

Centro de Ingeniería y Desarrollo Industrial

CERTIFICADO  
**ISO 9001**  
VERSION 2000

TECNOLOGIA DE  
**HERRAMIENTALES**

Transferencia de Tecnología  
para la industria de soporte en  
México

Un Equipo Avanzando Tecnológicamente

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Presencia  
Nacional  
de Tecnología  
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# Project Design Matriz (Version 0)



Description	Objectively Verifiable Indicators	Means of verification	Important Assumptions
<p><b>Overall Goal</b></p> <p>To contribute to the development of the industry of presswork and stamping in Mexico so it will be known globally as cutting-edge and highly competitive allowing the multiplication of that effect on the region.</p>	<ol style="list-style-type: none"> <li>Comparative studies of the imports on presswork and stamped products versus the national production.</li> <li>Human factor highly specialized on the tooling and stamping field.</li> <li>New offering enterprises.</li> </ol>	<ol style="list-style-type: none"> <li>Industrial and sector-specific statistics, questionnaires and interviews involving the affected industries.</li> </ol>	<ol style="list-style-type: none"> <li>National development policies on SMEs should stay unchanged</li> <li>Mexico's political and economical situation should stay stable.</li> </ol>
<p><b>Project Goal</b></p> <p>Consolidate the presswork and stamping SMEs on Querétaro, Guanajuato, San Luis Potosí, Aguascalientes, Puebla and Estado de México, as trust-worthy suppliers for the big enterprises, consequently lowering the import levels on tools and stamped products, generating more job sources and allowing the new product's development.</p>	<ol style="list-style-type: none"> <li>Productivity raise on the enterprises</li> <li>Number of participants on seminars and training courses</li> <li>Growth of the presswork and stamping industry.</li> <li>Raise on the jobs related to this field.</li> <li>New providers insert on production chains</li> </ol>	<ol style="list-style-type: none"> <li>Annual assessment report of every institution, questionnaires and interviews with the involved enterprises.</li> <li>Report of the seminars and training courses for every institution, questionnaires and interviews to the participants.</li> <li>Industry and sector specific statistics</li> </ol>	<ol style="list-style-type: none"> <li>There shouldn't be drastic changes on Mexico's economic situation.</li> <li>All the personnel trained in the project will stay on its respective institutions.</li> <li>Old machinery and equipment will be replaced or renewed</li> </ol>
<p><b>Results</b></p> <ol style="list-style-type: none"> <li>Technology assimilation and transfer from CIDEI's counterpart personnel to the participating institutions on the field of presswork and stamping.</li> <li>Offer seminars and training courses on the presswork and stamping field to cover the needs of the SMEs in Mexico.</li> <li>Systemic methodology for the SMEs on the field of presswork and stamping</li> </ol>	<ol style="list-style-type: none"> <li>Development of new products with cutting-edge technology.</li> <li>Growth on CIDEI's certified counterpart personnel</li> <li>Growth on the enterprise's certified counterpart personnel</li> <li>Training booklets given to the counterpart</li> <li>Courses and seminars given on CIDEI.</li> <li>Number of participants on the courses and seminars given on CIDEI.</li> <li>Manuals, booklets and magazines about the project</li> <li>Participant's level of satisfaction.</li> <li>Services of technical support.</li> <li>Improvement on the satisfaction level of the supported industries</li> <li>Improvement on the productivity of the enterprises</li> </ol>	<ol style="list-style-type: none"> <li>Assessment reports of the respective institutions.</li> <li>Monitoring Sheets for CIDEI's counterpart</li> <li>Monitoring sheets for the enterprise's counterparts.</li> <li>Personal resume, certification and qualification of the counterpart personnel.</li> <li>List of the manuals prepared for the technology transfer.</li> <li>Report of the seminars and training courses given on CIDEI.</li> <li>Participant's satisfaction survey.</li> <li>CIDEI's annual report, questionnaires and interviews with involved industries</li> <li>CIDEI's annual report, report on the project's activities and the list of booklets and magazines.</li> <li>Assessment reports on the enterprises and institutions.</li> </ol>	<ol style="list-style-type: none"> <li>Counterpart personnel which receives the technology transfer from the Japanese Experts will stay on CIDEI at least for 8 years.</li> <li>The industrial sector will cooperate on the project activities, such as external services, information service, seminars and training courses organized by CIDEI</li> </ol>



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# Project Design Matrix (Version 0)



Activities	Supplies	Assumptions
<p><b>1.1.-</b> Assess the technical capacities of the counterpart personnel</p> <p><b>1.2.-</b> Assess the technical capacities and the needs of the SMEs.</p> <p><b>1.3.-</b> Elaborate a technology transfer plan for the counterpart personnel.</p> <p><b>2.1.-</b> Elaborate a plan for the seminars and the training courses.</p> <p><b>2.2.-</b> Prepare and compile all the material and text books for the seminars and the training courses.</p> <p><b>2.3.-</b> Prepare/Implement/Evaluate the seminars and the training courses.</p> <p><b>3.1.-</b> Assess the technical capacities and the needs of the SMEs</p> <p><b>3.2.-</b> Select the model enterprises for the technology transfer.</p> <p><b>3.3.-</b> Elaborate transfer plans according to every enterprise needs.</p> <p><b>3.4 -</b> Implement the technology transfer to the selected enterprises</p> <p><b>3.5.-</b> Make public the updated information through seminars, booklets and magazines.</p> <p><b>4.1.-</b> Implement the supplying and installation of the needed machinery and equipment</p> <p><b>4.2.-</b> Elaborate an operation and maintenance plan for the machinery and the equipment.</p> <p><b>4.3.-</b> Implement a correct operation and a regular maintenance for the machinery and equipment.</p>	<p><b>Mexican Side</b></p> <p>I Local Cost                      The needed budget for the project's implementation.</p> <p>II Location of the counterpart and administrative personnel</p> <p>1) Administrative counterpart personnel                      2 people                      (1 secretary and 1 chauffeur)</p> <p>2) Technical counterpart personnel                      11 people                      3) Support personnel                      Technical personnel - 4 people</p> <p>III. Supply of the buildings and facilities</p> <p>IV. Supply of the machinery and equipment existent in CIDESI, as well as its maintenance.</p>	<p><b>Japanese Side</b></p> <p>I. Sending the experts                      1. Long-term experts                      a) Advisor in chief                      b) Coordinator                      c) Experts on presswork and stamping technology.</p> <p>d) Experts on Production Management                      e) Experts on heat treatment                      f) Experts on materials technology.</p> <p>2. Short-term experts                      An adequate number of short-term experts as needed for the technology assimilation on the previously mentioned fields.</p> <p>II. Training of the Mexican counterpart personnel in Japan.</p> <p>III. Supply of the machinery and equipment</p> <p>IV. Local cost of the experts staying.</p>



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## Overall Goal

To contribute to the development of the industry of presswork and stamping in Mexico so it will be known globally as cutting-edge and highly competitive allowing the multiplication of that effect on the region.



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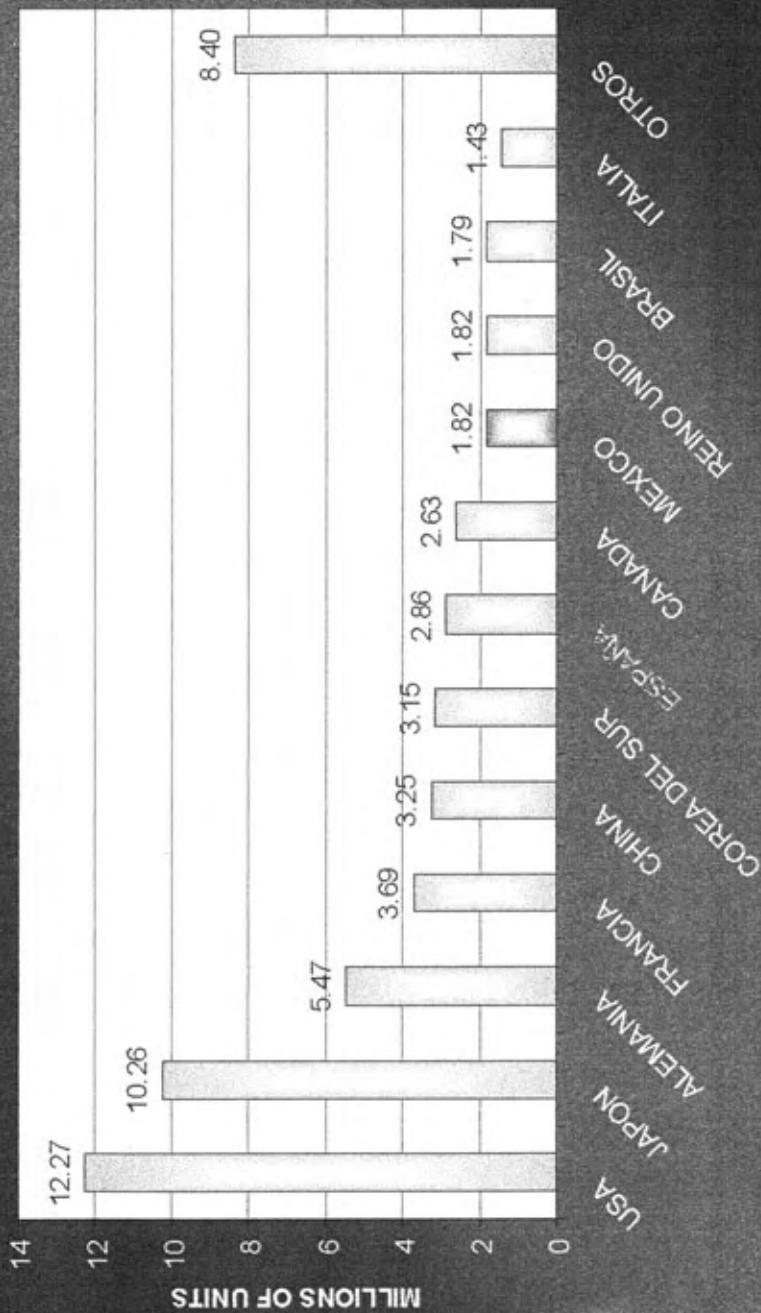
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# AUTOMOTIVE SECTOR



## AUTOMOBILE PRODUCTION ON THE WORLD 2002



Source: OICA (Organisation Internationale des Constructeur D'automobiles)

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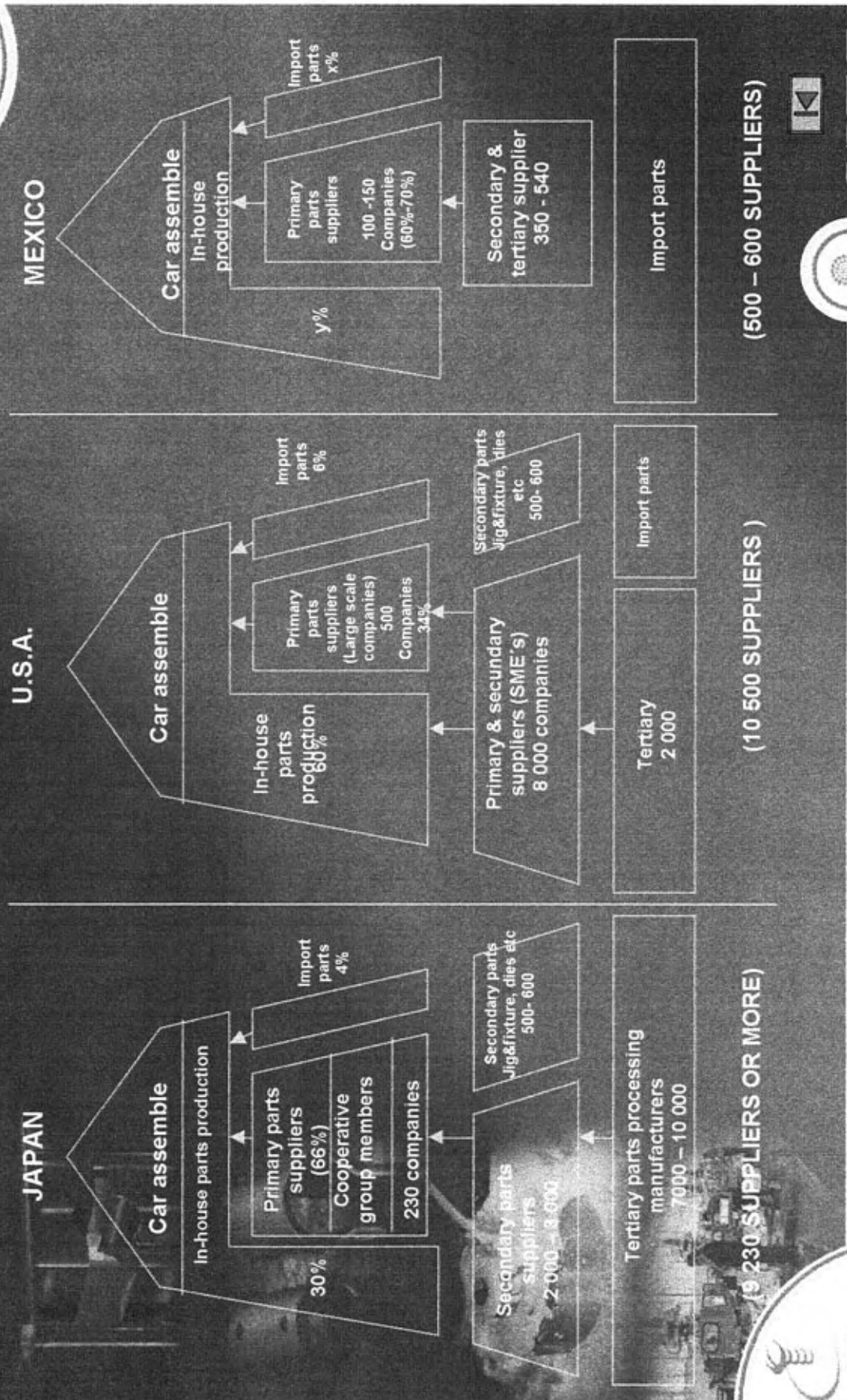
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# INTERNATIONAL COMPARISON OF CAR ASSEMBLING



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## Project Goal

Consolidate the presswork and stamping SMEs on Querétaro, Guanajuato, San Luis Potosí, Aguascalientes, Puebla and Estado de México, as trust-worthy suppliers for the big enterprises, consequently lowering the import levels on tools and stamped products, generating more job sources and allowing the new product's development.



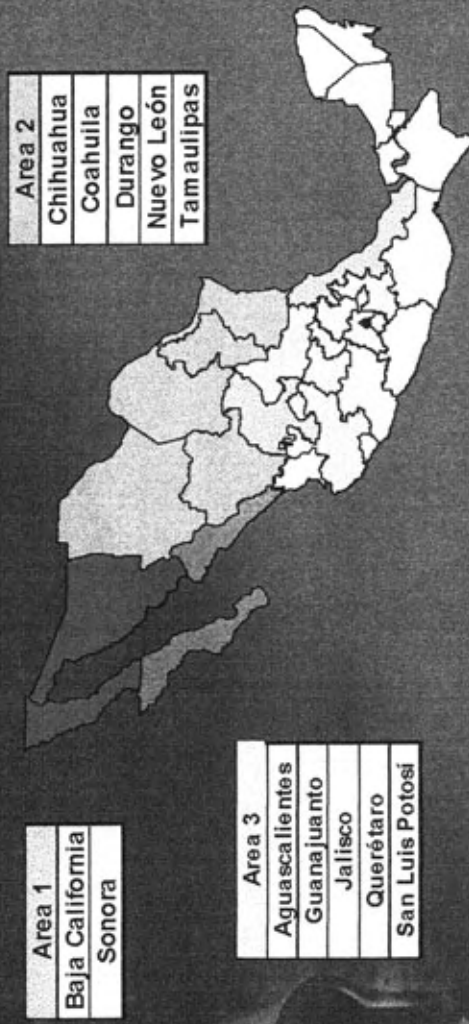
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# AUTOMOBILE SECTOR

## LOCATION OF SMALL AND MEDIUM INDUSTRIES Automobile suppliers



Area 1	
Baja California	
Sonora	

Area 3	
Agua Caliente	
Guanaajuato	
Jalisco	
Querétaro	
San Luis Potosí	

Area 2	
Chihuahua	
Coahuila	
Durango	
Nuevo León	
Tamaulipas	

Area 4	
Hidalgo	
Ciudad México	
Estado de México	
Morelos	
Puebla	
Tlaxcala	

	Area 1		Area 2		Area 3		Area 4		TOTAL
	Medium	Small	Medium	Small	Medium	Small	Medium	Small	
ALUMINUM INJECTION			2	8		7	1	16	34
BRAKES			1	5		8	1	15	30
FOUNDRY			1	6		7		12	26
ELECTRIC PARTS		6	7	54	2	16		62	147
FORGING				7		12		16	35
GLASS			3	2		2		5	12
MACHINING PARTS				4	1	9		11	25
PLASTICS		2		15		18	1	85	121
STAMPING PARTS			2	43		60	1	112	218
OTHERS		8	1	67	4	98	1	242	421
								<b>TOTAL</b>	<b>1069</b>



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## Results

1. Technology assimilation and transfer from CIDESI's counterpart personnel, to the participating institutions on the field of presswork and stamping.
2. Offer seminars and training courses on the presswork and stamping field to cover the needs of the SMEs in Mexico.
3. Systemic methodology for the SMEs on the field of presswork and stamping

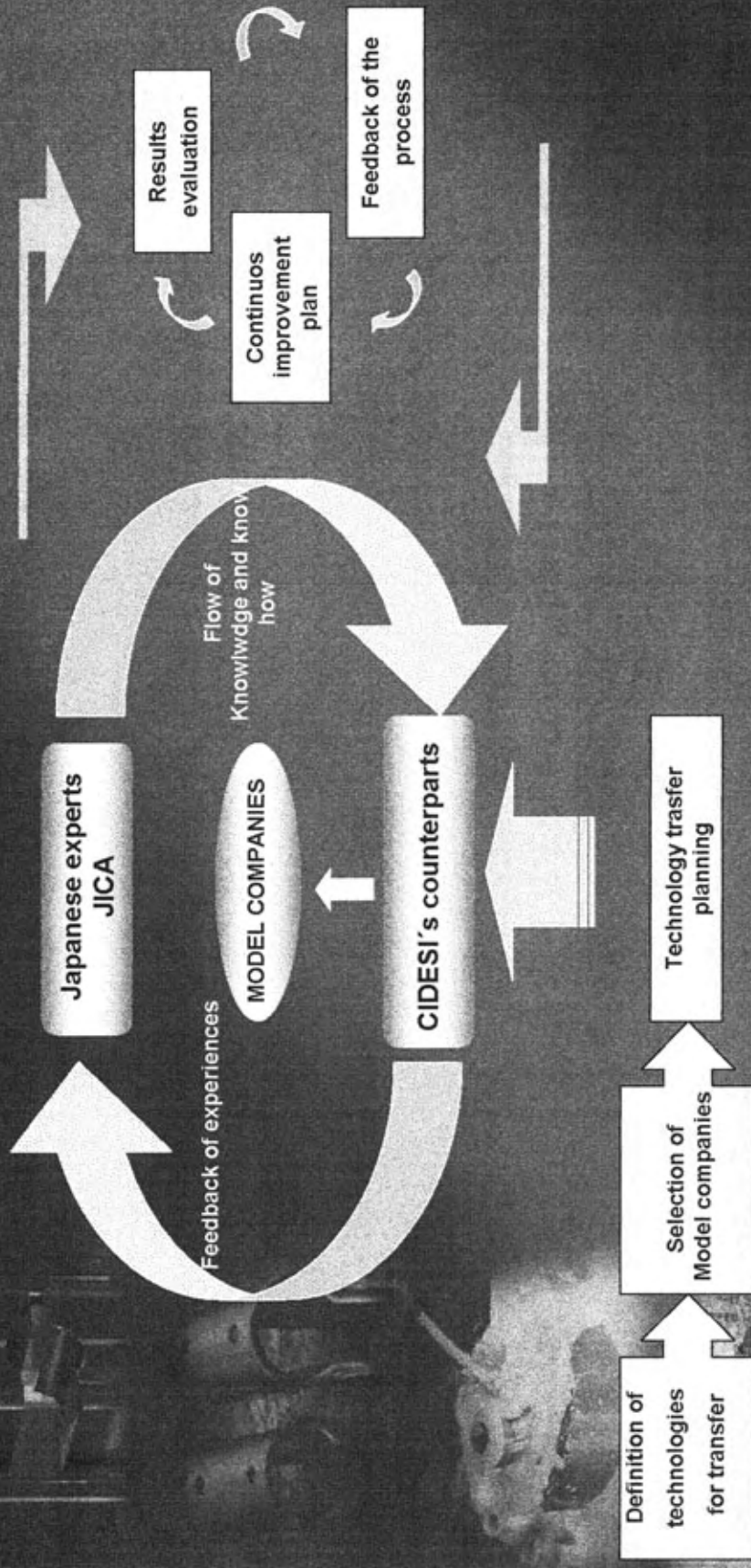


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# TECHNOLOGY TRANSFER PROCESS



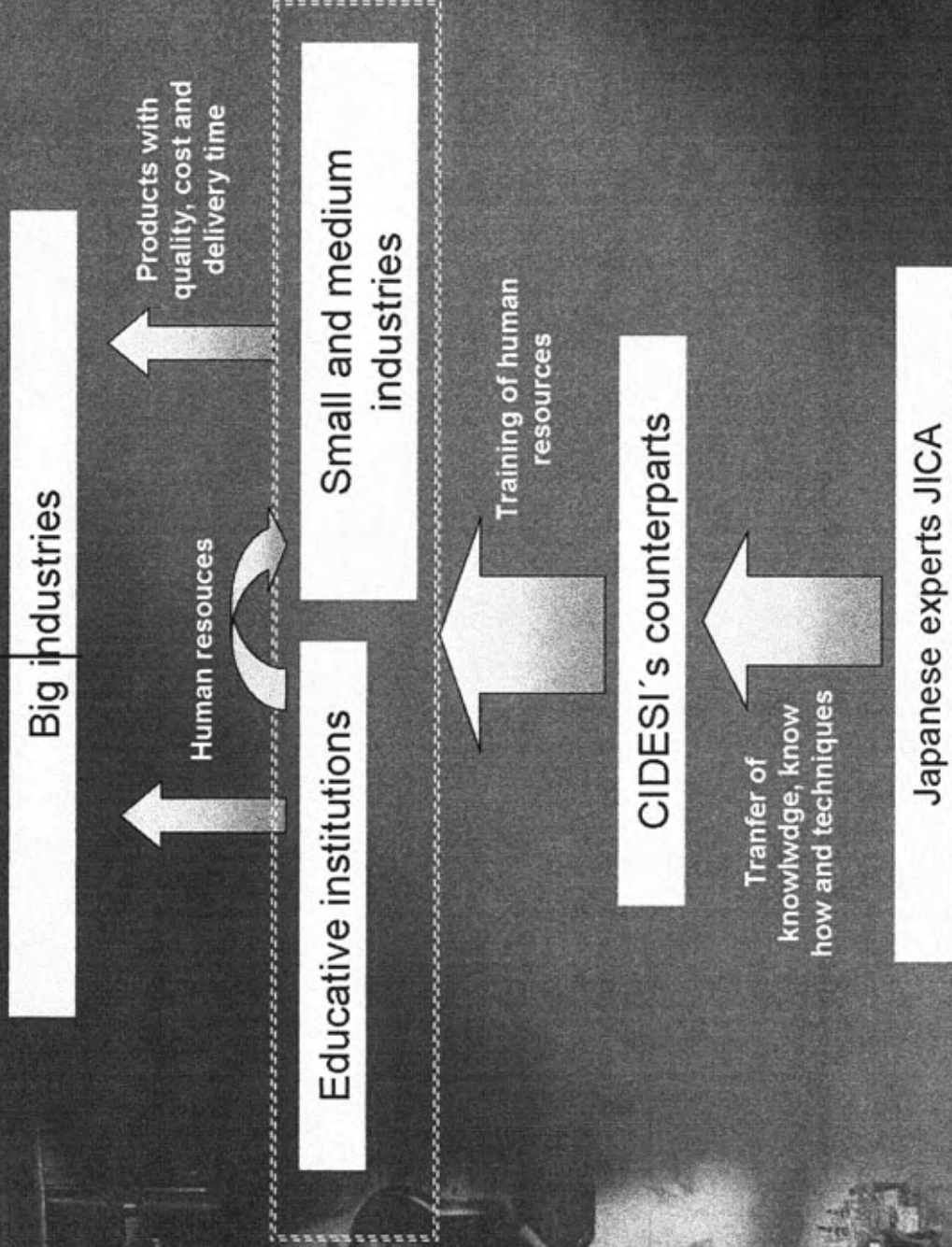
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# TECHNOLOGY TRANSFER PROCESS



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# REQUEST TECHNOLOGIES

TYPES OF DIES	SIZE OF THE PARTS			
	MICRO (<30 mm)	SMALL (30 a 300 mm)	MEDIUM (300 a 500 mm)	BIG (>500 mm)
<b>BASICS</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>PROGRESIVES</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>TRANSFER</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>SPECIALS</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>HIGH TECHNOLOG</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>MICRO-STAMPING</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>FINE BLANKING</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>HYDROFORMING</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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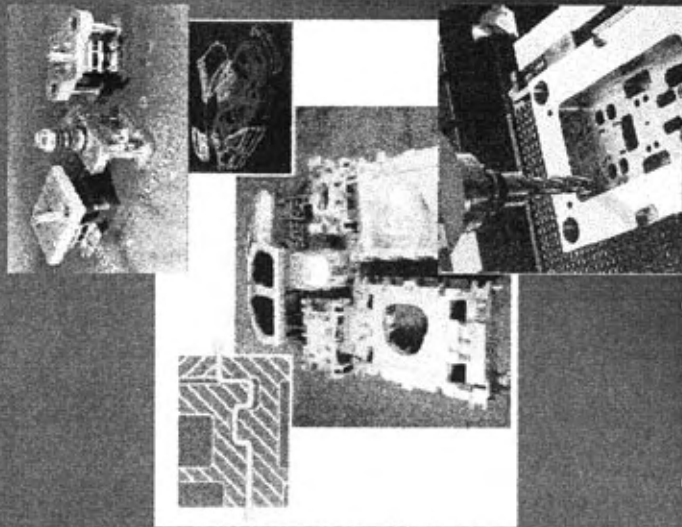
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## PRESS WORK TECHNOLOGY

- **Manufacturing and assembly dies techniques**
- **Design and manufacture techniques for:**
  - *Progressive dies*
  - *High precision dies*
  - *High production dies*
  - *Transfer dies*
  - *Fine blanking dies*
  - *Micro-stamping dies*
- **Die maintenance**
- **Press work automation**
- **Simulation and modelation by finite element for stamping process**



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# TECHNOLOGY PLANNING



PRESS WORK BASICS

BASICS DIES

SPECIAL DIES

HIGH TECHNOLOGY

Press analysis

Punching, blanking, bending, drawing

Progressive dies

Press work automation

Manufacturing ,assembly and maintenance dies techniques

Simulation and modelation for stamping process

High precision and High production

Micro-stamping, Fine blanking, Hydroforming



2004

2005

2006

2007

2008

2009



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## PRODUCTION MANAGEMENT TECHNOLOGY

- Total Quality Management
- Lean manufacturing
  - Poka Yoke
  - SMED
  - Standar Operations
  - Manufacturing cells
  - Total Productive Maintenance
  - Kanban

## • Management skills improvement

- Strategic planning
- Operation planning
- Human resources management
- Continuous improvement

## HEAT TREATMENT TECHNOLOGY

- Heat treatment for dies
- Surface treatment (Chemical Vapor Deposition)

## MATERIAL TECHNOLOGY

- New materials for die manufacturing



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