



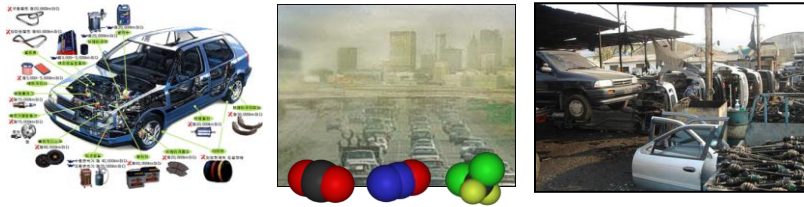
The environmental friendly automotive resources circulation Business

2011. 11 .12

**Auto Infra Co., Ltd.
Auto Recycling Center Co., Ltd.**

❖ the pollution for automotive and the value of it

■ Causing pollution and global warming from ELV



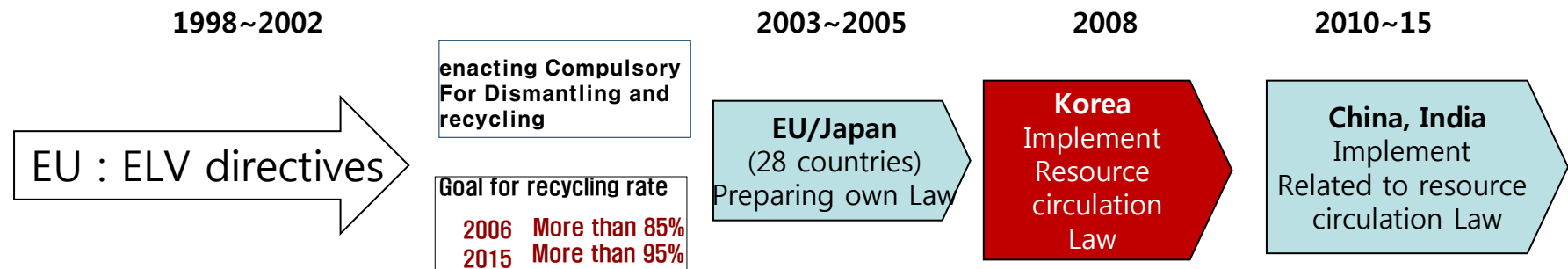
- Air pollution, land pollution, emission of wastes
- Automotive is reason for 30% of global warming

■ The value of ELV



- Per Car 1.5~1.7ton. 1 million ton of resource from ELV
- scrap metal, valuable metal, used parts, rare-earth element (green car)

❖ Expansion of global automotive resource circulation policy



❖ ELV Resource Circulation legislation

Name of the Law	Act on the Resource Circulation of Electrical and Electronic Equipment and End-of-Life Vehicle
Subject to the Law	Producer/importer/ salvage yard / recycling crusher / ASR processor / waste refrigerant processor
Recycling goal	The environmental friendly recycling / recycling rate 85% ('09), 95% ('15)
Duties for Salvage yard	<ul style="list-style-type: none">• Indoor dismantling and indoor storing• Transferring body and refrigerant to proper company• Essential dismantling parts : 8 liquid waste, battery, airbag, refrigerant, bumper, tire and so on (8 materials in total)
Duties for manufactures	<ul style="list-style-type: none">• Development of technology and support• Providing information about recycling• practicing recycling duties contracted with proper company (satisfied with the requirement)

responsibility

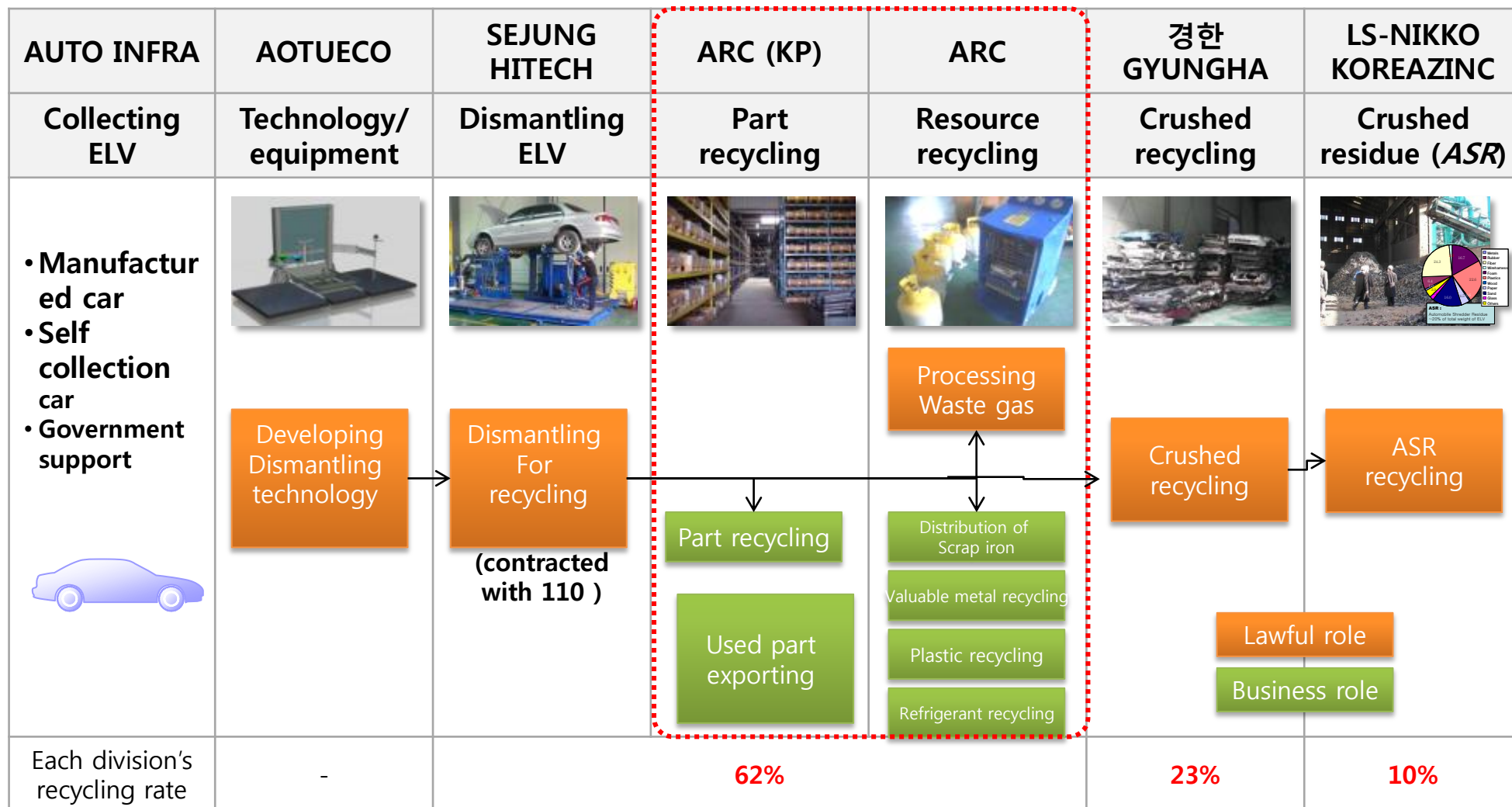
All sectors



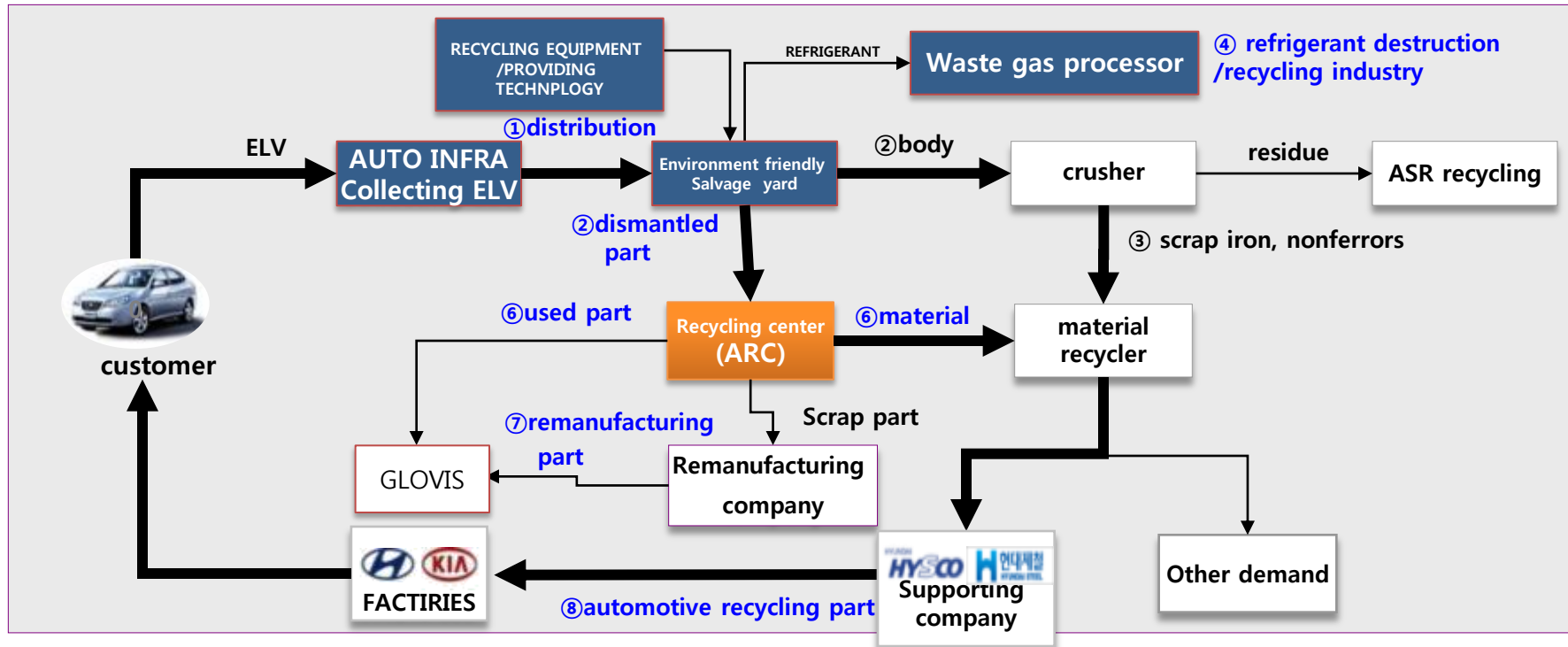
Vehicle
manufacturers

❖ Infrastructure (AUTO INFRA / ARC)

■ Establishment for resource circulation system

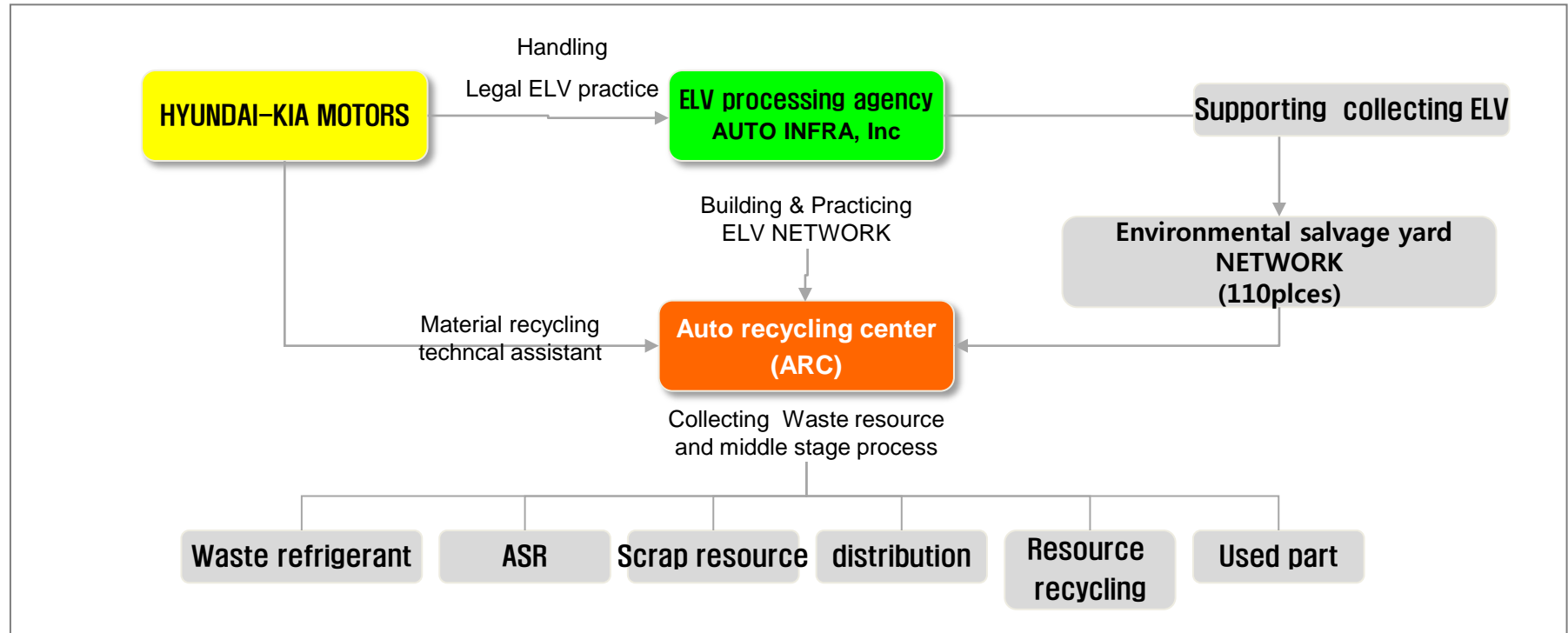


❖ flow of Hyundai-Kia Motors' automotive resource circulation system



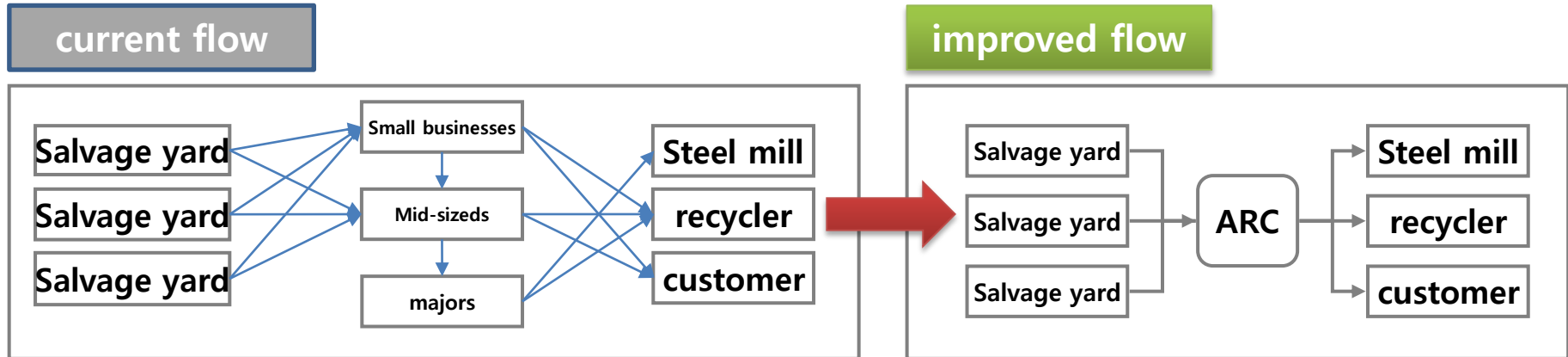
- ✓ preparing basic frame for implementing resource circulation act:
 - producer responsibility for recycling : domestic ELV 80% -> 95%
- ✓ preparing measures for acquiring circulation resources
- ✓ major/small company cooperation examples
- ✓ achieving goal for CO2 reduction (using CO2 offset)

❖ Structure for industrialization

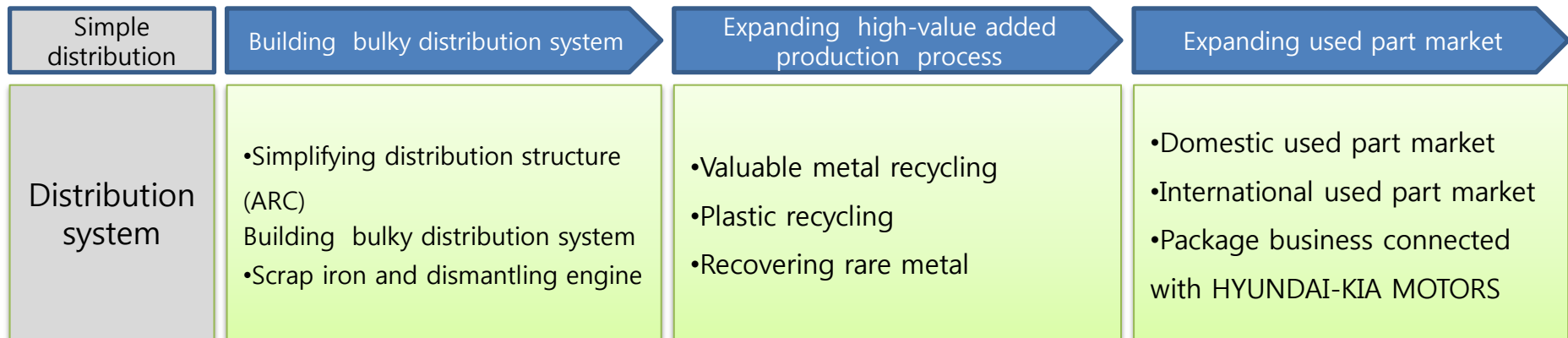


- ✓ by building comprehensive automotive recycling infrastructure, handling legal practice and fulfilling business
- ✓ Platform business for realization of economy of scale
- ✓ by using HYUNDAU-KIA MOTERS' patent, utilizing high value products (sales increase/ cost saving)
- ✓ globally commercializing identical business model

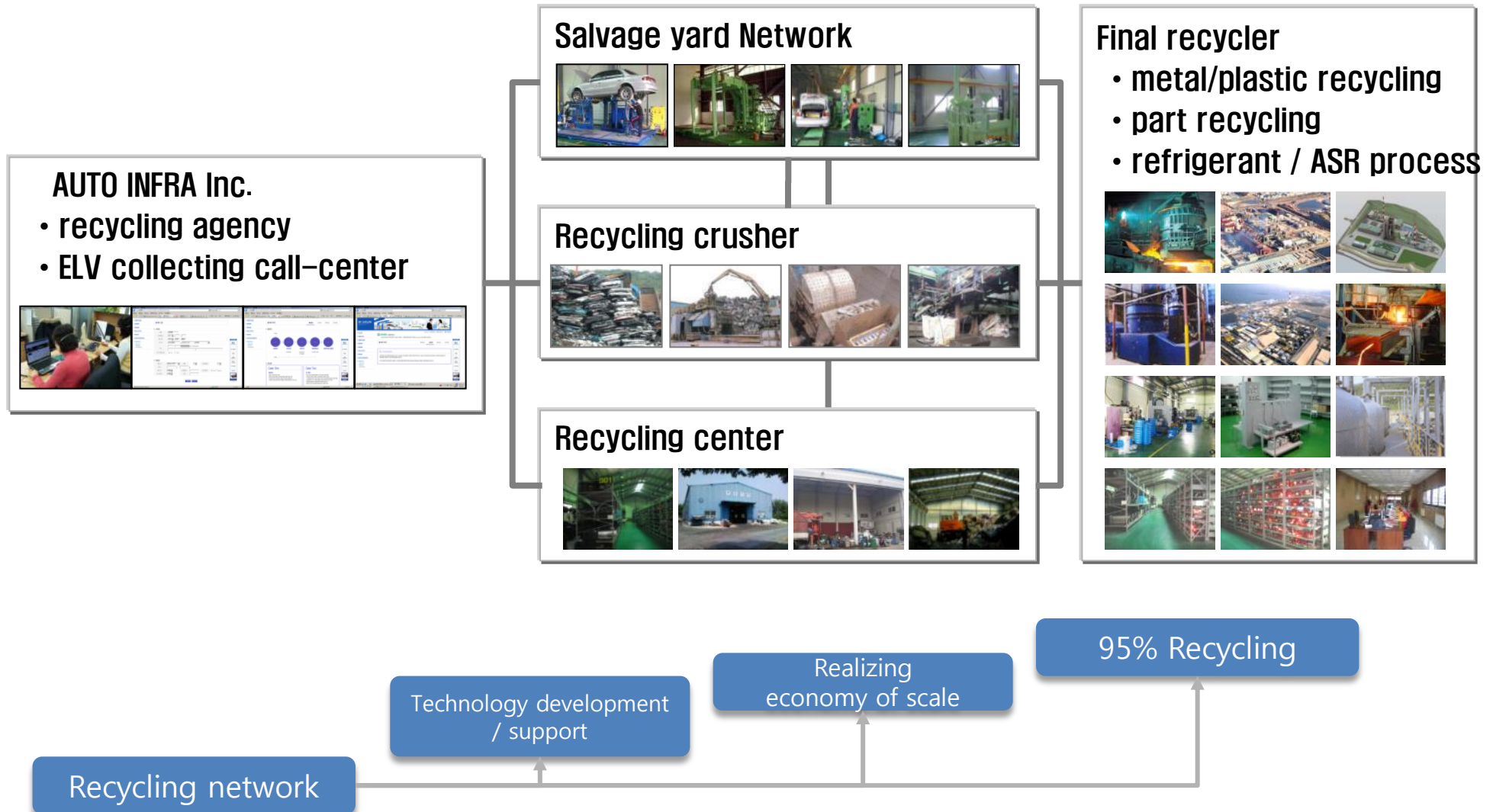
❖ improving distribution system



❖ profit Structure



❖ AUTO INFRA network

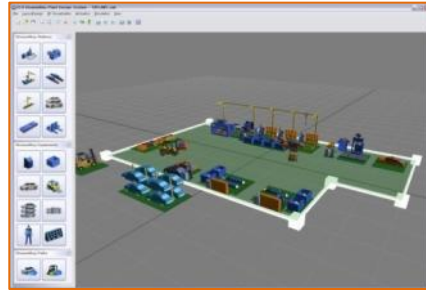


❖ Automotive dismantling and recycling technology

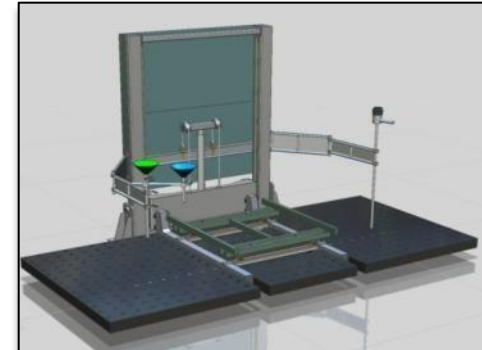
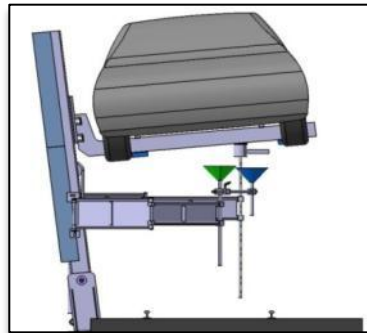
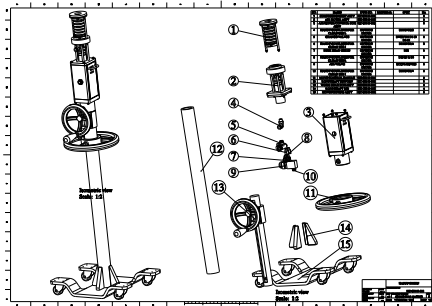
❁ *dismantling/ recycling technology*

◆ **Dismantling Process Simulation (1)**

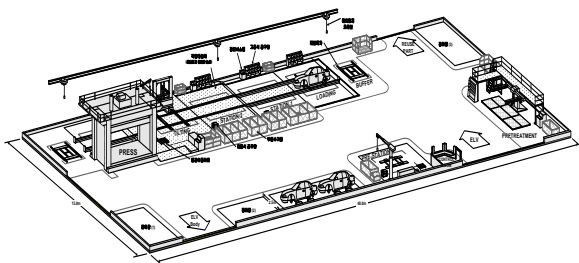
- Simulation system for ELV Dismantling factory
- Allocation of parameters : time, labor, cost.
- Layout Design, 2D/3D based drawing and design
- Calculation of working time and process



❁ *Recycling equipment design*



❖ RECYCLING EQUIPMENT PRODUCTION



❖ RECYCLING EQUIPMENT / PROVIDING TECHNOLOGY TO THE NETWORK



❖ AUTO RECYCLING CENTER : SUPPLY & DEMAND FOR SCRAP IRON

▣ PRODUCTS

< SCRAP IRON >



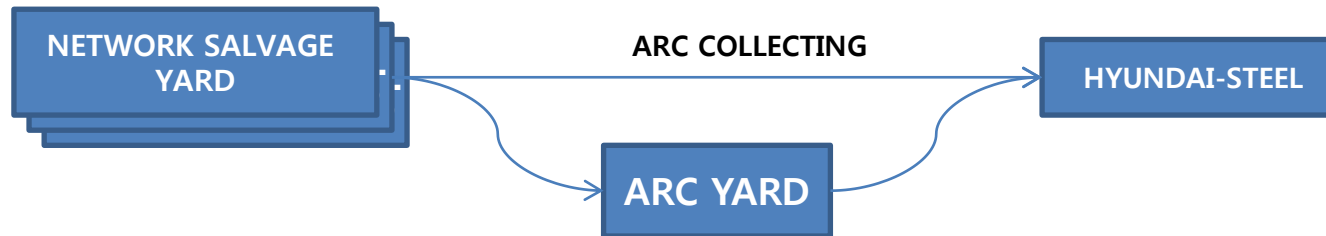
< SCRAP ENGINE >



< SCRAP BODY >

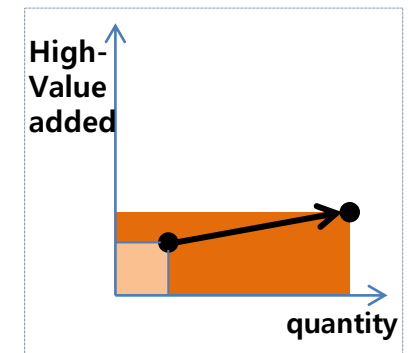


▣ 유통 구조



▣ Promotion strategy :

- collecting/distributing through network salvage yard en bloc.
- through controlling supply/demand, enhancing the value : planning to utilize ARC yard



❖ AUTO RECYCLING CENTER: valuable metals

▣ PRODUCTS

-

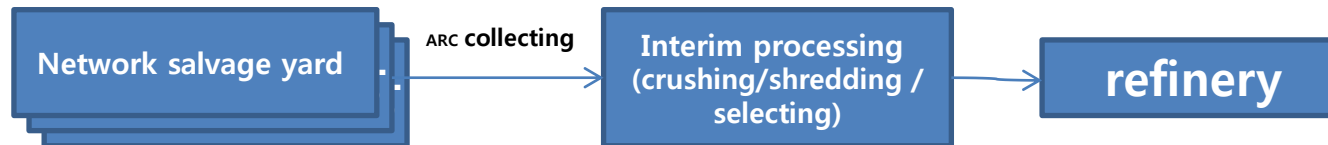


Producing material for Ingot



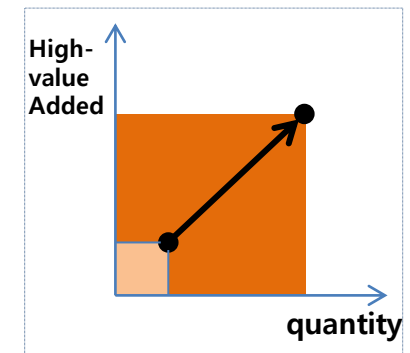
▣ Distribution structure

ARC processing



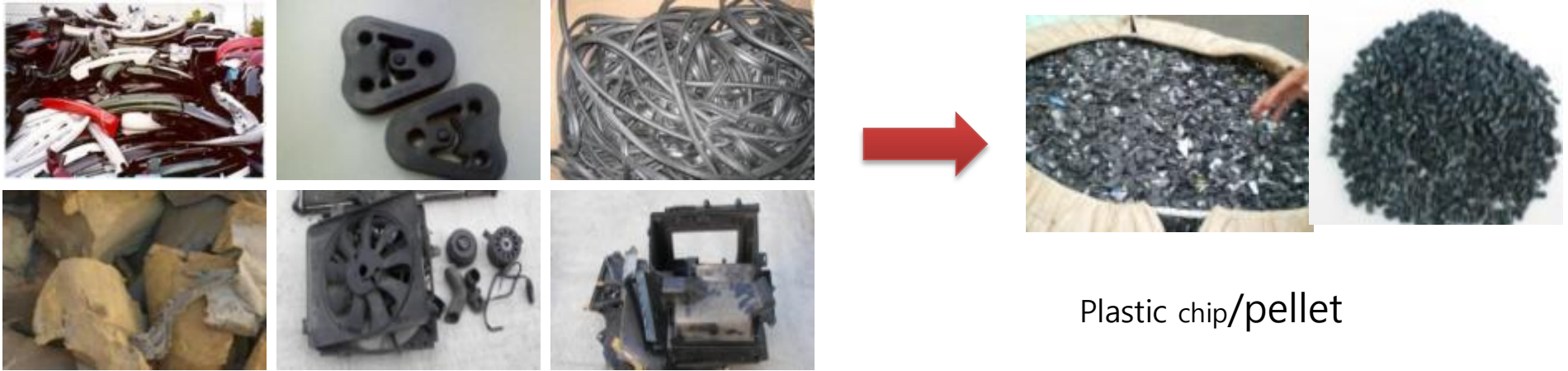
▣ Promotion strategy :

- through detailed dismantling, interim processing, selecting, enhancing recycling rate and sales
- changing into high-value added(more than 25%) business from low-value added produced in simple distribution
- enhancing recycling rate for strategic resource, recovering rare-Earth material

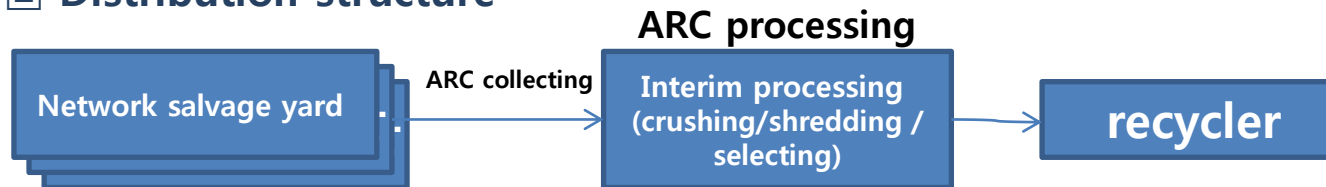


❖ AUTO RECYCLING CENTER : PLASTIC RECYCLING BUSINESS

▣ PRODUCTS

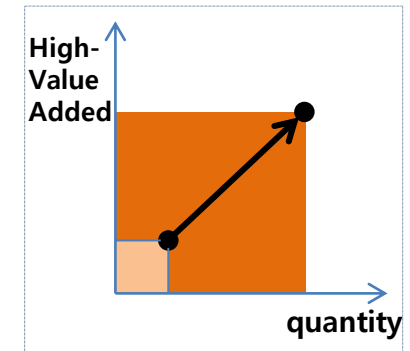


▣ Distribution structure



▣ Promotion strategy :

- through detailed dismantling, interim processing, selecting, enhancing recycling rate and sales
- changing into high-value added (more than 25%) business from low-value added produced in simple distribution
- recovering general plastic, engineering plastic, rubber and enhancing recycling rate

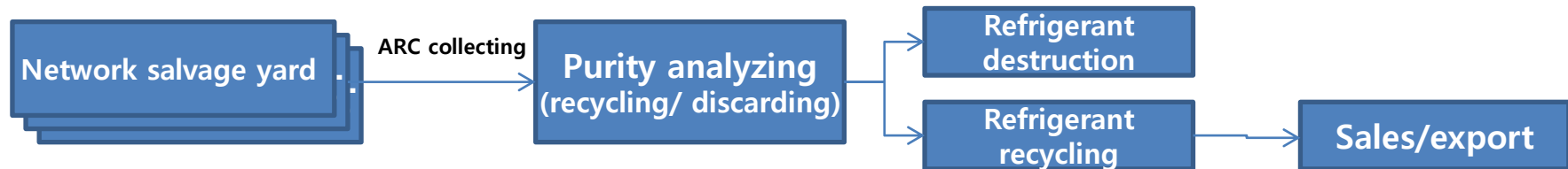


❖ RECYCLING CENTER : WASTE REFRIGERANT COLLECTING /PROCESSING/RECYCLING

▣ PRODUCTS

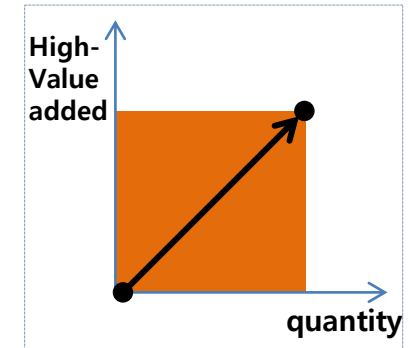


▣ COMERCIALIZING STRUCTURE



▣ Promotion strategy :

- utilizing Ecostar business development technology from Ministry of environment (HYUNDAI-KIA MOTORS, AUTO ECO, POSCO)
- requiring the cost for processing refrigerant from automotive manufacturer
- through domestically monopolizing waste refrigerant processing business, realizing high value
- setting up simultaneous processing with electronic products



❖ AUTO INFRA RECYCLING CENTER: USED PART DISTRIBUTION BUSINESS

▣ PRODUCTS

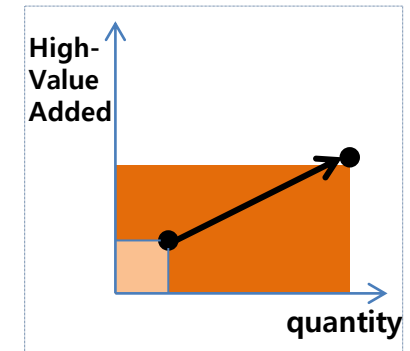


▣ COMERCIALIZING STRUCTURE



▣ Promotion strategy :

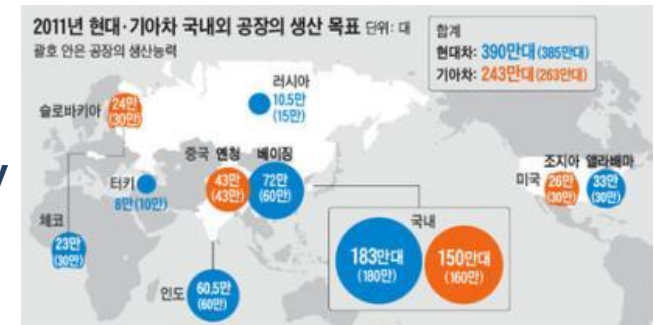
- acquiring high value through expanding quantity and enhancing quality
- increasing profit from branding GLOVIS
- continuously developing new insurance company products
- building cooperation system with global used part distributors



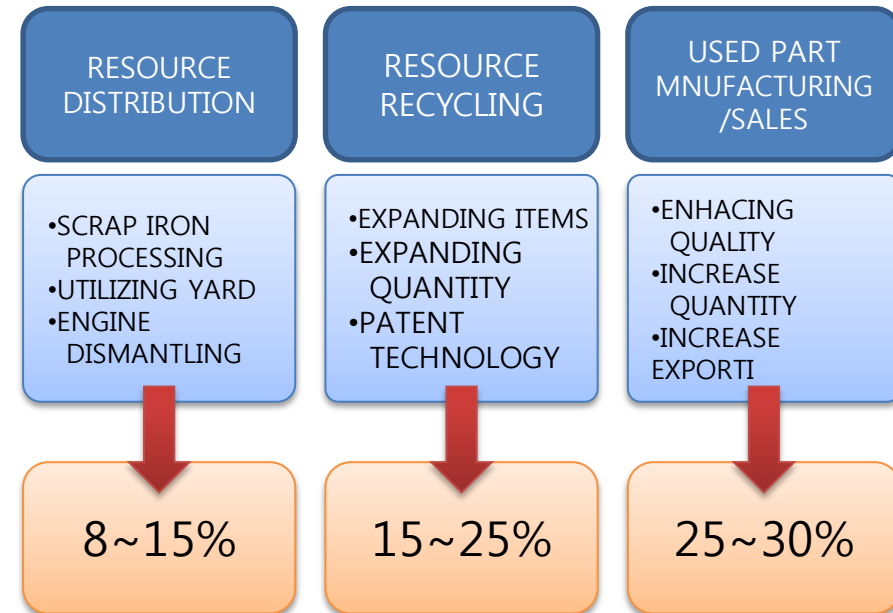
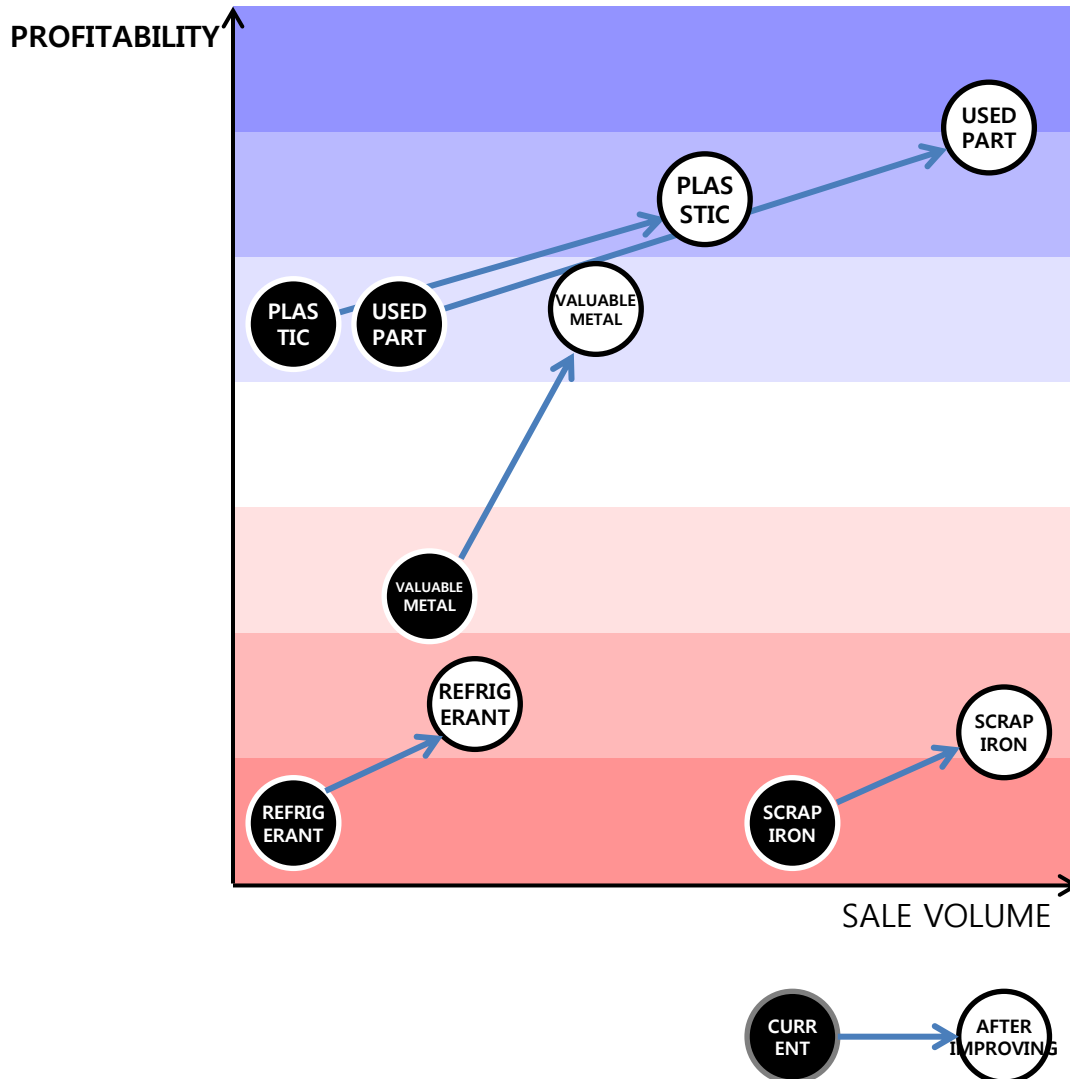
❖ THE GLOBAL PROPAGATION OF AUTOMOTIVE RECYCLING TECHNOLOGY

- Supporting export of dismantling /recycling equipment and localization of domestic company
- Supporting export and localization of domestic company
- Utilizing HYUNDAI-KIA MOTOERS' manufacturing and sales facilities as bases for comercializing
- Korea -> Asia -> global market

Production goal of HYUNDAI-KIA MOTORS >



❖ CHARACTERISTIC AND FORECAST OF PROFIT



❖ 1TH DEMONSTRATIVE BUSINESS (85% GOAL / 2010)

SUMMARY

SUPERVISOR: HYUNDAI-KIA MOTORS, AUTO INFRA

BUSINESS CONTENTS : through auto recycling center, automotive resource
circulation demonstrative business
period: Dec 2009 – Dec 2010 (13months)

GOAL

Through AUTO INFRA NETWORK and AUTO RECYCLING CENTER, implementing
demonstrative business and confirming compliance of RESOURCE CIRCULATION ACT,
achievement of recycling rate and possibility of profitability

PARTICIPATOR

HYUNDAI MOTERS, ,KIA MOTORS, AUTO INFRA, AUTO RECYCLING CENTER, GLOVIS

RECYCLING ITEMS

Scrap iron, nonferrous metals, used parts

ACHIEVEMENT

Confirmed 90.7% recycling rate

❖ DEMONSTRATIVE BUSINESS FOR IMPROVING SYSTEM(95%/2012)

▣ THE PROMOTION GOAL FOR RECYCLING RATE

SUMMARY

- SUPERVISOR: MINISTRY OF ENVIRONMENT**

- CONTENTS: through AUTO RECYCLING CENTER, demonstrating automotive resource circulation business
- PERIOD: Jan 2012 – Dec 2012 (12 months)

GOAL

- Demonstrative operation for checking producer recycling responsibility system
- Drawing problems and solutions for system improvement
- Building advanced automotive resource circulation system in cooperation with government and producers
- Setting up recycling goal, reviewing enforcement system for achieving 95% goal, reflecting system improvement

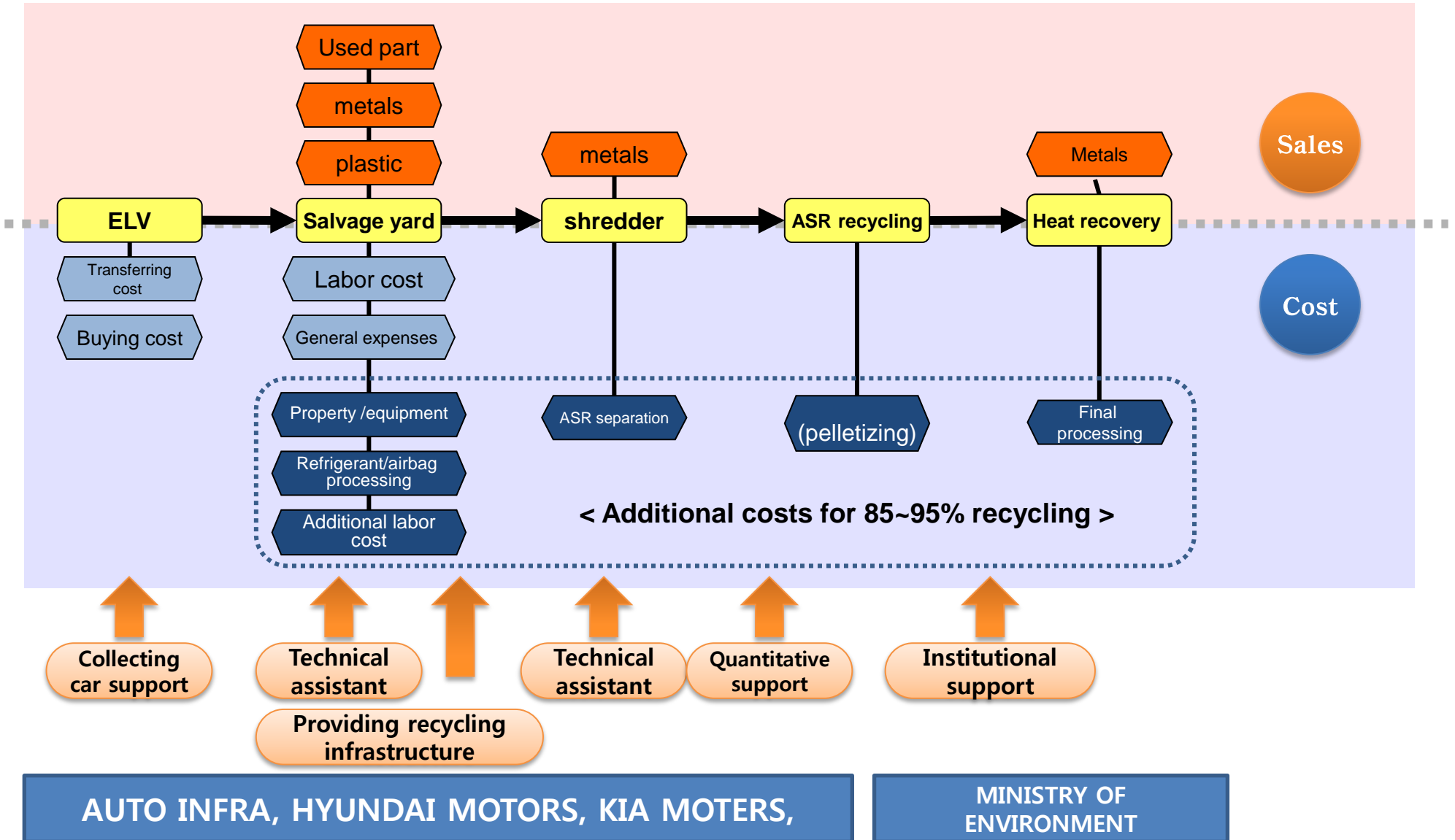
PARTICIPATOR

- HYUNDAI MOTERS, ,KIA MOTORS, AUTO INFRA, AUTO RECYCLING CENTER, other network company

ENFORCEMENT METHOD

- Recruiting participators mainly within AUTO INFRA NETWORK and then performing demonstrative business
- Seeking the possibility for achieving recycling rate 95% and boosting profitability

❖ AUTO INFRA AUTOMOTIVE RESOURCE CIRCULATION MODEL



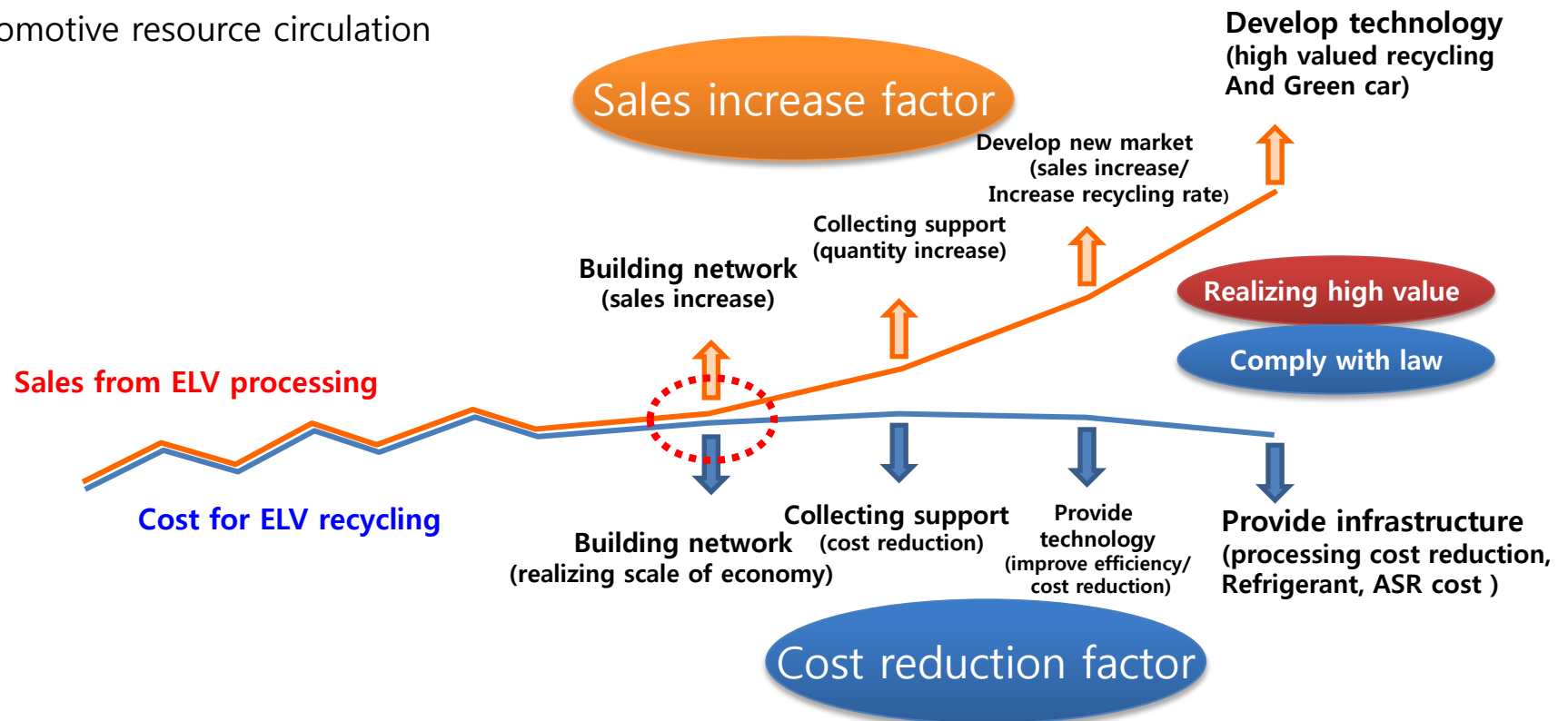
❖ ACHIEVING 95% RECYCLING RATE AND CREATING HIGH-VALUE ADDED

SCALE OF ECONOMY

COST REDUCTION

CREATING NEW SOURCES OF REVENUE

- Overcoming synchronizing phenomenon between circulation resource price and recycling cost(collecting ELV)
- through maximizing sales and reducing cost, creating high-value from automotive resource circulation



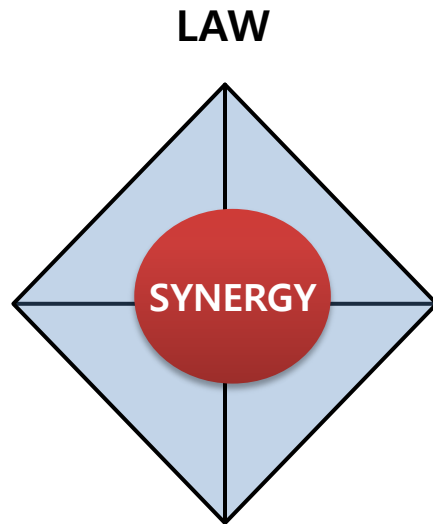
AUTOMOTIVE RECYCLING AGENCY

- car body scrap recycling
- Shredder residue recycling
- refrigerant processing / recycling

95% RECYCLING NETWORK

- ASR, REFRIGERANT
- SEAT, LITHIUM-ION BATTERY, GLASS PLASTIC
- CAR BODY RECYCLING
- BUILDING NATIONAL RECYCLING NETWORK
 - DISMANTLER 110 COMPANIES
 - ARC : EXPANDING BY STEP
 - RECYCLER

INFRA STRUCTURE



IMPLEMENTING PATENT TECHNOLOGY

- 28 PATENTS
 - PARTICIPATE NATIONAL RESEARCH
 - DEVELOP KEY PATENT
 - PROVIDE DISMANTLING, RECYCLING EQUIPMENT
- ### CONTINUOUS R&D
- DISMANTLING TECHNOLOGY
 - RESOURCE RECYCLING TECHNOLOGY
 - CONTINUE R&D FOR RESOURCE RELATED TO RARE METALS

TECHNOLOGY

MARKET

DEVELOP GLOBAL MARKET

- Korea – Asia – Global
- KARA AAEF HKMC

ACOMPLISH INDUSTRIAL ECO-NET

- AUTOMOTIVE SECTOR : OTHER INDUSTRY 50:50
- EXPANDING INDUSTRIAL ECO-NET

4th Asian Automotive Environmental Forum



Thank you!

Terima Kashi!

ありがとうございます!

謝謝!

Cảm ơn bạn.

Баярлалаа!

ขอบคุณ.

감사합니다!