjon Rizoeva

Value chain (1)



Value chain (2)



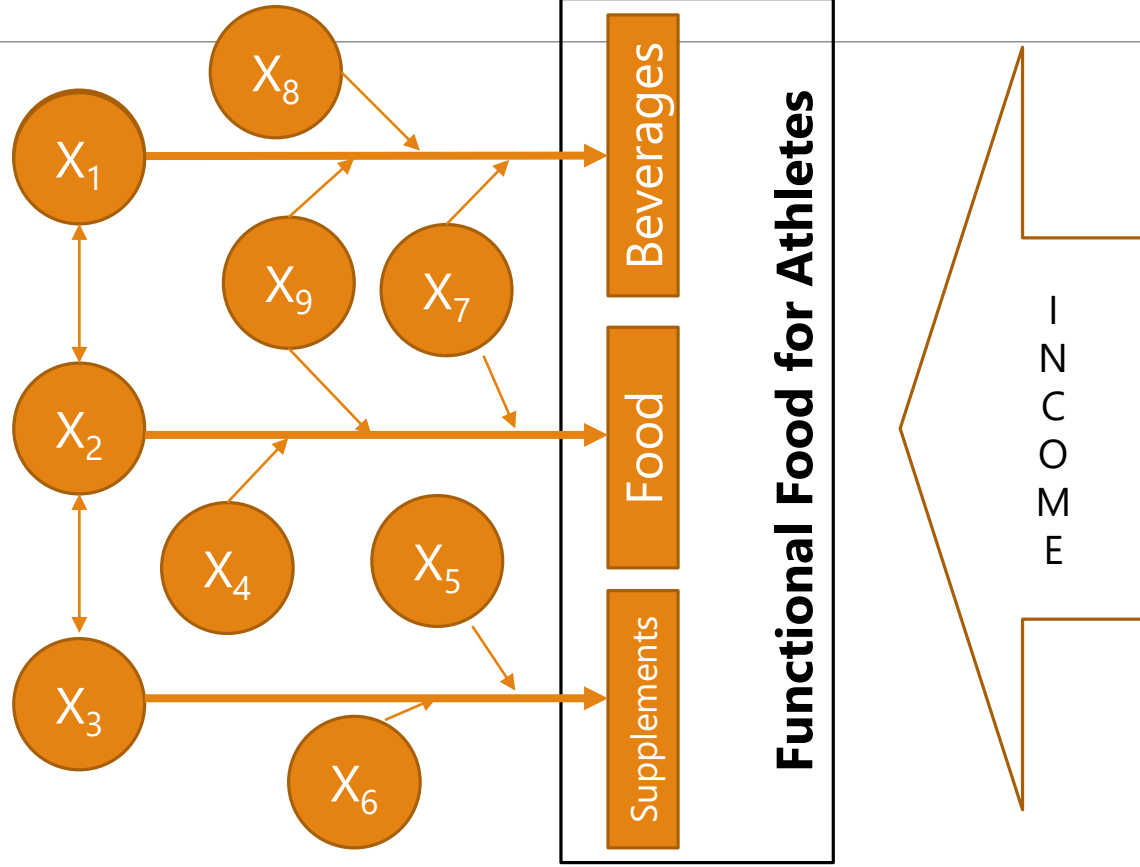
Value chain (3)

Product/Product group	Product owner	Product/Service value chain (ex.)							
		Conception	Product or service designer	Raw materials	Supply	Consulting	Production	Logistic
N1	X1	X1, X2, X3, X4, X5, X6	X1, X2	X1	X3	X4	X1	X1
N2	X3	X1, X2, X3, X4, X5, X6	X2, X3	X3, X6	X3	X4	X3	X2
N3	X1	X1, X2, X3, X4, X5, X6	X1, X2	X1, X2, X3	X3	X4	X1	X1
N4	X6	X1, X2, X3, X4, X5, X6	X2, X6	X5, X6	X3	X4	X6	X2
.....
Nn	X1	X1, X2, X3, X4, X5, X6	X1, X2	X1, X4	X3	X4	X1	X1

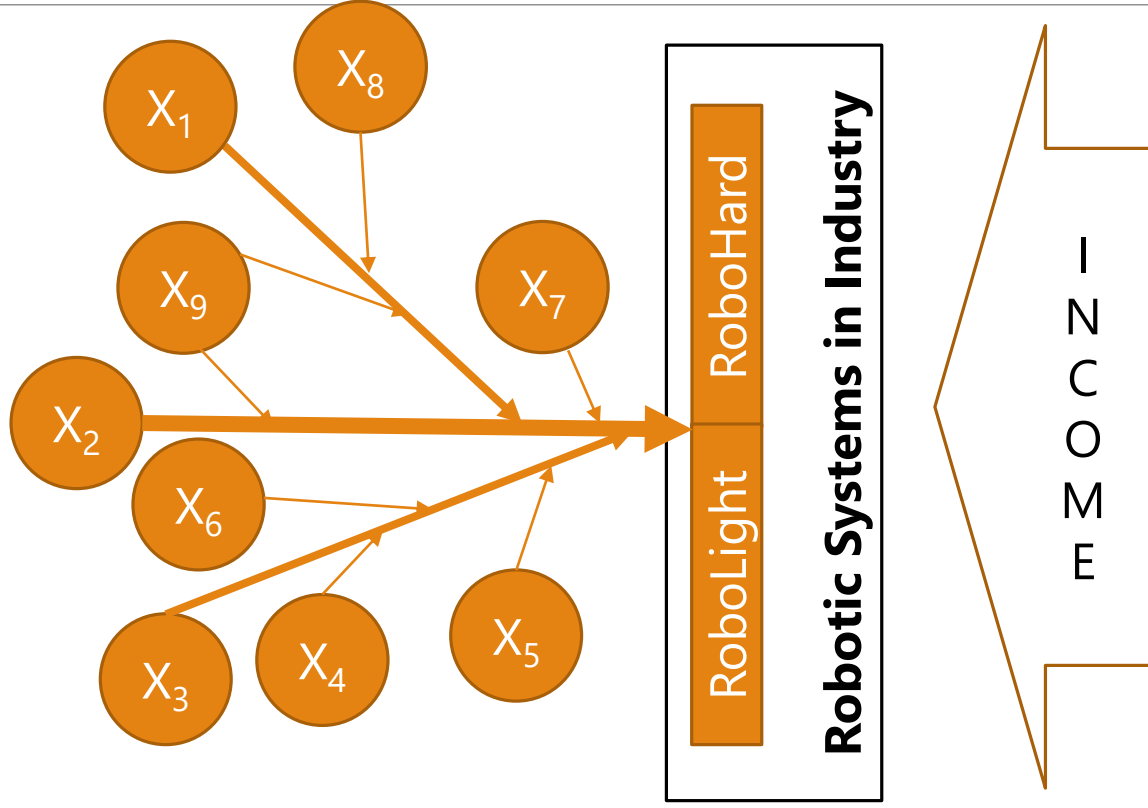
MTEP

X1, X2, ..., Xn – klasterio nariai

Value chain(4)



Value chain (5)



Value chain (6)



EU PRIORITIES 2030



Circular economy

Digitization

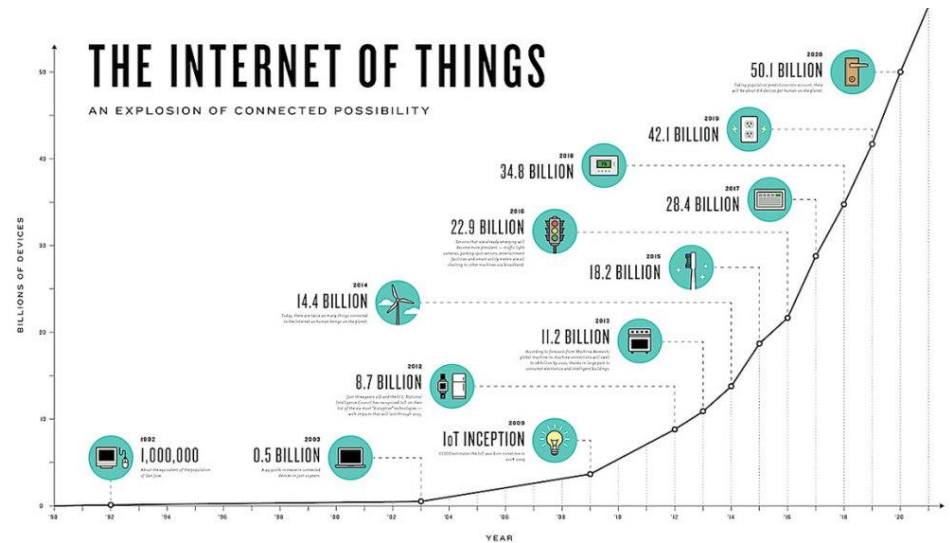
Sectors:

- **MANUFACTURING**
- **HEALTH**
- **AGRICULTURE**
- **ENERGETICS**

Industry 4.0

*We are on the brink of revolution, which will change the way we **live, work** and **communicate**.*

*Humanity has so far experienced nothing similar to its fourth industrial revolution in **size** and **complexity***



Industry 4.0: digitization technologies

IMPLANTATION TECHNOLOGIES

VIRTUAL REALITY

VISION CONNECTION

NEUROTECHNOLOGIES

SUPER COMPUTER IN POCKET

Internet of Things **BIG DATA DECISION MAKING**

BIG DATA

Year	Average Price of a Gigabyte (\$)
2000	200
2001	100
2002	70
2003	55
2004	45
2005	35
2006	25
2007	20
2008	18
2009	17
2010	16
2011	15

Well connected Chris Dancy's gadgets

- Google Glass**: Manu-controlled eyeglasses computer with optical head-mounted display and similar functionality to smartphone.
- Narrative camera**: Projected to chest, takes photos when you speak or through a wrist-mounted interface.
- Brain HR**: Head rate monitor.
- Public locks**: Locks and alarms can be controlled from anywhere.
- LeapMotion**: Allows you to interact with your environment just as you would in a physical world.
- iPhone SE**: Paper-thin to protect and control your phone.
- Fitbit**: Move motivated, more measured, more personal, personal performance.

SMART HOME SMART CITIES

SELF-PROPELLED AUTOMOBILES

ROBOTIC SERVICES, HUMAN - MACHINE CONNECTION

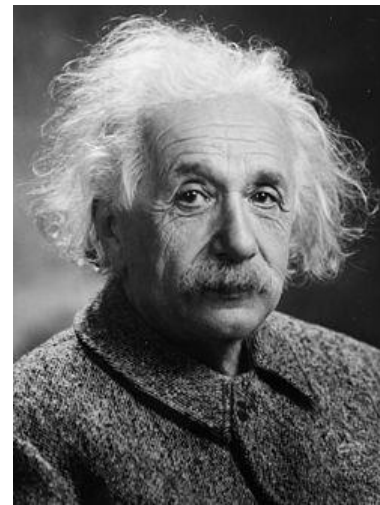
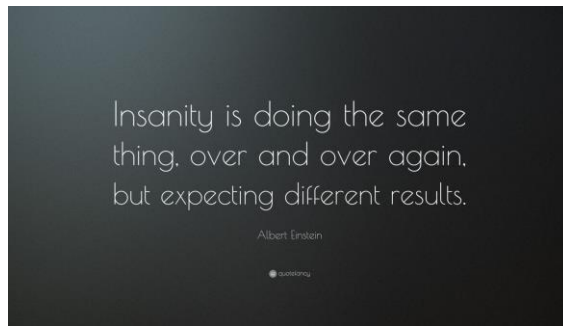
3D PRINTING

PARTICIPATING ECONOMY

WORLD WIDE WEB IN CLOTHES

SOURCE: WORLD ECONOMIC FORUM, 2016

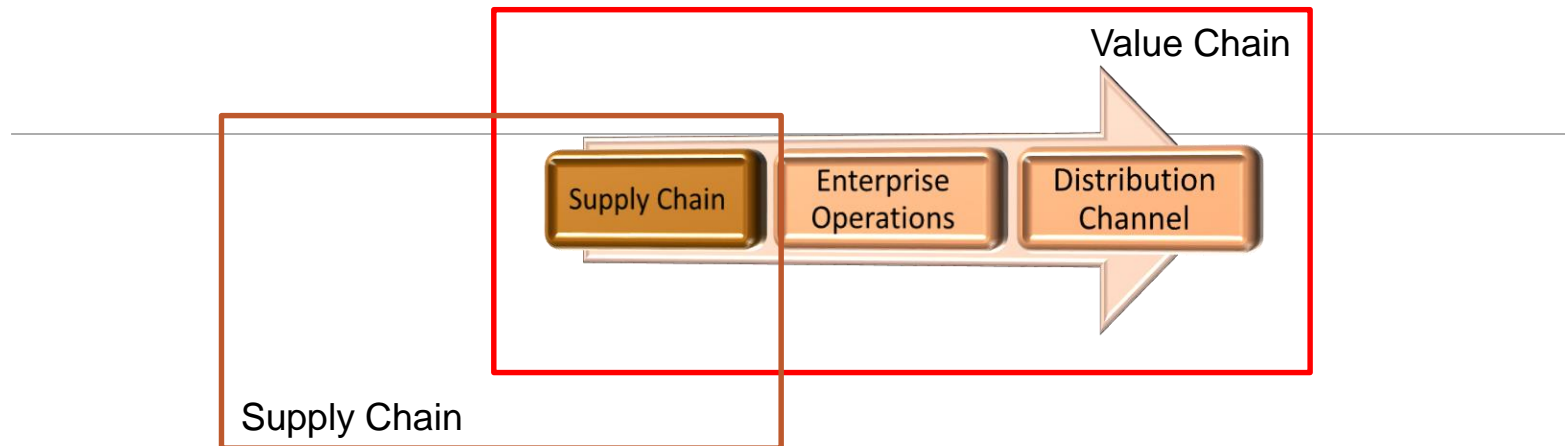
Insanity is doing the same thing, over and over again, but expecting different results.



What is value & supply chain analysis ?

THE VALUE CHAIN APPROACH CONSIDERS A BROAD MARKET SYSTEM AND THE DEVELOPMENT OF PRODUCTS/SERVICES FROM INPUT SUPPLIERS TO END-MARKET BUYERS.

THE VALUE CHAIN DIFFERS FROM A SUPPLY CHAIN IN ITS EMPHASIS ON CREATING VALUE IN EACH SEGMENT OF THE CHAIN.



Why VCA-SCA ?

TYPICAL CLUSTER PROJECT ANALYSES FOCUS

- TO ASSESS DIRECT AND INDIRECT **SYNERGIES AMONG THE CLUSTER MEMBERS**, WHICH MAY OR **MAY NOT INCLUDE** ENTIRE VALUE CHAIN, IN A GEOGRAPHIC LOCATION,

VCA-SCA ANALYSES FOCUS

- TO DETERMINE THE VALUE ADDED ALONG THE STAGES OF THE VALUE CHAIN, **REGARDLESS OF LOCATION** TOGETHER WITH THE THE COST OF PRODUCTION, THE INCOME AND MARGINS OF CHAIN MEMBERS
- TO MAKE **BENCHMARK OF THE IMPORTANT PARAMETERS OF THE CHAIN** WITH THOSE OF COMPETING CHAINS IN OTHER COUNTRIES

VCA-SCA methodology of SME Networking Project

Sector Choice

- Thanks for Economic Analysis

6
STEPS

Value Chain Mapping

- Industry Structure, Chain Members

Analysis of Performance Gaps

- Barriers, Competition, Trends

Market Analysis

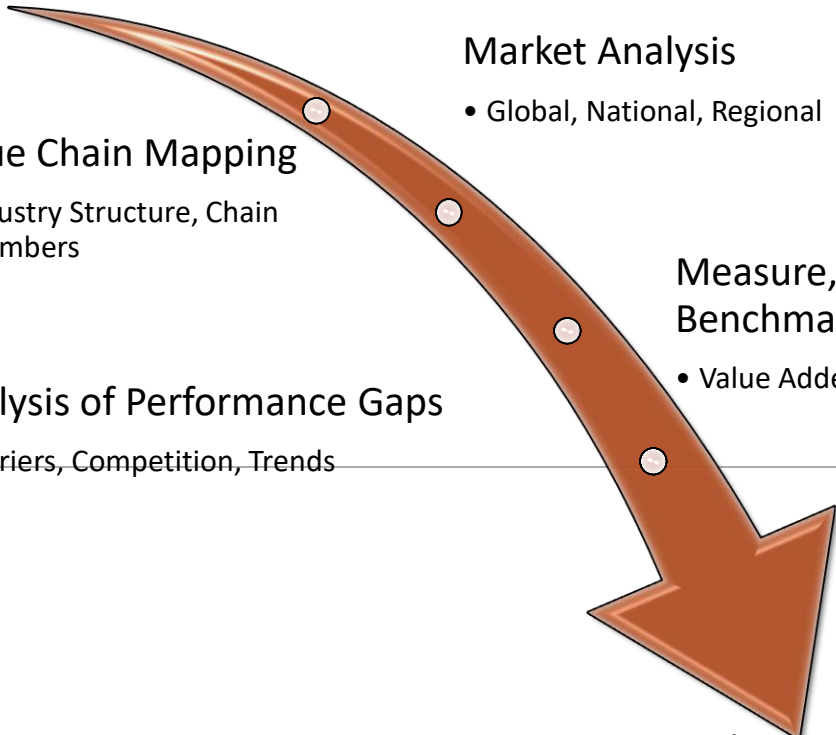
- Global, National, Regional

Measure, Performance, Benchmark

- Value Added, Productivity

Recommendations

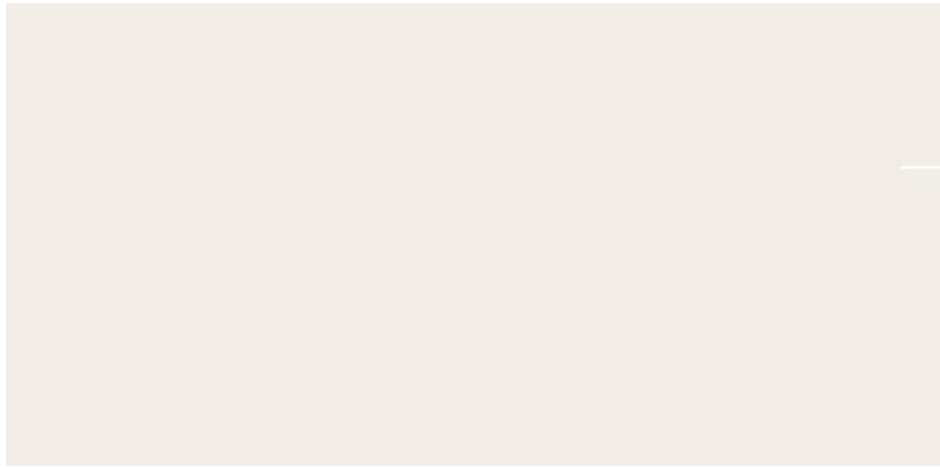
- Industry Upgrade Plan



VCA-SCA methodology of SME Networking Project

- MAPPING ACTORS AND PRODUCT FLOWS IN THE VALUE CHAIN
- ANALYZING COSTS, MARGINS AND COMPETITIVENESS
- IDENTIFYING MARKETING OPTIONS AND RESPONSES TO MARKET

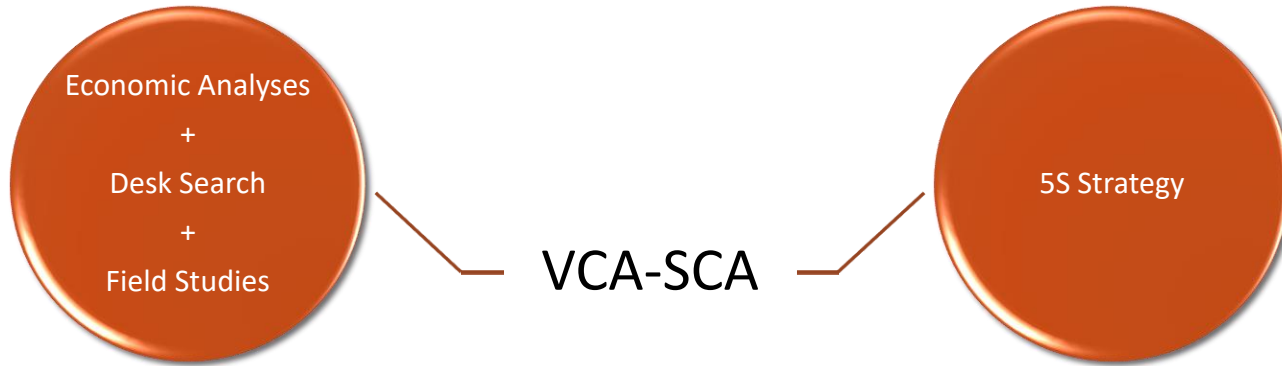
REQUIREMENTS AND QUALITY STANDARDS
- ANALYZING GOVERNANCE AND LINKAGES
- ANALYZING OPTIONS FOR DEVELOPMENT, INNOVATION AND



VCA-SCA

SME Networking Project

Inputs, Outputs and Resources



Resources:

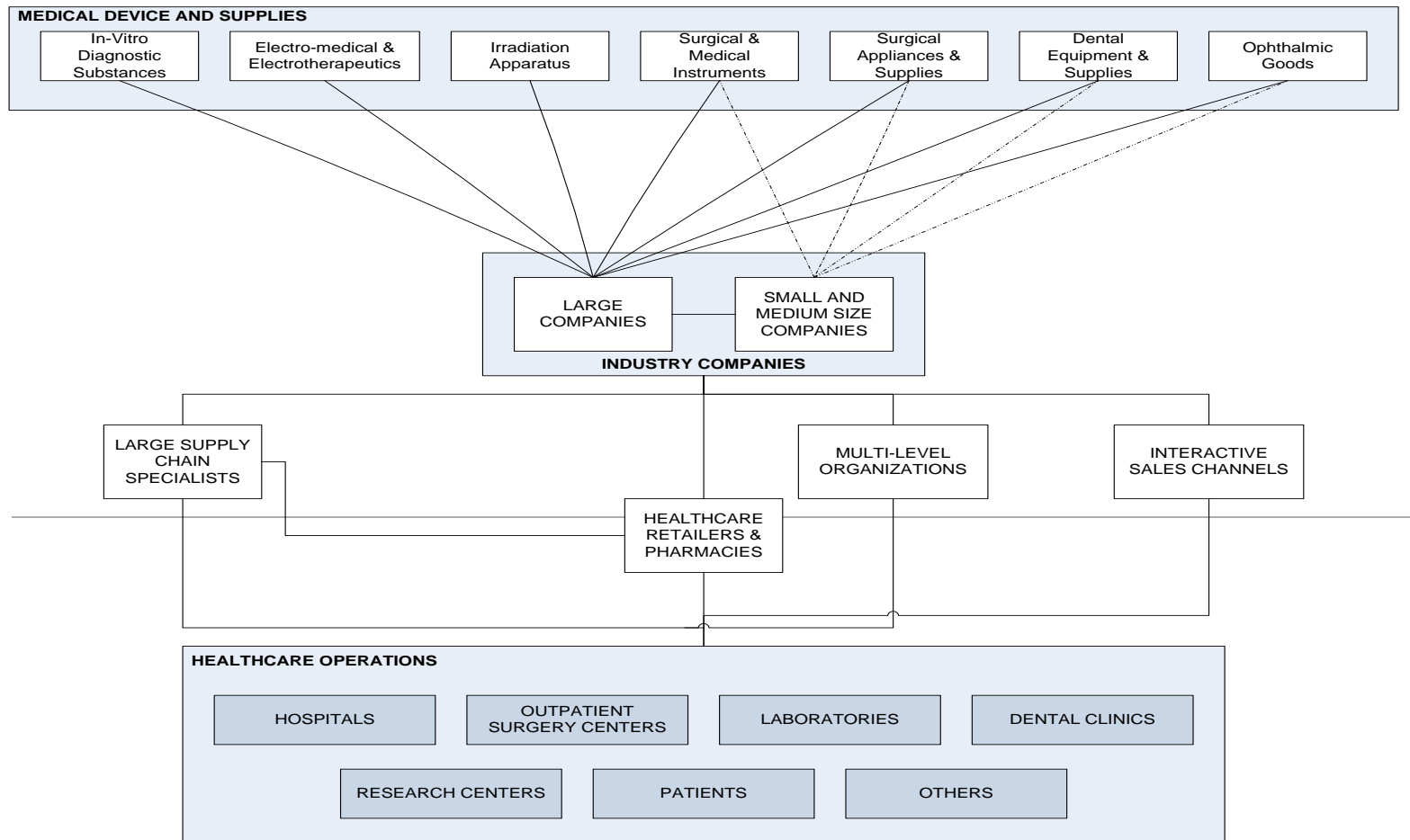
-
- 3 Senior STE
 - 5 Junior STE
 - 5 CISC

The Region



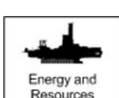
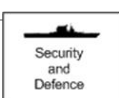
Industry Structures

VCA-SCA



Industry Products

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● = Made in Trabzon

Global Players, Leading Companies & Trends

VCA-SCA

'843710 Parts of clean/sort mach etc for seed/grain ...mill/working of cereal excluding farm-type

Exporter	2007	2008	2009	2010	RANK
United Kingdom	80.538.590	88.584.933	107.758.069	134.149.059	1
Denmark	38.279.967	49.181.769	39.067.258	34.375.045	2
Germany	32.946.000	40.357.000	35.001.000	46.876.438	3
USA	28.653.163	40.612.203	38.906.898	36.622.416	4
Rep. of Korea	24.720.937	39.283.401	39.745.445	40.890.060	5
China	23.349.058	23.490.848	32.805.154	48.184.528	6
Japan	28.917.885	26.672.864	31.937.196	25.408.068	7
Brazil	14.110.908	23.210.503	19.025.125	28.972.005	8
Spain	16.773.395	24.806.958	15.464.056	0	9
Italy	11.892.977	0	0	36.200.279	10

Company Name	Country	Web Site	Turnover (USD)	Number of Employees	Other Information
Daewoo Shipbuilding	S. Korea	http://www.dsme.co.kr/pub/main/index.do	11.4 Billion	25.000	Established in 1978
Dalian Shipbuilding Industrial	China	http://www.dsic.com.cn/English/AboutDSIC/introduction/	9.9 Billion ¹⁷	150.000	Established in 1898
Samsung Heavy Industries	S. Korea	http://www.shi.samsung.co.kr/eng/	8.4 Billion	12.481	Established in 1974
Hyundai Heavy Industries	S. Korea	http://www.hhiir.com/EN/company/usa/Park_01.asp	8.0 Billion	N/A	Established in 1972
Huntington Ingalls Industries	USA	www.huntingtoningalls.com/index	6.0 Billion	38.000	Established in 1887
Hyundai Samho Shipyard	S. Korea	http://www.hshi.co.kr/e_main/index.asp	3.7 Billion	11.000	Established in 1992
STX Shipyard	S. Korea	http://www.stx.co.kr/Front/	2.8 Billion	N/A	Established in 1976
Tsuneishi Zosen	Japan	http://www.tsuneishi.co.jp/english/corporate/outline.shtml	2.6 Billion	9.220	Established in 1917
Jiangsu Rongsheng	China	http://www.rshi.cn/en/	2.5 Billion	18.000	Established in 2006
Thyssen Krupp Marine	Germany	http://www.thyssenkrupp-marinesystems.com/	2.1 Billion	8.900	N/A
Dry Docks World	U.A.E.	www.drydocks.gov.ae	2.0 Billion	5.600	N/A
General Dynamics	USA	http://www.nassco.com/	1.8 Billion	3.300	Established in 1960
Damen Shipyard	Netherlands	www.damen.nl	1.8 Billion	6.000	Established in 1927
Imabari	Japan	http://www.imazo.co.jp/english/e_index.html	1.2 Billion	N/A	Established in 1942
Sungdong Shipbuilding	S. Korea	http://www.sdhi.co.kr/	0.9 Billion	N/A	Established in 2001
Oshima S.B. Co	Japan	http://www.osy.co.jp/english/	0.8 Billion	1.635	Established in 1973
Hakodate Dock	Japan	www.hakodate-dock.co.jp	0.5 Billion	1.045	Established in 1896
Ferretti	Italy	www.ferretti-yachts.com	0.5 Billion	2.000	Established in 1968
Jiangnan Changxing	China	http://jnsipyard.cssc.net.cn/	N/A	10.500	Established in 1865
Hyundai Mipo Dockyard	S. Korea	http://www.hmd.co.kr/english/02/02.php	N/A	N/A	Established in 1975

PURCHASING DRIVERS

- Energy Efficiency
- Easy and Inexpensive Maintaining Operations
- Automated and Minimized Labor Usage

National / Regional Industry Companies & Employment

CITY	No of Company (TOBB Registered)	% of Column 1	No of Company (TESK Registered)	Total No of Industry Companies	% of Column 4	Employment at TOBB Registered Companies	Employment at TESK Registered Companies	Total Industry Employment	% of Total Industry Employment
ANKARA	7	5,9	5	12	6	134	57	191	4,2
ANTALYA	1	0,8	1	2	1	30	13	43	0,9
BALIKESİR	1	0,8	1	2	1	17	7	24	0,5
ÇORUM	28	23,5	19	47	24	804	341	1.145	25,4
DENİZLİ	2	1,7	1	3	2	16	7	23	0,5
EDİRNE	1	0,8	1	2	1	16	7	23	0,5
ESKİŞEHİR	4	3,4	3	7	3	84	36	120	2,7
GAZİANTEP	12	10,1	8	20	10	218	92	310	6,9
MERSİN	4	3,4	3	7	3	162	69	231	5,1
İSTANBUL	2	1,7	1	3	2	20	8	28	0,6
İZMİR	3	2,5	2	5	3	90	38		
KIRŞEHİR	1	0,8	1	2	1	19	8		
KOCAELİ	1	0,8	1	2	1	6	3		
KONYA	41	34,5	28	69	34	1.294	548		
MALATYA	1	0,8	1	2	1	4	2		
RİZE	1	0,8	1	2	1	27	11		
SAKARYA	1	0,8	1	2	1	18	8		
SAMSUN	1	0,8	1	2	1	37	16		
AKSARAY	2	1,7	1	3	2	95	40		
KARAMAN	5	4,2	3	8	4	70	30		
TOTAL	119	100	81	200	100	3.161	1.339		

$$\text{Location Quotient} = \frac{(\text{Regional Cluster Employment} \div \text{Total Regional Employment})}{(\text{National Cluster Employment} \div \text{Total National Employment})}$$

$$\text{Location Quotient (2011)} = \frac{(1.145 \div 56.695)}{(4.500 \div 11.030.939)}$$

LQ = 49,5

Çorum Grain Milling Machinery Industry at a Glance	
Number of Companies	47 ¹³
Number of Employees in the companies	1.145
Turnovers of Regional Industry Companies (2010)	77 Million USD
Industry's Exports from the Region (2011 Total)	50 Million USD

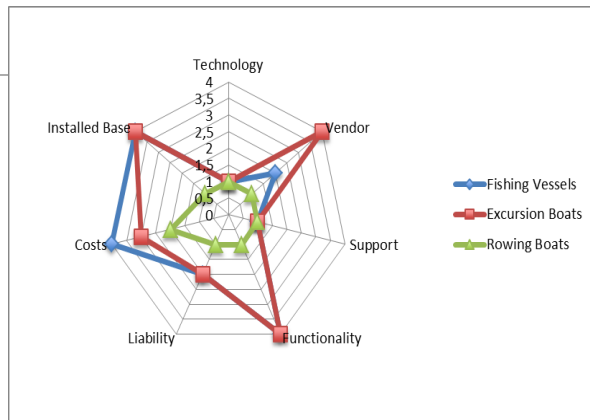
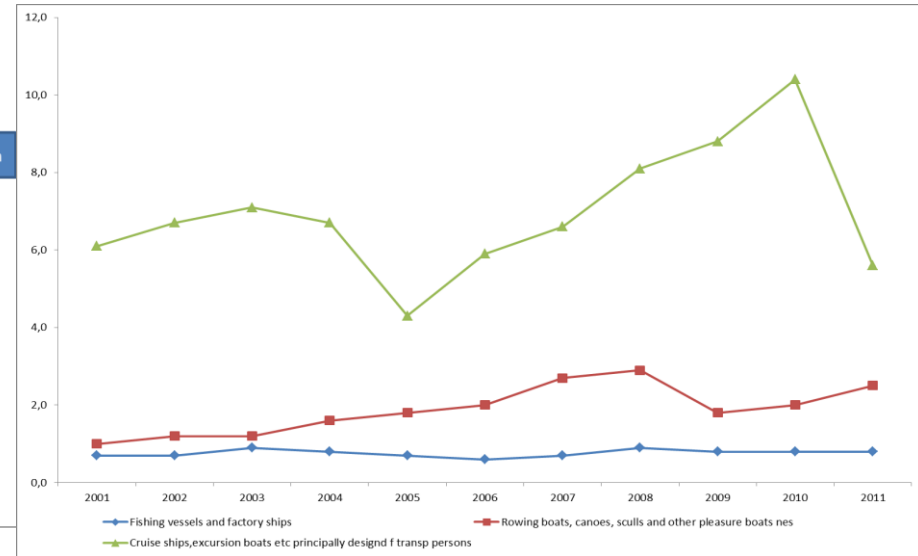
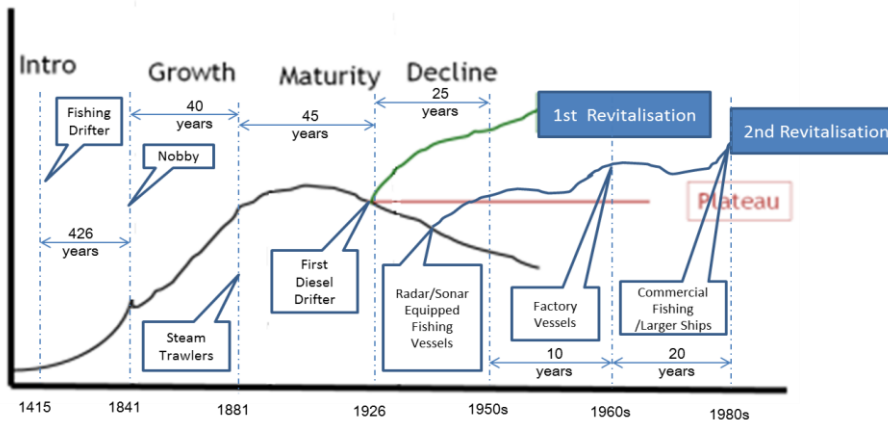
Foreign Trade

VCA-SCA

TURKEY'S EXPORTS TO WORLD (X 1.000 USD)		2007	2008	2009	2010	2011	Growth (CAGR 2007-2011)
'890110	Cruise ships, excursion boats etc principally designed f transp persons	12.473	87.501	44.075	12.804	12.993	1,03%
'890120	Tankers	992.361	1.552.836	802.545	441.709	476.340	-16,76%
'890130	Refrigerated vessels other than tankers	0	6.650	0	0	0	N/A
'890190	Cargo vessels nes&oth vessels for the transport of both persons goods	576.788	513.727	430.470	234.778	333.594	-12,79%
'890200	Fishing vessels and factory ships	12.625	10.494	8.162	1.445	22.245	15,21%
'890310	Inflatable pleasure craft	1.516	1.606	732	1.024	1.411	-1,78%
'890391	Sailboats, with or without auxiliary motor	50.783	67.312	115.355	56.410	36.130	-8,16%
'890392	Motorboats, other than outboard motorboats	64.156	165.931	97.659	146.178	200.091	32,89%
'890399	Rowing boats, canoes, sculls and other pleasure boats nes	12.108	27.971	19.337	8.457	13.900	3,51%
'890400	Tugs and pusher craft	64.305	170.906	227.688	150.348	53.918	-4,31%
'890510	Dredgers	0	0	0	18	0	N/A
'890520	Floating or submersible drilling or production platforms	0	0	4.310	12.384	45.784	80,53%
'890590	Floating docks and vessels which perform special functions	877	32	17.195	729	364	-19,74%
'890600	Warships, lifeboats, hospital ships and vessels nes	0	0	0	0	0	N/A
'890610	Warships of all kinds	0	0	0	0	0	N/A
'890690	Vessels, incl. lifeboats (excl. warships, rowing boats and other vessel	26.776	36.162	52.301	33.760	72.454	28,26%
'890710	Inflatable rafts including those for carrying shipwrecked persons	6	124	75	62	146	122,10%
'890790	Buoys, beacons, coffer-dams, pontoons and other floating structures	2.773	5.528	1.887	14.107	4.546	13,15%
'890800	Vessels and other floating structures for breaking up	16	2	4.012	0	0	N/A
TOTAL		1.817.563	2.646.782	1.825.803	1.114.213	1.273.916	-8,50%

Product Life Cycle Analysis

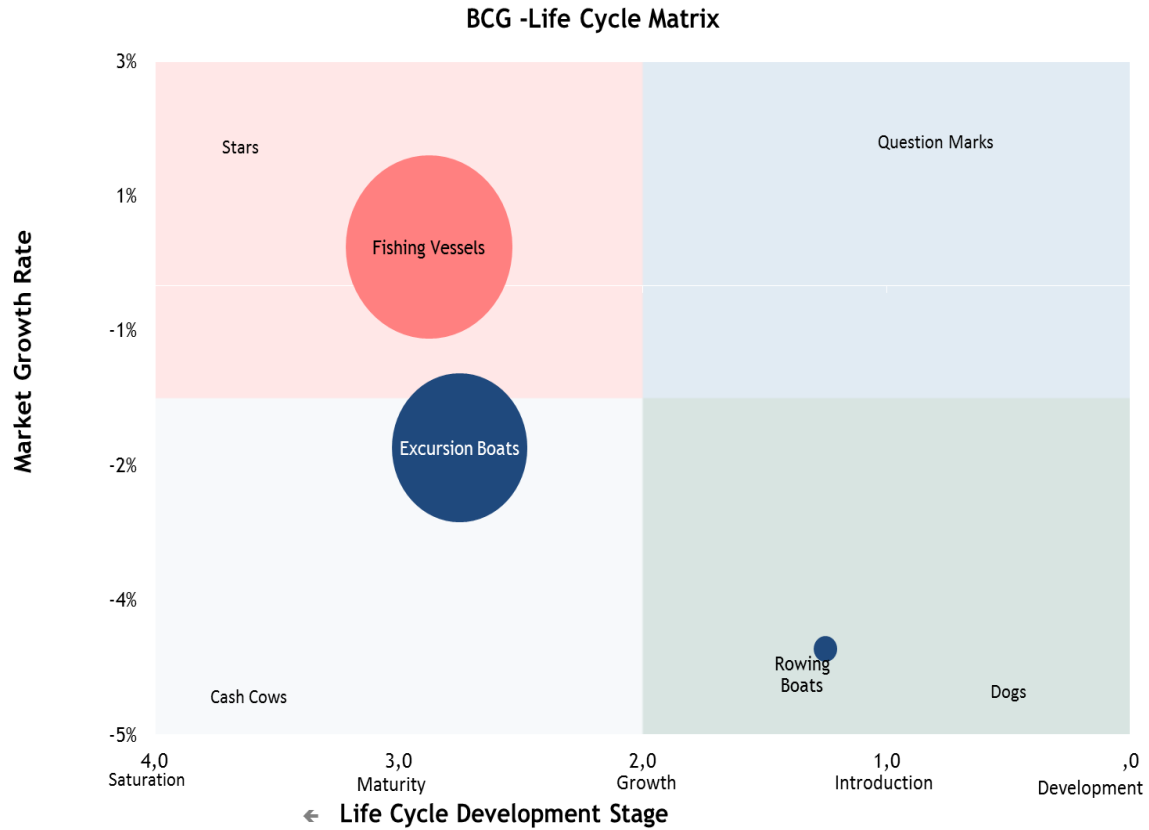
VCA-SCA



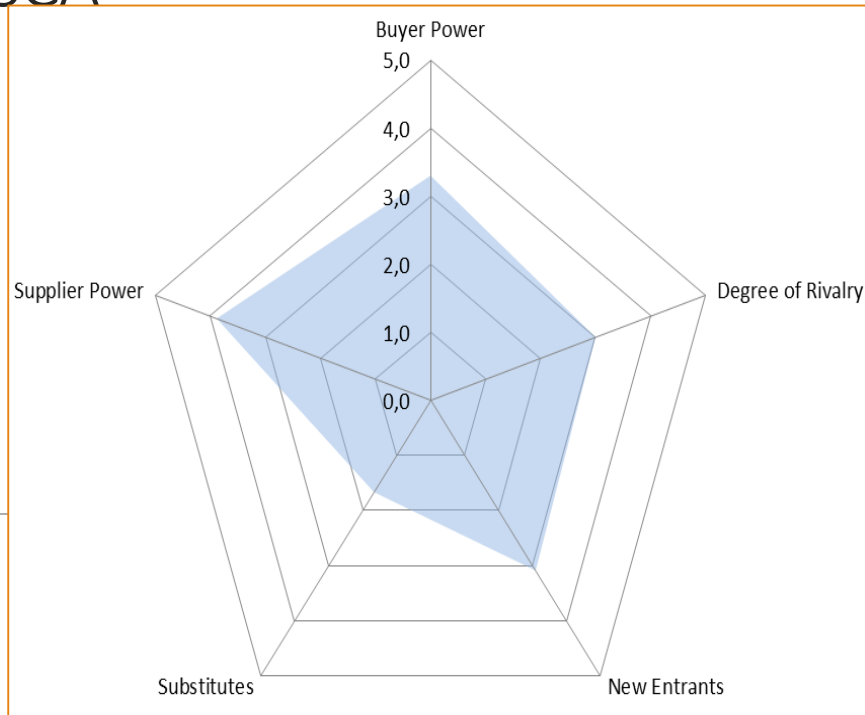
Product Life Cycle Stage Comparison

Product Life Cycle Analysis

VCA-SCA



Five Force Analysis VCA-SCA



Summary Forces Driving competition in the shipbuilding market in Turkey, 2012

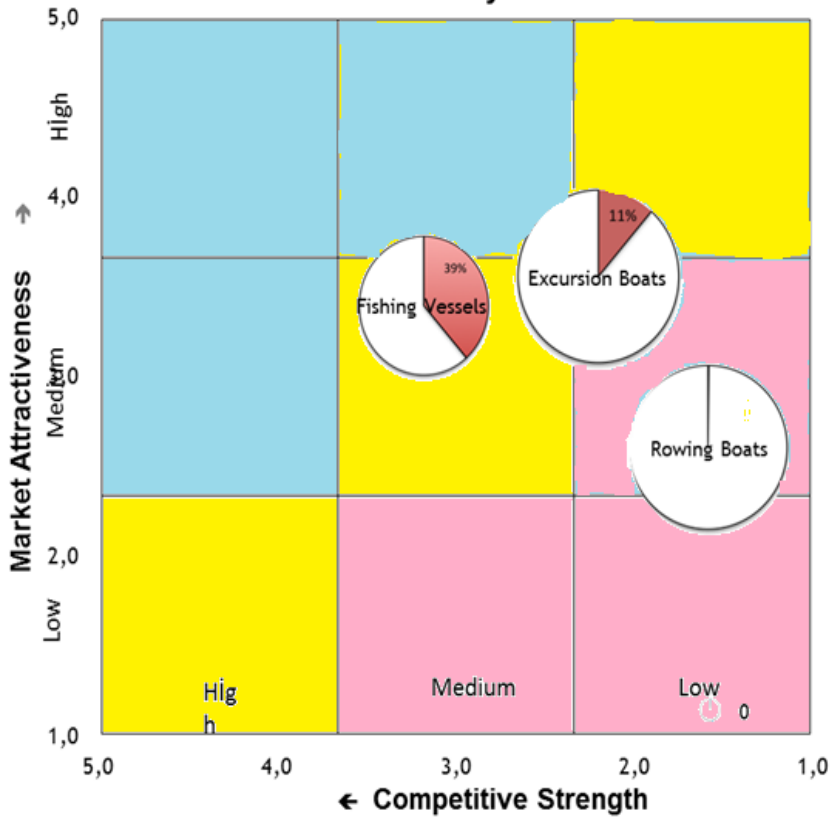
3,0 Acceptable Attractiveness

Buyer Power	3,3	1	low/weak
Degree of Rivalry	3,0	2	
New Entrants	3,1	3	standard
Substitutes	1,7	4	
Supplier Power	3,9	5	high/strong

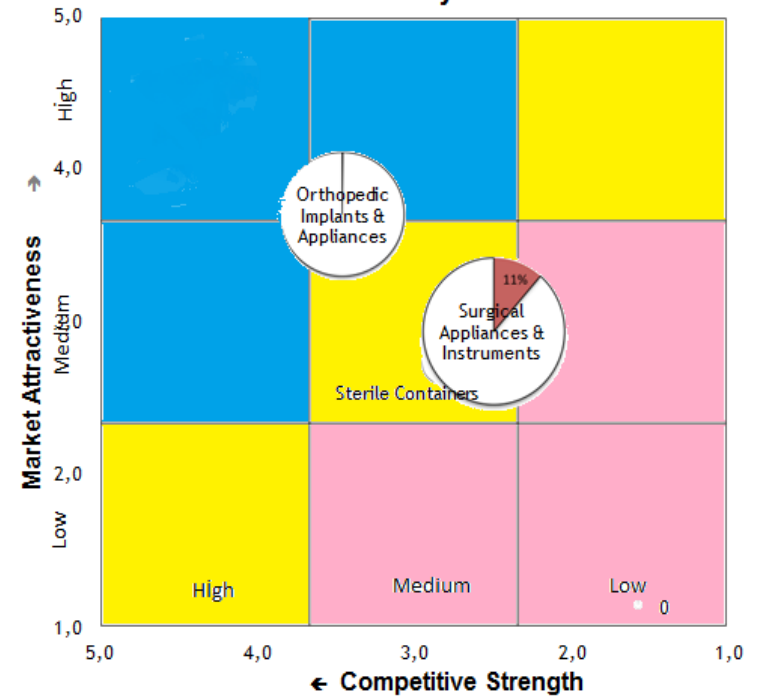
GE /McKinsey Matrix Analysis

VICA COA

GE / McKinsey Matrix

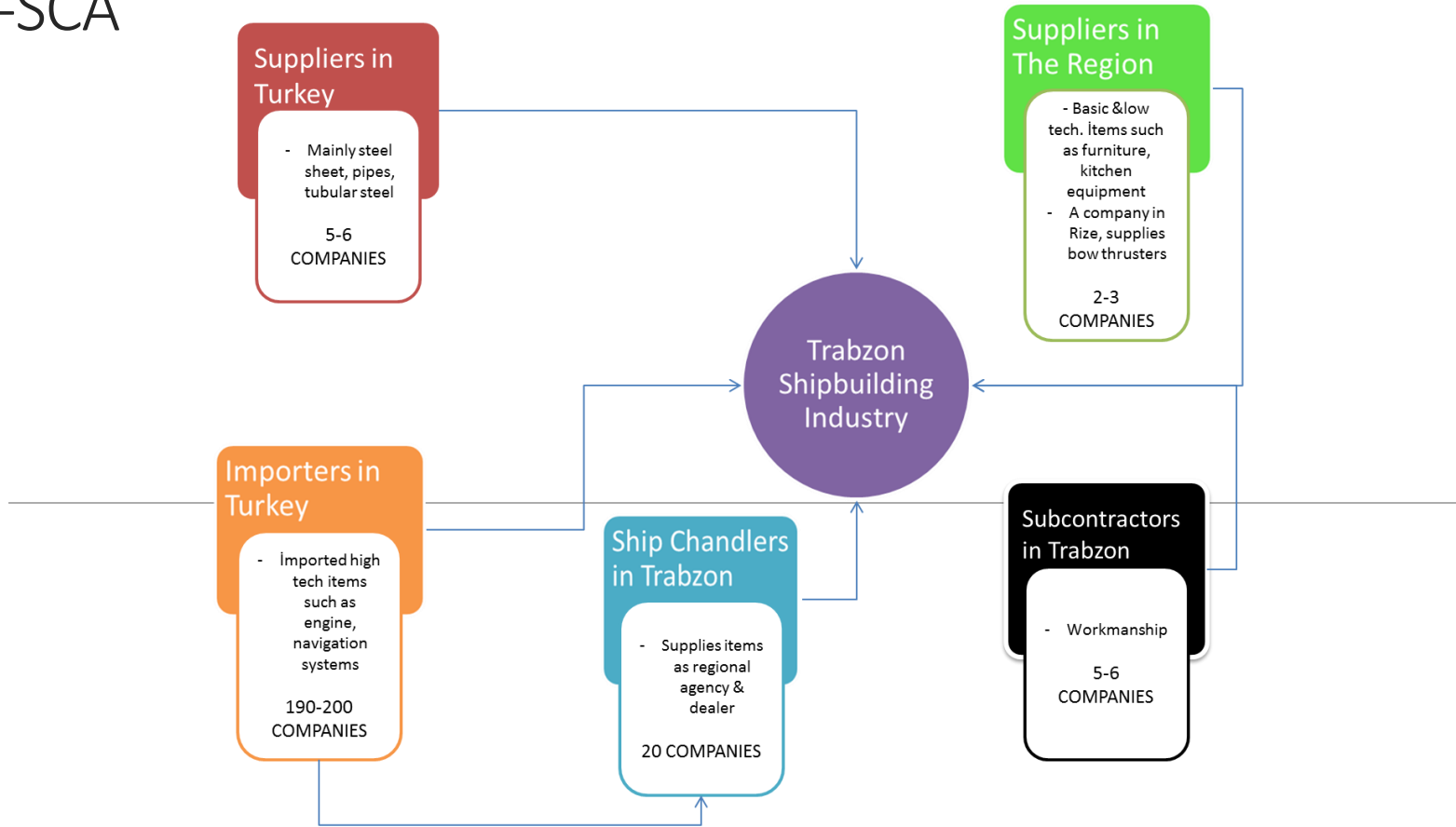


GE / McKinsey Matrix

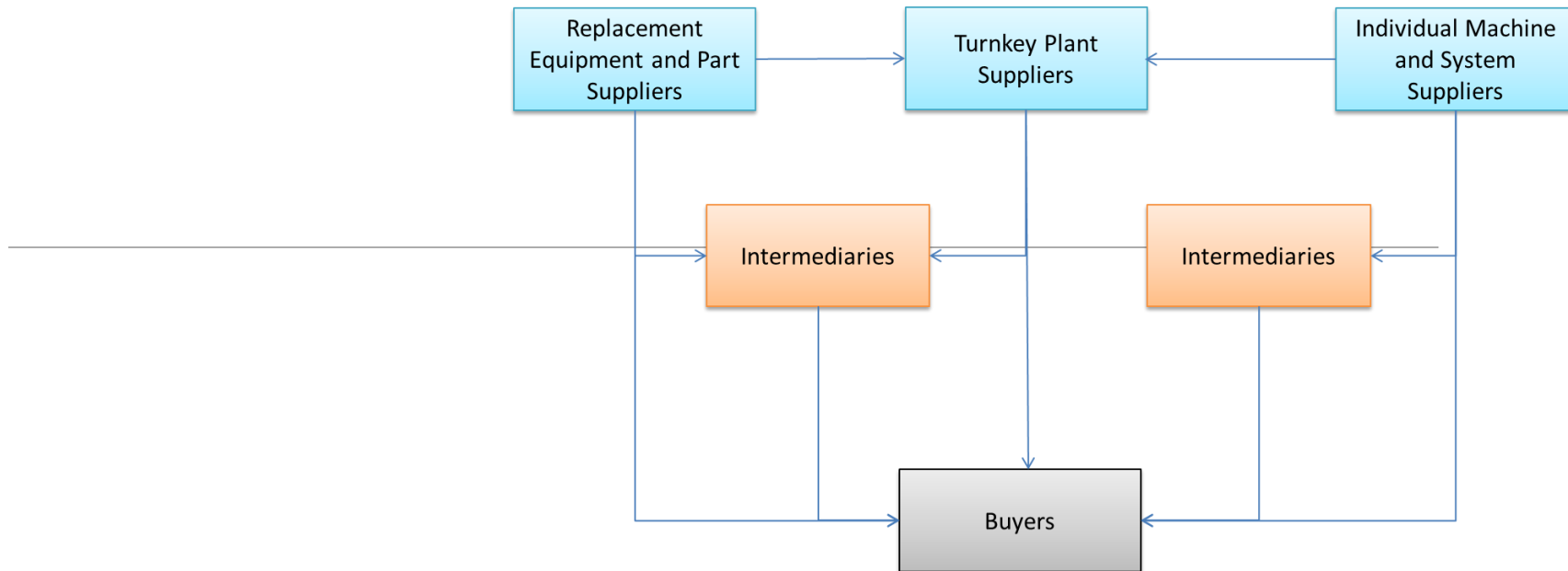
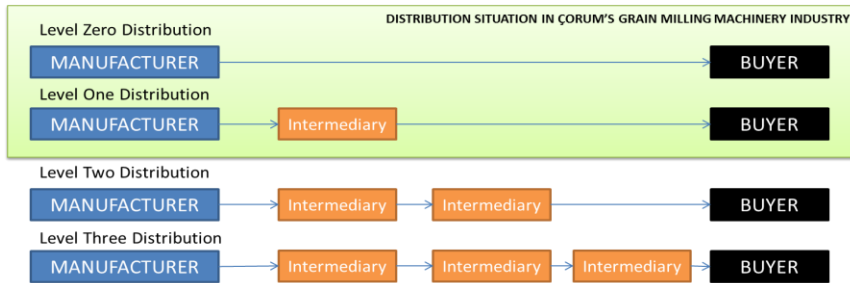


Supply Chain Structure

VCA-SCA



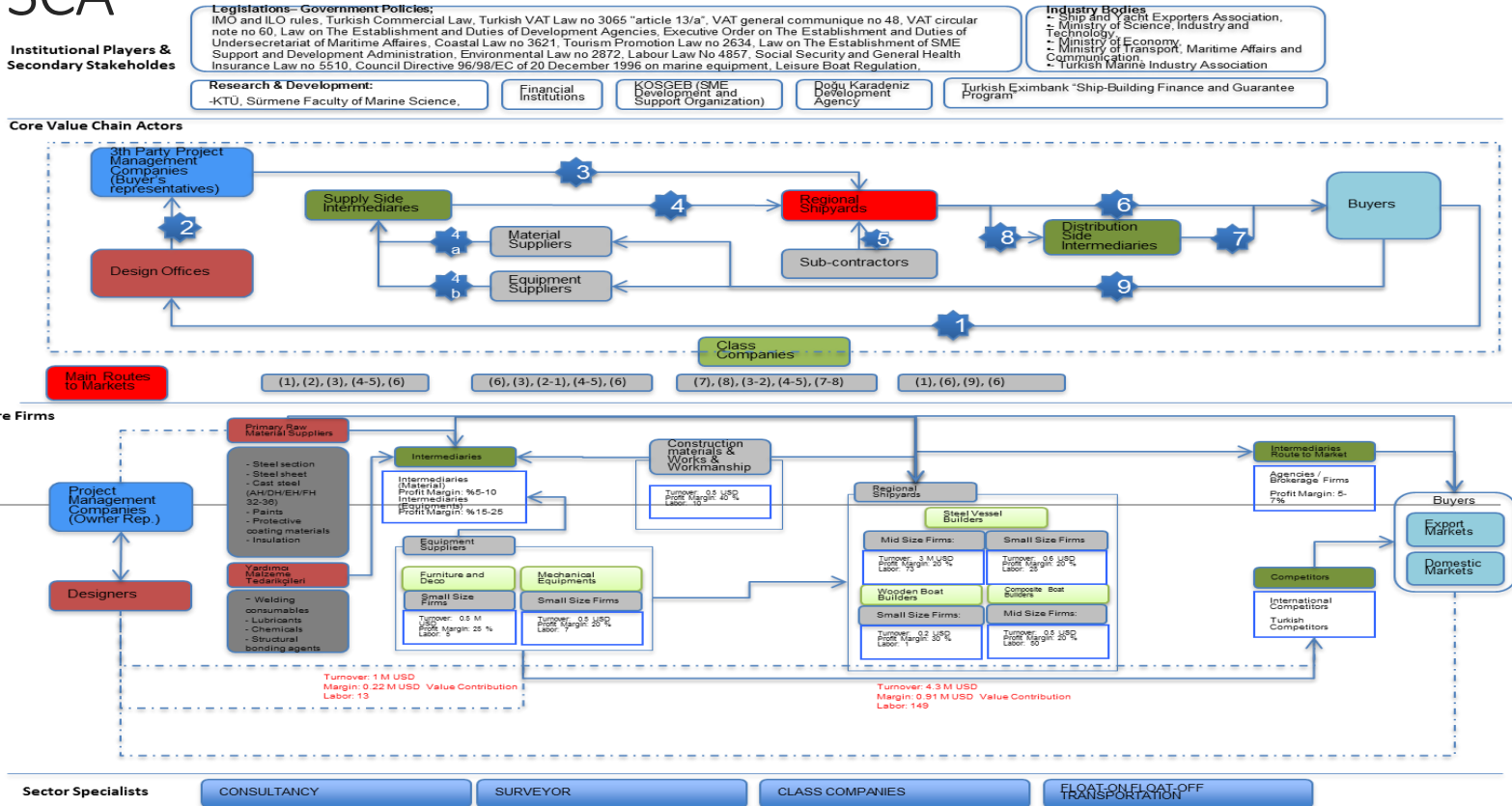
Distribution Channel Structure



Cluster Eco-system and Value Chain Map

VCA-SCA

Trabzon Shipbuilding Cluster Ecosystem and Value Chain



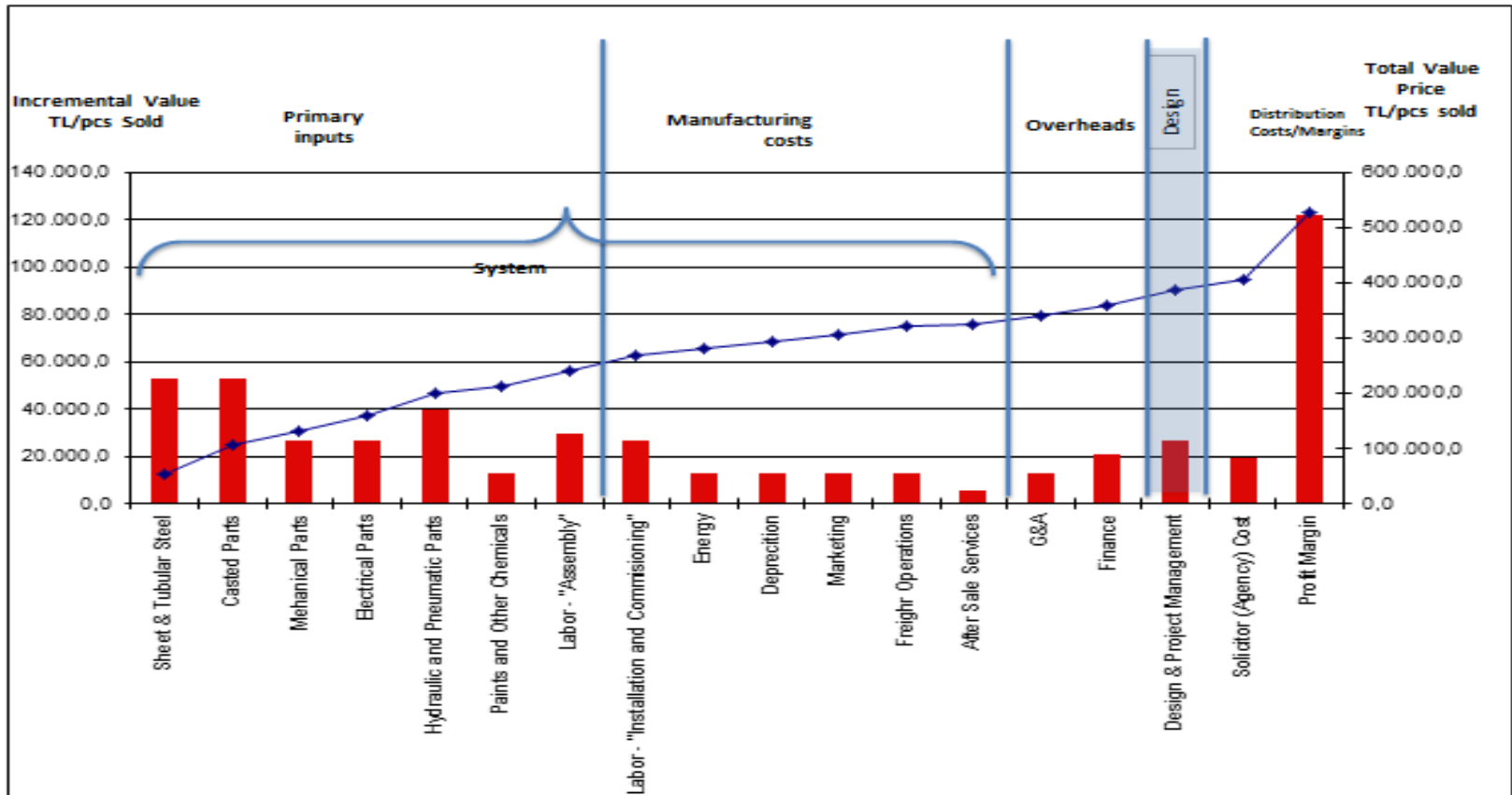
Value Added Operations

VCA-SCA

Chain	Value source	Value type detail	Value Type	Value Chain Item	Unit Value	Cum Unit Value	Cumulative in rep %	Sub item bdown	Sales Volume	Incremental Value	Total Value
Supply	Tr	Product	primary input1	Sheet & Tubular Steel	53.100	53.100	10,04%	10,04%	100	5.310.000	5.310.000
Supply	Tr	Product	primary input2	Casted Parts	53.100	106.200	20,07%	10,04%	100	5.310.000	10.620.000
Supply	50/50	Product	primary input3	Mechanical Parts	26.550	132.750	25,09%	5,02%	100	2.655.000	13.275.000
Supply	80/20	Product	primary input4	Electrical Parts	26.550	159.300	30,11%	5,02%	100	2.655.000	15.930.000
Supply	Import	Product	primary input4	Hydraulic and Pneumatic Parts	39.816	199.116	37,64%	7,53%	100	3.981.600	19.911.600
Supply	50/50	Product	secondary input	Paints and Other Chemicals	13.230	212.346	40,14%	2,50%	100	1.323.000	21.234.600
Supply	C	Product	Labor - "Assembly"	Labor - "Assembly"	29.450	241.796	45,70%	5,57%	100	2.945.000	24.179.600
Supply	C	Product	Labor - "Installation and Commissioning"	Labor - "Installation and Commissioning"	26.550	268.346	50,72%	5,02%	100	2.655.000	26.834.600
Supply	C	Product	Energy	Energy	13.230	281.576	53,22%	2,50%	100	1.323.000	28.157.600
Supply	C	Product	Deprecation	Deprecation	13.230	294.806	55,72%	2,50%	100	1.323.000	29.480.600
Supply	C	Product	Marketing	Marketing	13.230	308.036	58,22%	2,50%	100	1.323.000	30.803.600
Supply	Tr	Product	Freight Operations	Freight Operations	13.230	321.266	60,72%	2,50%	100	1.323.000	32.126.600
Supply	C	Product	After Sale Services	After Sale Services	5.310	326.576	61,73%	1,00%	100	531.000	32.657.600
Supply	C	Product	G&A	G&A	13.230	339.806	64,23%	2,50%	100	1.323.000	33.980.600
Supply	C	Product	Finance	Finance	21.240	361.046	68,24%	4,01%	100	2.124.000	36.104.600
Supply	Tr	Product	Design & Project Management	Design & Project Management	26.550	387.596	73,26%	5,02%	100	2.655.000	38.759.600
Supply	50/50	Product	Solicitor (Agency) Cost	Solicitor (Agency) Cost	19.380	406.976	76,92%	3,66%	100	1.937.980	40.697.580
Demand	C	Distribution	Profit Margin	Profit Margin	122.093	529.069	100,00%	23,08%	100	12.209.274	52.906.854

Unit Costs

VCA_SCA



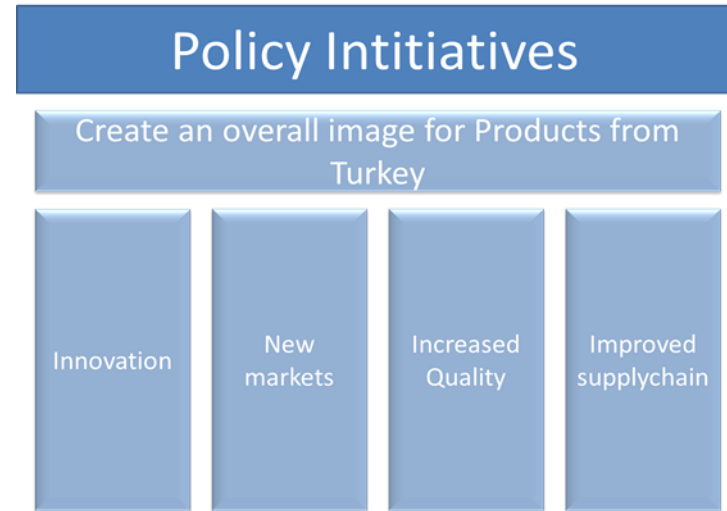
Supply Analysis

VCA-SCA

		CASE 1: route to market 1			CASE 2 route to market 3		
		Sum of Incremental Value	Sum of Unit Value	Breakdown (%)	Sum of Incremental Value	Sum of Unit Value	Breakdown (%)
Sum of Imports		16.191.100	1.619.110	98,6	24.740.490	1.949.398	40,0
Import	Main Engine	2.500.000	250.000	5,3	4.500.000	300.000	7,3
	Generator	1.000.000	100.000	2,5	1.875.000	125.000	3,1
	Electronic Equipments	500.000	50.000	1,3	750.000	50.000	1,2
	Pumps	100.000	10.000	0,3	150.000	10.000	0,2
	Stainless Steel Pipes	250.000	25.000	0,6	450.000	30.000	0,7
	Pipes	400.000	40.000	1,0	750.000	50.000	1,2
	Wooden Parts	300.000	30.000	0,8	600.000	40.000	1,0
	Deck Machines	1.250.000	125.000	3,2	2.100.000	140.000	3,4
	Cables	500.000	50.000	1,5	1.200.000	80.000	2,0
	Ventilation Systems	250.000	25.000	0,6	450.000	30.000	0,7
	Tender	50.000	5.000	0,1	150.000	10.000	0,2
	Steel	450.000	45.000	1,1	900.000	60.000	1,5
	Tubular Steel	225.000	22.500	0,6	450.000	30.000	0,7
	Other Secondary Mat. & Syst.	1.800.000	180.000	4,6	2.925.000	195.000	4,8
	Propeler, Shaft, B. Thruster etc	375.000	37.500	2,2	1.400.250	93.750	2,3
	Life Saving Equipments	900.000	90.000	2,3	1.440.000	90.000	2,3
Agency margin	1.241.100	124.110	3,1	394.240	59.616	1,5	
Navigation Systems	2.500.000	250.000	6,3	3.750.000	250.000	6,1	
Sum of Trabzon		16.494.000	1.649.400	98,8	23.241.000	1.649.400	37,8
Trabzon	Coating, Insulation and Inventory mat.	3.450.000	345.000	8,8	5.175.000	345.000	8,4
	Labor	3.370.000	337.000	8,5	5.055.000	337.000	8,2
	Design, Project, Supervision	1.050.000	105.000	2,7	1.575.000	105.000	2,6
	Finance	150.000	15.000	0,4	225.000	15.000	0,4
	G.S.A	100.000	10.000	0,3	150.000	10.000	0,2
	Energy	750.000	75.000	1,9	1.125.000	75.000	1,8
	Shoyard Margin	5.624.000	562.400	16,8	9.036.000	562.400	16,2
Sum of Turkey		8.741.100	874.110	22,2	13.422.890	894.898	21,9
Turkey	Electrical Systems	1.500.000	150.000	3,8	2.250.000	150.000	3,7
	Other Secondary Mat. & Syst.	1.200.000	120.000	3	1.950.000	130.000	3,2
	Life Saving Equipments	500.000	50.000	1,5	950.000	64.000	1,6
	Steel	1.050.000	105.000	2,7	2.100.000	140.000	3,4
	Tubular Steel	525.000	52.500	1,3	1.050.000	70.000	1,7
	Propeler, Shaft, B. Thruster etc	2.625.000	262.500	6,7	4.218.750	281.250	6,9
	Agency margin	1.241.100	124.110	3,1	394.240	59.616	1,5
Grand Total		39.428.200	3.942.820	100	61.404.480	4.093.832	100,0

Industry Upgrade Plan

VCA-SCA



Export Academy	
Description	The Export Academy is a training program for all companies in the cluster, aimed to enhance companies' capabilities.
Format	Seminars, Workshops (min 4 Hours – max 3 Days), day or evening
Target group	All companies interested in developing their capabilities
Aim	To upgrade knowledge on all export related topics
KPI	Number of participants, satisfaction level
Frequency / Timing	To be determined by a yearly Program

Outputs of VCA-SCA

- A VCA-SCA methodology developed
- 5 Clusterwide, regional VCA-SCAs
 - Value chain maps, business operations, governance structures, chain operators and their linkages, as well as the chain supporters within the value chain were identified.
 - Economic analysis of value chains were assessed, e.g. through determining the value added along the stages of the value chain, the cost of production, the income and margins of operators.
 - Benchmark analyses conducted in order to determine the economic performance and the comparison of important parameters in the chain with those of competing chains in other countries or similar industries.
 - Upgrade plans have been developed for the clusters together with the recommendation of new business model ideas and road maps for upgrading options
- Inputs for 5S Strategy works

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