3. Main Results of Questionnaire

The main results of the questionnaire are categorized into five items, as follows:

1) Management
2) Production and cost down
3) Manufacturing shop
4) International collaboration in Asia
5) Future and strategy of mold and die industry

Combining all messages of these five dimensions, a total picture of the status of the industry is supposed to be depicted fully. It is not the attempt of the original design to get the best and maximum information merely by one survey. Nor the completeness of the message is. The intent is to draw a limited but real picture, reflecting the current status of the industry. Besides, it is desirous of being aware of the strength and the weakness of the industry, if possible.

3.1 Management

In Fig. 3.1, history of the companies involved in the study is depicted. Only 6.12% companies are less than 5 years. Roughly, 55% of the companies are more than 15 year, and 45% for less. Very few newcomers appear in this industry, in some sense, it is perhaps due to market limitation or technical barrier. Some insiders say that the worse economic condition in the past years has expelled many shaky companies out of the market. For young companies, they often focus on advanced technology oriented products part.

Fig. 3.1 History of the Companies Involved in the Study

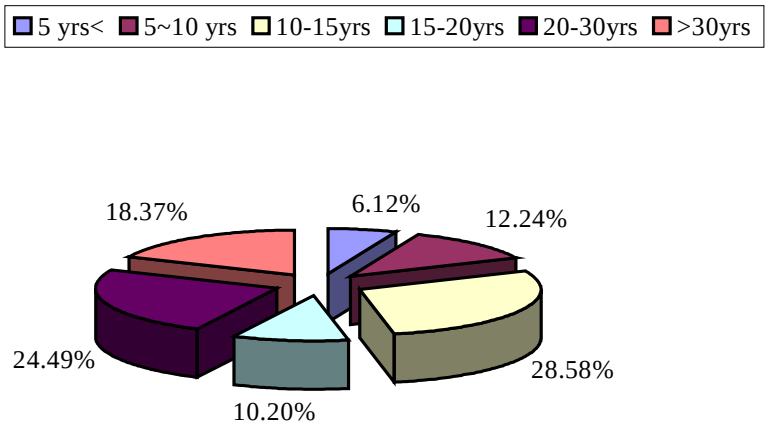
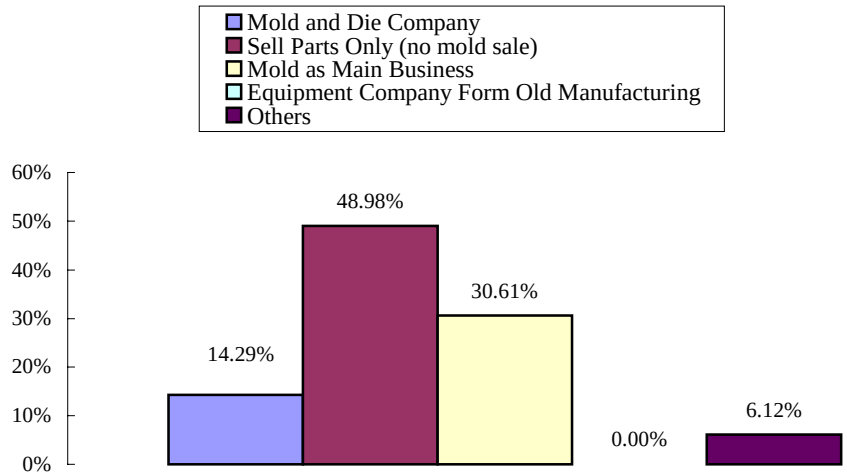


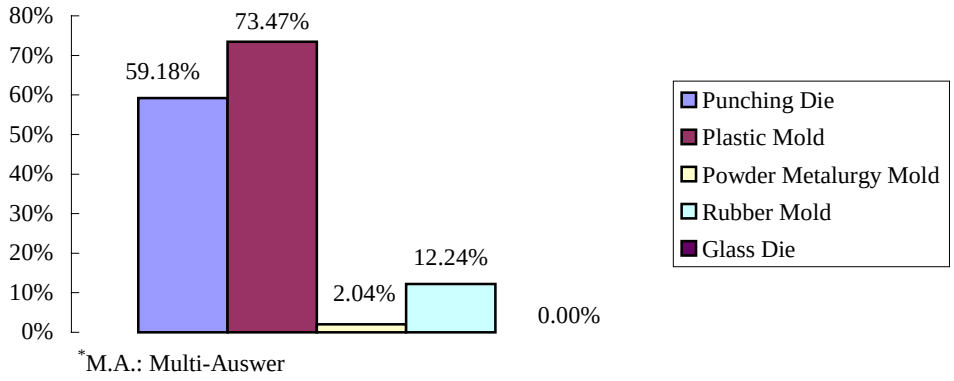
Fig. 3.2 Company Type by the Manufacturing Type



For companies with long history, they also consider how to develop new products in the market and try to probe into new technology area.

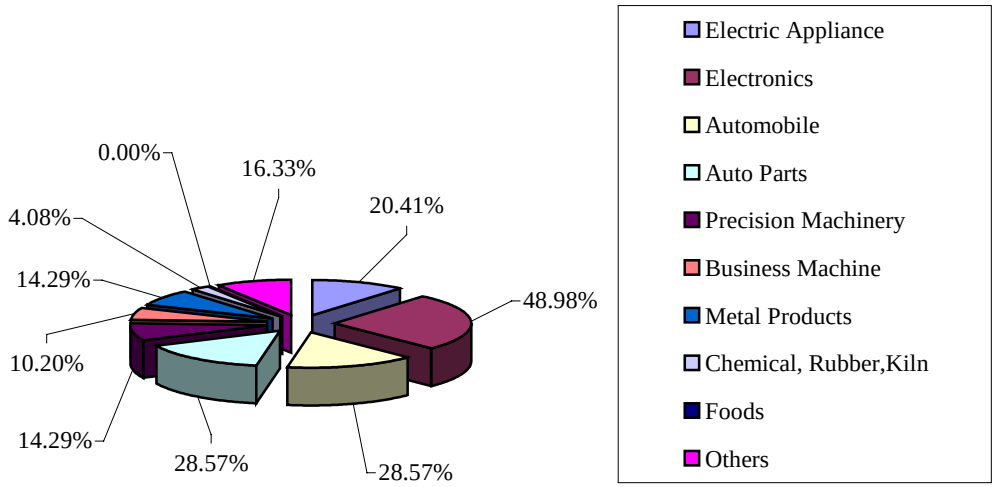
As shown in the figure above (Fig. 3.2), the majority of the companies are belonging to the type that sells the part produced by the mold or die rather that specifically mold or die company with 14.29%. However, the company of mold as main business is added, then this figure will go up to 44.9%. In other words, the companies of both mold and the parts produced by mold have the same weight in Taiwan mold and die industry. The data described in the report will reflect the opinion from equally sampled mold maker and

Fig. 3.3 Mold or Die Type Produced in the Industry (M.A.)*



*M.A.: Multi-Auswer

Fig. 3.4 Distribution of Mold Industry's Customer (M.A.)



user.

The main stream of the industry includes two types, i.e. punching die 59.18% and plastic mold 73.47% (Fig. 3.3). Most companies provide both. Types of the rest, like rubber, powder metallurgy or glass are very limited. To some extent, this digit implies that mold and die industry is highly focused.

Now, the customer information may reveal something as Fig. 3.4, with electric appliance industry 20.41%, electronics 48.98%, automotive industry 28.57%, auto parts industry 28.57 and precision machinery 14.29%.

Electronics industry occupies the number one. More and more companies move to the area with requirement of precision and high value added. Combining audio and video

Fig. 3.5 Sales 2001 to 1999

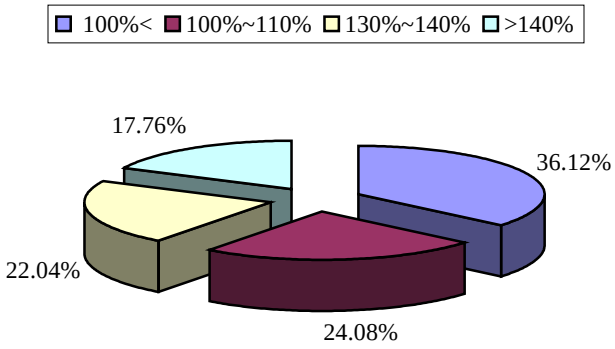
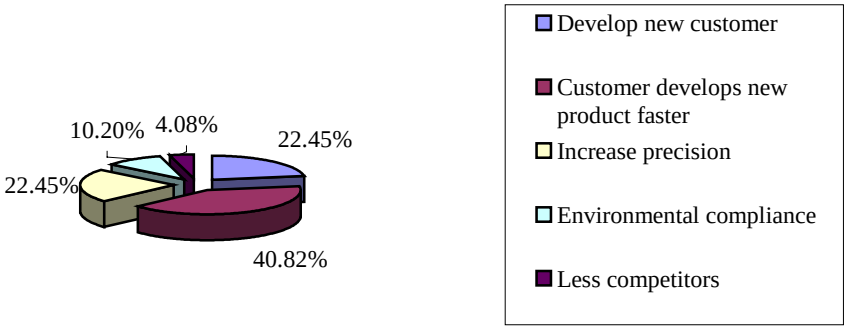


Fig. 3.6 Factors Believed to be the Reason Increasing Sales 1999~2001



device, communication industry earns more attention in this market. Also, computer related products and network related products do.

It is well known that the economic environment has been down for a period of time. It induces a lot of impact upon many segments of industries. From the viewpoint of sales, the ratio of “sales 2001 to 1999” may reflect this impact in Fig. 3.5. More than one third of the companies decrease their sales. It is understood that 2/3 of companies still increase the sales regardless of the said poor condition in the past years.

The most interesting one figure is that around 18% of companies increase sales up to more than 40%. Apparently, those companies should find out their own way to fit the quickly evolving environment. To sense the change and to cope with it seem to be the core competence of the companies, which can increase the sales, in addition to strong technical competence.

The following information, i.e. Fig. 3.6, can explain partly the reason why those companies increase the sales from their viewpoints. The top three includes 42.82% of customer develops product faster and 22.45% equally for develop new customer and increase precision. Based upon the message above, to keep good relationship with customer is one of the important issues to increase the sales especially in hard days. Otherwise, customer develops product faster does not absolutely means mold maker may receive the increased order as wished.

Moreover, increase precision and develop new customer are with same weight 22.45%. There are many approaches to develop new customer. No doubt, higher precision will lead to new domain implying new customers. Without higher precision, it is still able to develop new customers by enhancing other aspects like marketing. It is reasonable to think in a way that there is space of overlap of these two factors. However, increase precision can be imagined to be of nearly the same importance as customer develops new products faster for contributing sales increase recently.

Looking from the opposite direction, the reason why sales decrease seems to be very consistent among the companies located in this unfortunate category. As shown in Table 3.1, customer decrease with 18.37% and customer moves to abroad with 34.69%. With little confusion for Taiwanese companies to distinguish the real meaning of abroad, a real vague thought is that whether Mainland China is abroad or not? Some say yes, some not. Since this problem happens only in Taiwan case, and it is implicitly expressed in the question. Thus, people answer this problem based upon their recognition and understanding. As mentioned earlier, most companies, including mold maker and mold user, establish new manufacturing factory in Mainland China. This is a big issue. The main factors decreasing sales can be interpreted as customer moving to abroad, mainly Mainland China, and as high as 53.06%.

Table 3.1 Factors Believed to Decrease Sales 1999~2001

Customers Decrease	Customer Moves to Abroad	Others
18.37%	34.69%	46.94%

As for the action needed to cope with sales decrease, more than 50% of companies want to cost down by improving design (Table 3.2). And 16.33% of them select to reduce employee as action. Be aware of one point that this is the opinion from the group with sales decrease 1999~2001. The selected action may be right or wrong. The quality of

decision-making can be easily understood as one of the factor affecting its performance. Anyhow, the main concern of the top two factors leading to cost down as strategy to remedy the fact of sales decrease 1999~2001. It deserves to discuss about this thought and related observation in the future.

Did customers really reduce? To answer this question, please refer to Table 3.3 below, 46.94% with decrease and 48.98% with increase.

Table 3.2 Actions Proposed to Improve Sales 2001 to 1999.

Reduce Employee	Improve Design to Cost Down	Others
16.33%	51.02%	32.65%

Compared with sales change information shown in Fig. 3.5, customer decrease is not directly proportional to sales decrease. There is a rough but complicate relation between customer and sales. Instead of discussing its relation, it is better to get the idea that to manage customer well is the better way to increase sales. Some top managers say that customer does not mean merely the source of order, but also the source of everything in the market, including profit.

Table 3.3 Customer Evolutions from 1999 to 2001

Customer Decreases	No Change	Customer Increases
46.94%	4.08%	48.98%

The other interested item is profit, even though many of them dislike discussing it. Profit, here means pre-tax profit, not only for excluding the effect of different tax and duty policies, but also for encouraging people to provide real data. The response is depicted as Table 3.4. By the result, more than 1/3 of companies suffer from decreasing pre-tax profit. With the same number of companies enjoy increase in pre-tax profit at the same time.

Table 3.4 Pre-tax Profit Evolutions from 1999 to 2000

Pre-tax Profit Decreases	No Change	Pre-tax Profit Increases
38.78%	22.45%	38.77%

Overall result of actions taken in the last year ends up with maintaining the same pre-tax profit condition as above. Perhaps, some companies migrate between two groups of increase and decrease. But the total sum of number seems to be the same, without any further detailed amount or order of pre-tax profit.

Now, come up to the change of sub-contractor. According to the result depicted in Table 3.5, sub-contractor decrease, no change and sub-contractor increase present 42.86%, 18.37% and 38.77% respectively. This table implies a series of actions is taken to adjust the structure of company management in order to improve its performance. Some increase sub-contractors, and some do in the opposite way. In total, 81% of companies tuned the structure.

Table 3.5 Sub-Contractor Evolutions 1999~2000

Sub-contractor Decreases	No Change	Sub-contractor Increases
42.86%	18.37%	38.77%

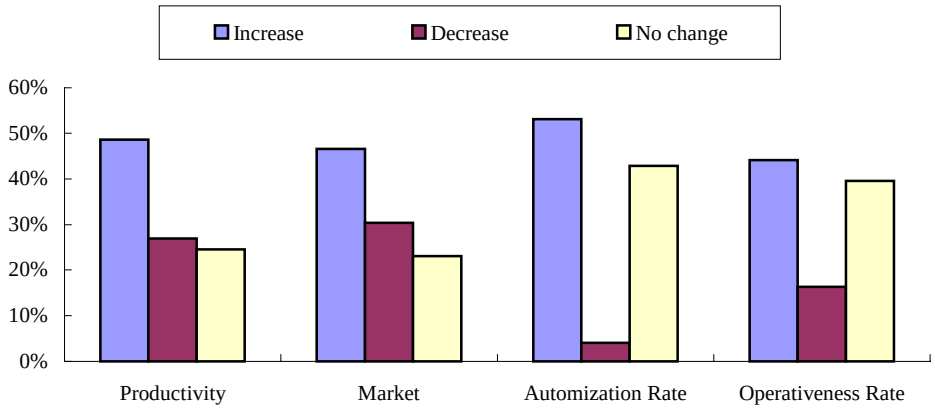
Table 3.6 Unit Order Price Evolutions 1999~2000

Unit Order Price Decreases	Unit Order Price No Change	Unit Order Price Increases
55.1%	20.41%	24.49%

Unit order price has a tendency to decrease rather than to increase shown in Table 3.6.

The most significant change in manufacturing process is automization rate with 53% increase, 4% decrease and 43% no change (Fig. 3.7). It is rather interesting to watch if the company improving automization rate will increase operativeness rate, market and

Fig. 3.7 Main Changes in Productivity and Manufacturing Process From 1999 ~ 2001



productivity simultaneously. If such kind of conclusion can be gotten, it means automization rate is the sole important factor being able to drive the other factor automatically. Needless to say, improving automization is a necessary condition for improving market, but not necessarily a sufficient condition. Around 15% companies report decrease in operativeness rate. Operativeness rate, which is an indication of workload and quality of maintenance, seems to be the result of shortage of order received. Not to be astonished, some companies keep the same management configuration without any change in automization rate. Contrary to do cost down by reducing number of employee, 53% of companies invest in automization rate. This trend is nothing particular, but the percentage attracts attention. At the same time, market, productivity and operativeness rate are upgraded too. This positive feedback phenomenon strengthens the confidence of the decision maker of the companies.

3.2 Production and cost down

The number of parts, which are assembled into the mold, can determine complexity of the mold. Good assembly design may ease fabrication of mold. Hence, number of parts used in the mold implies the degree of complexity reduction. Generally speaking, the more the parts are, the easier the mold manufacturing is. One ambiguity point, which should be notified here, is that standard parts like screw should be taken into account or not? The decision will influence the result of counting so called parts. So far as can be

imagined, this decision is up to common understanding of the respective country. Around 40% of companies design the mold or die with parts in between 21~40 as shown in Table 3.7.

Table 3.7 Number of Parts Assembled into a Mold

Number of Parts				
~10	11~20	21~40	41~60	61~
10.20%	32.04%	40.02%	15.74%	2%

In consideration of maximum injection number, Table 3.8 provides a simple number, 20.41% of the companies with injection less than ten Million times. The rest of 79.59% belongs to the category of non-injection. Namely, all injection mold companies subject to this enquete deliver the products with max. injection number less than 10 Million.

Table 3.8 Maximum Number of Injection

10 Million<	10~50 Million	Non-injection
20.41%	0%	79.59%

Table 3.9 Injection Cycle

30 per min <	31~50 per min	Non-injection
19.53%	0.88%	79.59%

The fact, that almost all companies produce at the cycle less than thirty per minute is clearly indicated in Table 3.9. Merely 0.88% may perform at higher injection cycle between 31 and 50 times per min. The injection cycle gets involvement with some factors. Although there is space for improvement in the aspects of injection cycle, the real necessity is the only one factor used to judge.

Fig 3.8 Dimensional Accuracy of Part Produced by Mold (1996)

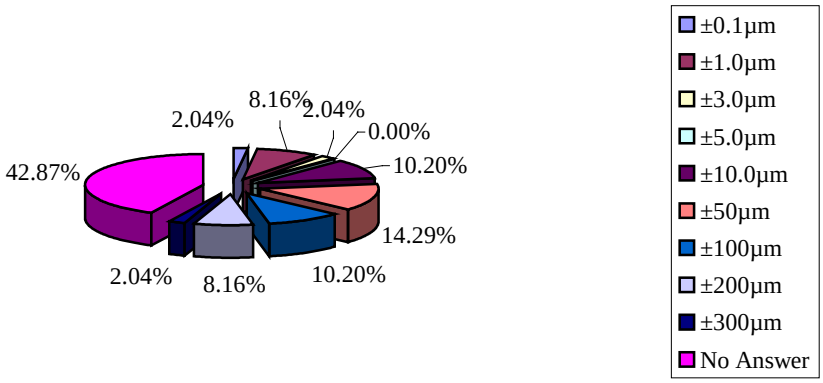
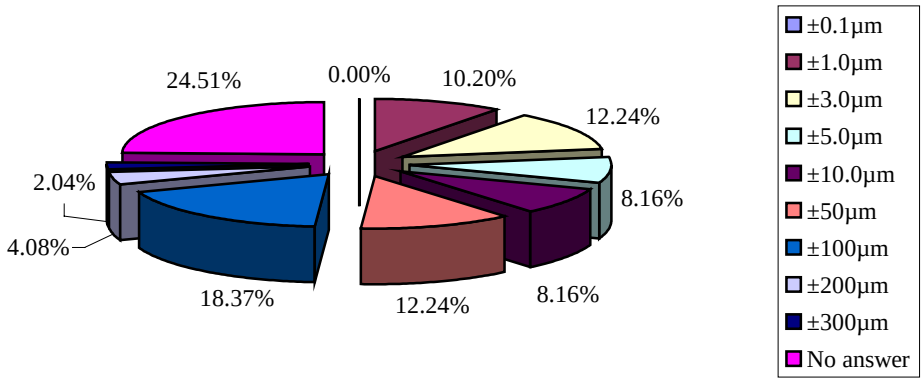


Fig. 3.9 Dimensional Accuracy of the Part Produced by Mold (2001)



By Fig. 3.8, nearly half of companies did not answer. The top three are 14.29% with ±50 μm, 10.20% with ±10 μm and ±100 μm both.

Particularly notifying one is 8.16% with ±1 μm of products, and 2.04% for even better precision of ±0.1 μm and ±3 μm both. Comparing Fig. 3.8 and Fig. 3.9, the progress in five years results in an increase from 22.24% to 28.76% in the region better than ±10 μm, and an increase from 12.24% to 22.44% as depicted in Table 3.10. Dimensional accuracy improvement implies that higher accuracy requirement for the mold or die, and consequently the need to acquire high precision machinery, to improve manufacturing process, related training and maintenance and mostly important one, i.e. new customers. The main reason for this visible difference in dimensional accuracy of the

part produced by mold comes from the quickly changing industrial and economic environments. The need for being light, small, precise and convenient appears in any market. IT aids the efficiency and effectiveness of knowledge and information distribution. Competitiveness becomes severe, because more companies may acquire without any difficulty all knowledge and equipment needed to run business. Nowadays, to improve accuracy becomes a must for those who want to earn rather than to survive.

Table 3.10 Dimensional Accuracy Improvement 1996~2001

	1996	2001
Better than ±10μm	22.24%	28.76%
Better than ±3μm	12.24%	22.44%

Fig. 3.10 shows the import situation of raw material, cutting tool, jig and fixture and mold parts.

Due to shortage of special alloy steel for mold or die in Taiwan, mold and die makers are forced to import the required raw material from abroad mainly including Japan,

Fig. 3.10 Import Situation of Material, Tool, Jig and Parts

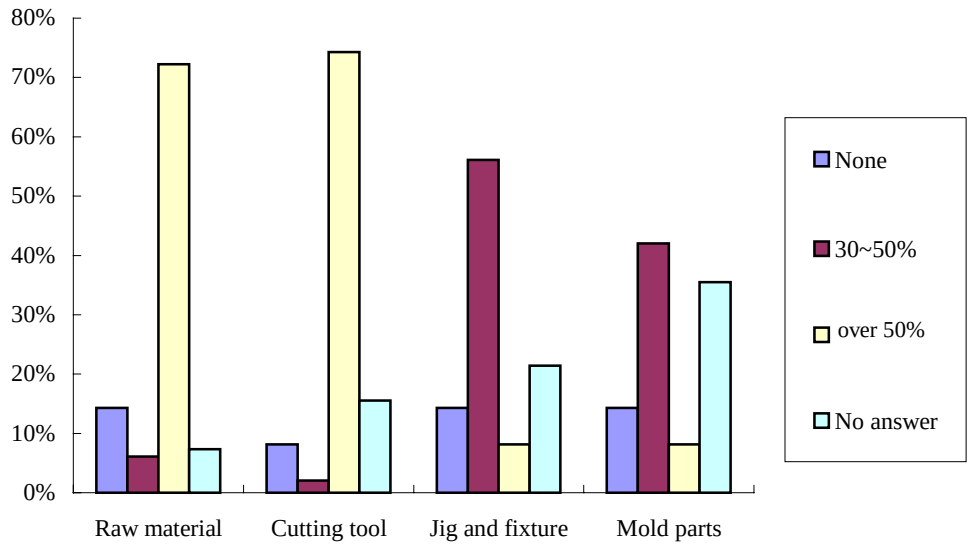
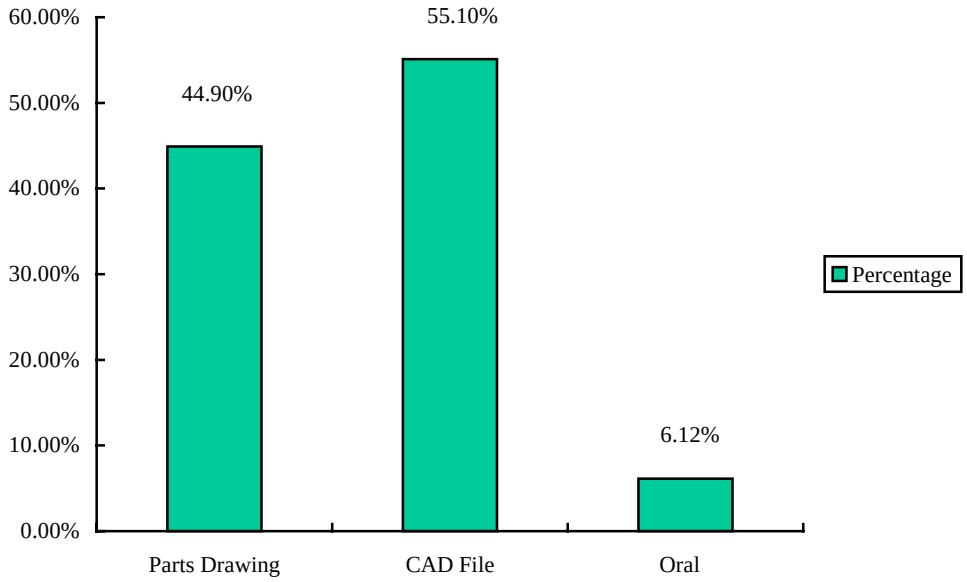


Fig. 3.11 Communication Type while Placing Order

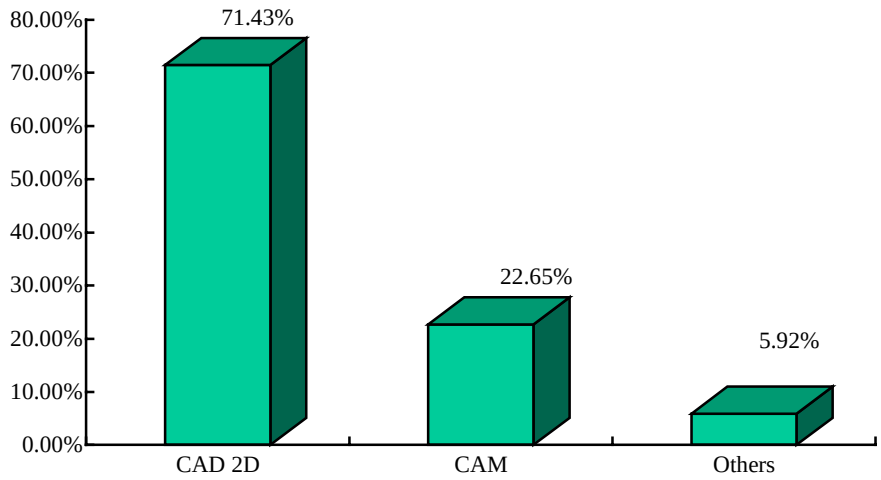


German and U.S.A. Taiwan can not provide tool needed at the economic scale, therefore mold and die makers import them too. Both items from abroad are with as high as 73%. For jig and fixture and parts for mold, few come from abroad. Actually, some of them utilizes imported material, but it is considered as domestic products instead of imported goods. This trend is believed to be continued in the future. The only possible change is the source from where those goods import.

In Fig. 3.11, the communication approach while placing order is discussed. Communication approach is important for its direct influence on the succeeding processes. A right approach may establish very solid foundation for low cost, high quality and short lead-time from the very beginning.

Around 55.1% of companies are used to communicate through Computer network, especially placing order. However, for around 45% of companies, part drawings are still acceptable for discussion and contract binding between both parties. This digit 6.12% may not account for the independent use of oral, because companies may use any two or three types of communication to ensure full understanding and double checking the subject part. For example, after receiving CAD file through Internet, mold maker often calls customer by phone to make sure of the correctness of its content and full understanding. CAD file is becoming the commonly adopted practice to convey the message of subject part.

Fig. 3.12 CAD/CAM Utilization in Mold and Die Industry



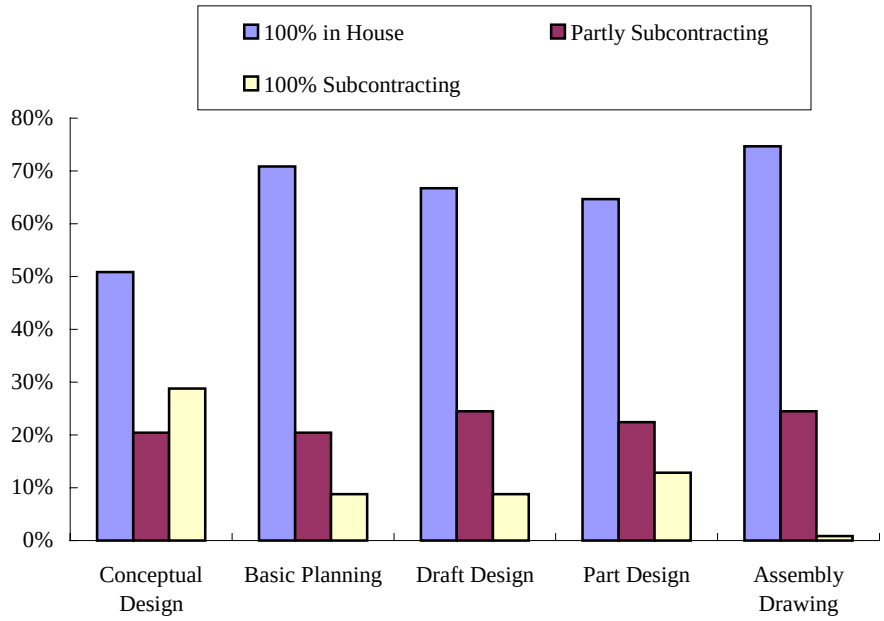
More than 70% of companies use 2D CAD as main data medium to convey and communicate the message of the subject part, as shown in Fig. 3.12. Meanwhile, 22.65% of companies adopt CAM to aid manufacturing. This figure reveals a fact that a lot of space left for the industry to improve the performance in the area of automation. Software house, system integration company and training organization together try to invest more efforts in this area. The most popular CAD system utilized for 2D system is AutoCAD, and PRO/E for 3D CAD. Smartron and UG are commonly used for CAM. Now, many companies migrate from 2D to 3D in pursuit of better performance.

Table 3.11 Time Needed from Mold Design to Try One

10~30 Days	30~60 Days	60~90 Days	>90 Days
16.33%	43.56%	33.99%	6.12%

As shown in Table 3.11, most cases with 43.56% lie in the area of 30~60 days. The second one is 60~90 days for 33.99%. The main factor affecting the time from mold design to try one is the complexity of the subject part itself. Technology differentiation does not exist so much between companies in mold and die industry. Needless to say, excellent engineering discipline may reduce this time to some extent relatively even for the same part, when comparing with the other companies. It is not surprising that a skillful engineer establishes new company for his own business, because of typical

Fig. 3.13 Mold Design Process Sub-Contracting



Taiwanese cultural background of being attempted to own a business sooner or later. To be owner seems to be preferred than an employee only. By this thought, technology and know-how can thus be distributed. Currently, so many companies need new employees to work in Mainland China, and provide a new opportunity for those who want to switch, accompanying definitely with technology fusion and diffusion to remove the difference in between the companies.

Based upon the results in Fig. 3.13, it is known that very high percentage of companies does not like sub-contract design job to the other company. Only 20% of job, ranging from conceptual design to assembly drawing, is sub-contracted. In the hard time, companies tend to do the job in house, which has two good reasons, to secure operativeness and controllability. Little percentage of jobs is sub-contracted, except conceptual design with as high as 28%. Partly due to specialty, partly delivery time consideration, sub-contracting grows gradually. A well-clustered together industry constructs a good infrastructure for job sharing, sub-contracting and technology distribution and improvement. Similarly, machine tool industry, which clusters around Taichung area, has the same situation mentioned above.

As shown in Fig. 3.14, machining, grinding, heat treatment and surface treatment are mainly the processes sub-contracted with around 50% companies. It is rather easy to

Fig. 3.14 Manufacturing Processes Sub-Contracting (M.A.)

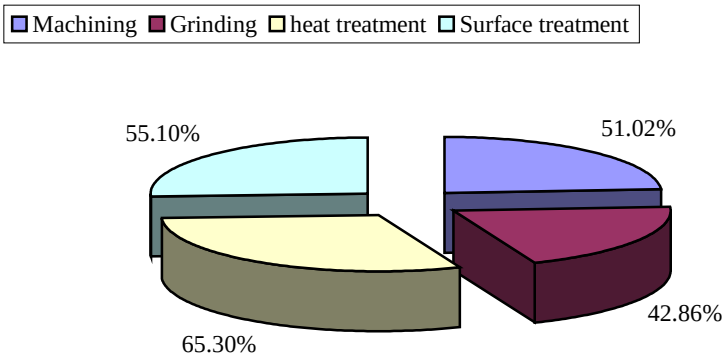
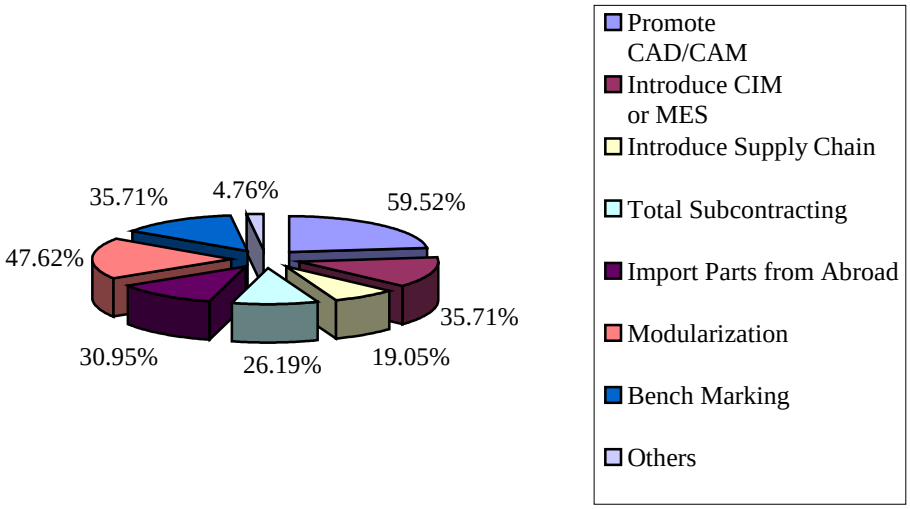


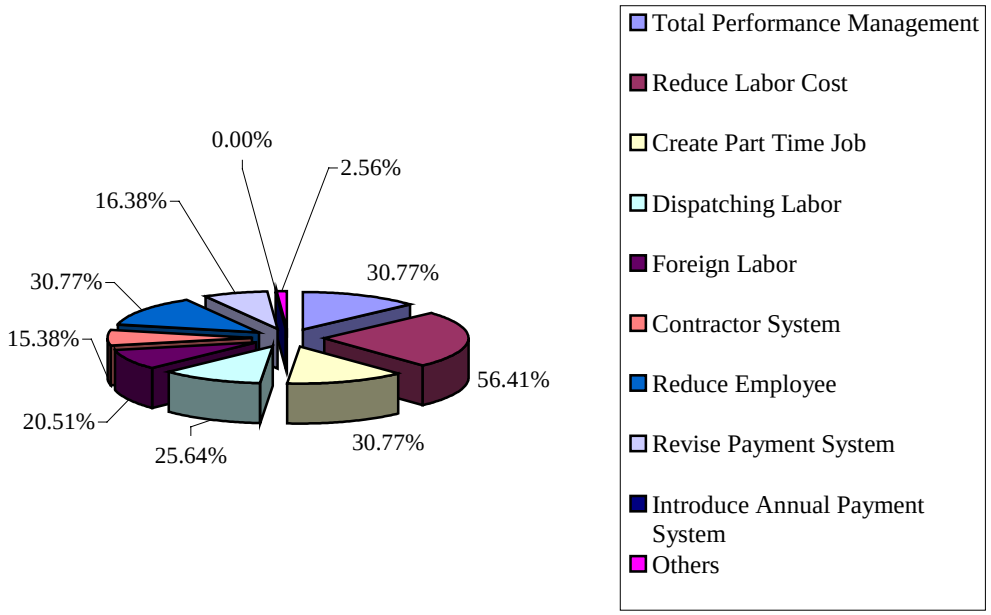
Fig. 3.15 Actions Proposed for Cost Down (M.A.)



understand that the other company of the related specialty provides heat treatment and surface treatment. Few percentages of assembly, even wire cutting and form EDM processing are found to sub-contract to the other companies. Every mold or die company has its own critical process which controls the whole cost or delivery or quality. To secure the critical process enables the company to develop its own core competence and activates leverage effect.

Nowadays, cost down is an important issue. No company can ignore it, no matter for surviving or improving. Fig. 3.15 presents that actions proposed to cost down. Among

Fig. 3.16 Actions Proposed for Cost Down (M.A.)

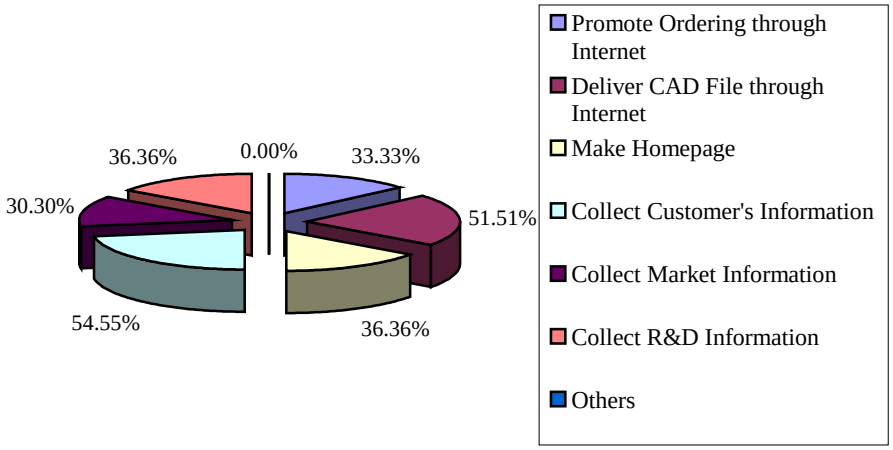


these, CAD/CAM promotion is as high as nearly 60%. Apparently, CAD/CAM leads to labor saving beside some imaginable improvement in quality. Number two is Modularization with 47.62%. Bearing modular concept in mind, engineer can ease design to some extent, and quality can also be upgraded due to modular performance are understood. Besides, 35.71% for taking other company as benchmark is also considered to be an effective approach to cost down. Bench marking cannot lead directly to cost down. However, taking an adequate company as the bench mark, and setting the suitable quality goal and business goal learning from the bench mark, may drive the company to be able to improve and achieve the set goal. Besides, CIM or MES (manufacturing engineering system) is considered as preferred approach as high as 35.71%. In Taiwan, CIM has not been widely conducted, and MES contributes mainly to this item.

To cost down cannot only consider technical issue, because cost involves management issue too. Based upon Fig. 3.16, to use foreign labor with 56.41% is considered by most companies. So far, government says that Taiwan has 200,000 foreign labors in many sectors. Part of those foreign labors is employed in manufacturing industry, and contributes a lot to the production. Employment of foreign labor does cause the effect of cost down without sacrifice of quality.

Total performance management, create part time job and reduce employee are all with 30.77%. Total performance management pursues the real functional performance,

Fig. 3.17 Usage of IT in the Industry (M.A.)



and takes it as the basis for every kind of encouragement, payment, bonus and promotion program. Provided that human being is very rational and realistic, then it is very effective. Nevertheless, the assumption is not totally true. In oriental countries, seniority and relationship still are two important poles of the society including manufacturing industry. Anytime, they exist anywhere. Therefore, they should be adequately taken into consideration, specifically in human resources related management. Total performance management may no doubt enhance the desire to cost down, under such long time seniority and relationship oriented environment. With the help of long time depression, it is time to do total performance management.

Reduce employee and create part time job are the thoughts in the same direction of job re-identifying. Lay-off employee will cut the cost at once. However, its side effect will appear later. It is a trade off to create part time job, and cost will then cut down to a certain extent with controllable minimum side effect.

The usage of IT is represented as six main kinds of activities or objectives. All activities are almost equally realized with percentage 30% to 55%. Companies do as much as they can by IT, without any ignorance. At the very beginning, the industry migrates into the state of CAD file transfer. Once stepping into, it is an irreversible process that companies will invest much more time to dig out what can be done by IT, then do it. Order placement through Internet is undergoing, although some important issues like security control are left for further improvement. One of the big steps by IT assistance is information collection including market and R&D. The convenience accelerates and encourages companies to access and exchange information through Internet.

3.3 Manufacturing shop

By a glance at two figures of Fig. 3.18, 3.19, the change of employee number appears soon. On the one hand, the sector of 26~50 employee decreases by around 9%, and the sector of 51~80 employee increases by about 9% from July 1997 to July 2001. On the other hand, a visible growth of 3.6% appears in the zone of less than 10 people. Besides, an increase of 2.5% is shown in the zone of more than 81 employees small companies. In other words, recently, there are more intention and opportunity to establish small companies. In average, one half of engineering related employee in Taiwan mold or die companies has expertise less than 5 years. It is significant as shown in Fig. 3. 20.

Among them, the trend, shown in Fig. 3.21, can be divided into several issues: young people increase, college graduate increase, and contractor increase. Depression puts impact on every segment of society. Mold and die industry is not so poor that it still can

Fig. 3.18 Employee Number of the Company in July 1999

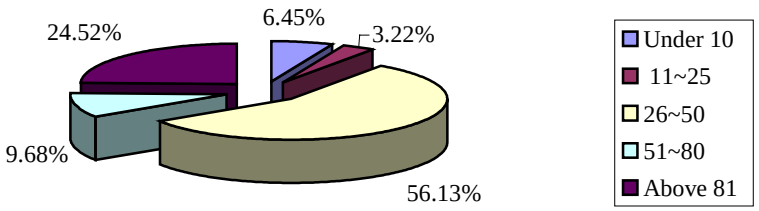


Fig. 3.19 Employee Number of the Company in July 2001

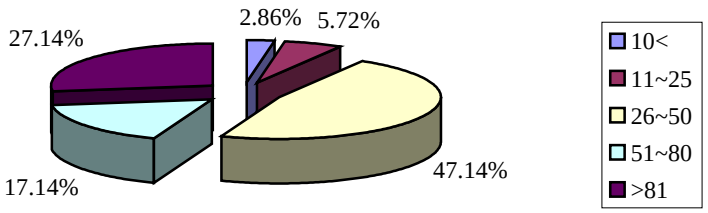


Fig. 3.20 Expertise in Taiwan Mold and Die Industry

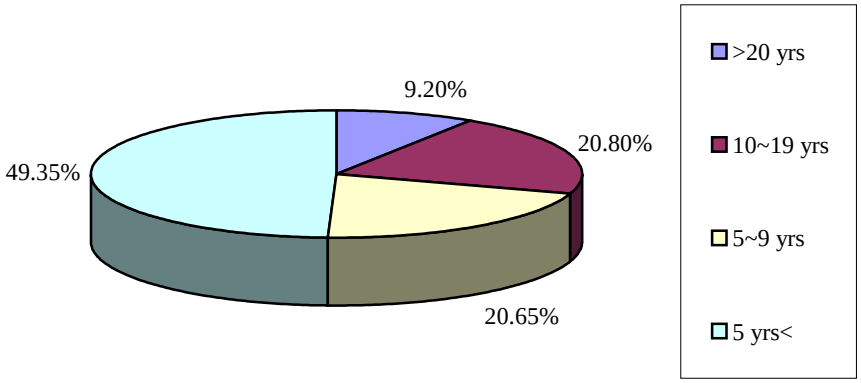
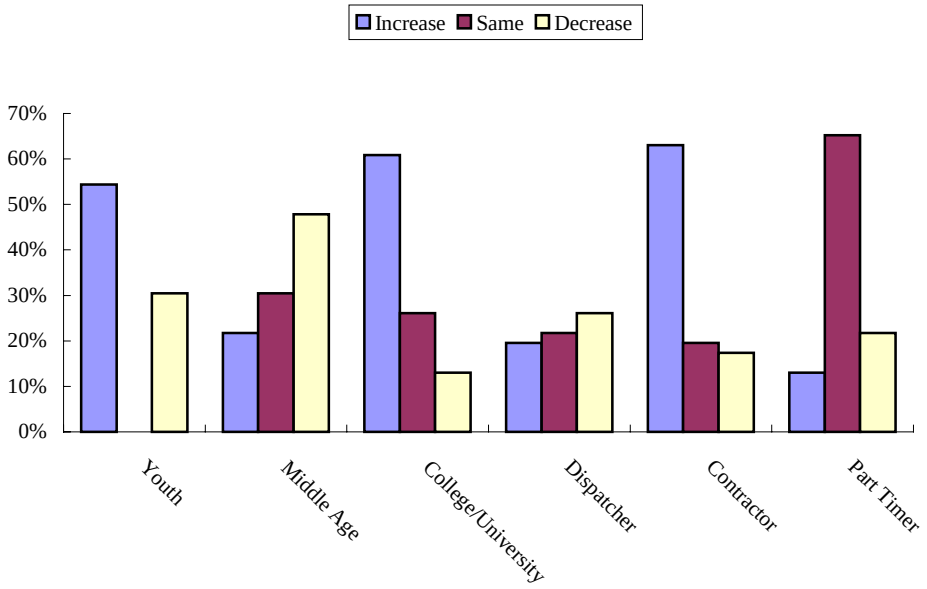


Fig. 3.21 Employee Background Evolution from 1999 to 2001



attract young people and college graduate. The other reason for increase of college is that the company needs them to handle new technology. Contractor, as a part of cost down program, shares workload with employee. This approach seems to be effective.

As a newcomer, amateur needs to be trained in order to be skillful enough to handle the technical job in the manufacturing shop. By the Fig. 3.22, for 41.37% of companies, it takes 2~3 years, 27.59% for 3~5 years and 20.69% for more than 5 yrs. One and the only one problem is that how skillful is skillful? Roughly speaking, 3~4 years could be an adequate number for understanding.

Fig. 3.22 Time Needed to Train an Amateur to be Skillful

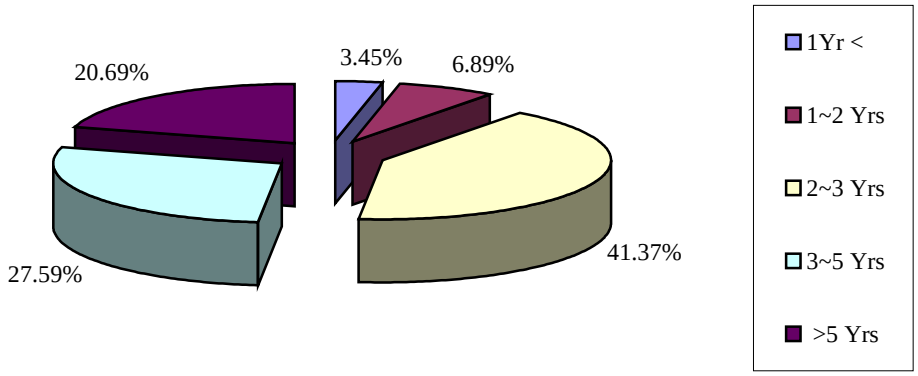
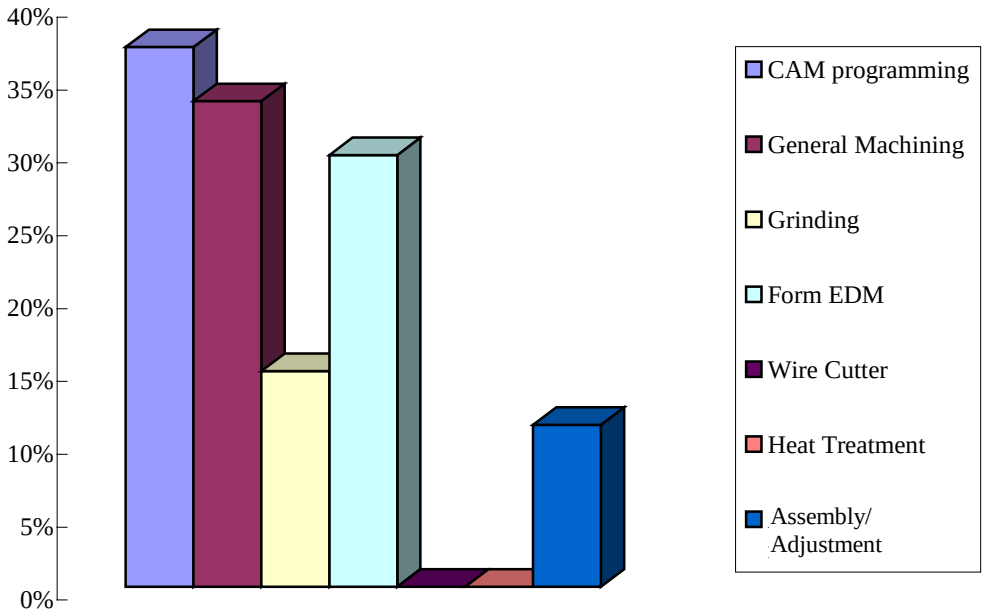
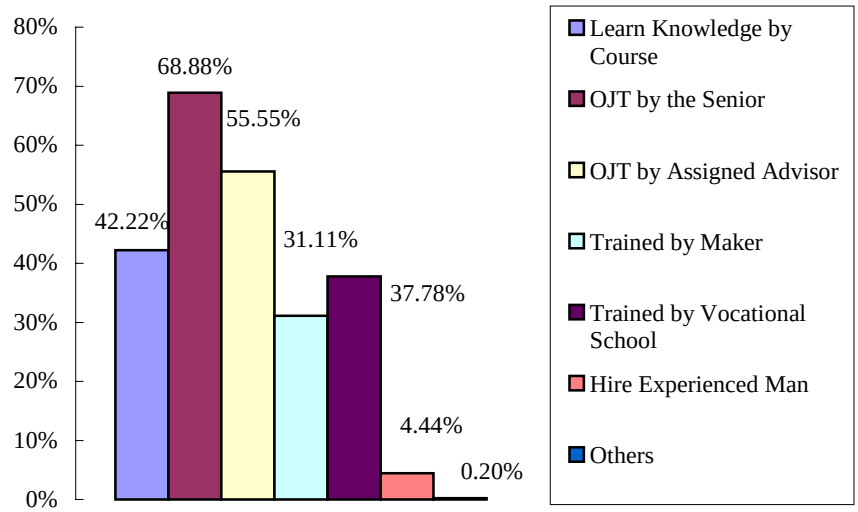


Fig. 3.23 Critical or Unstable Processes in Manufacturing (M.A.)



In the manufacturing shop, there are some critical processes needing special care in order to maintain its quality and productivity. To be critical, such process has several possibilities, like highly knowledge intensive, poor working condition, or being unable to check. Shown in Fig. 3.23, the highest one is CAM programming with 38%, general machining with 35% and 32% with grinding. CAM programming is a typical example, which strongly needs multi-discipline knowledge to improve its performance. In turn, CAM programming quality determines machining quality and delivery greatly. As a result, CAM programming improvement is endless, and makes it be critical.

Fig. 3.24 Training Approach in Taiwan Mold and Die Industry (M.A.)



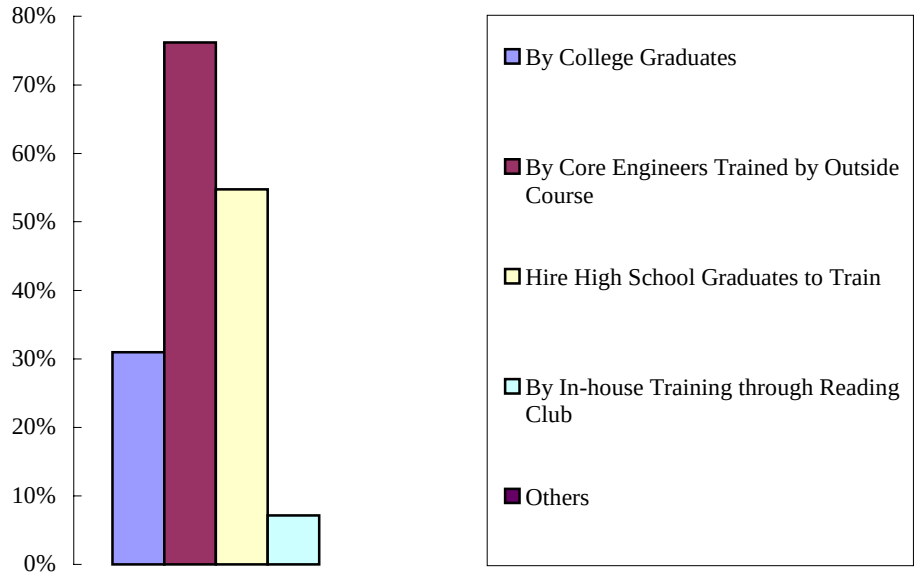
It seems to be a little strange that general machining becomes critical process in manufacturing. It is not a difficult process. Instead, it is a fundamental practice for the people in the manufacturing shop. The characteristics of commonly needed makes the personnel are with high mobility. For those critical processes, companies often try to get reliable outsourcing instead of to do in house. Again, such requirement provides an excellent condition to form new company with desired specialty and large enough workload.

An effective training approach may shorten the time needed and enhance effectiveness. On the job training (OJT) seems to be the most frequently adopted approach as indicated in Fig. 3.24. OJT by the senior or assigned advisor do not have any severe influence on the effectiveness. The kernel of this approach is real case practicing rather than theory only, like provided in the course. OJT has its limitation on being not generic enough. However, this shortage may be recovered by taking adequate course provided by training organization, including maker and vocational school. The basic idea is to bring up people needed. To hire experienced man seems not to be a good idea in the industry. The main concern here is loyalty. Companies have a tendency to train people from the very beginning rather than to hire experienced man. In most cases, when an experienced man switches, his loyalty is seldom not subject to serious examination.

Challenge always comes from any aspects suddenly. Technical challenge is the one that company has to handle it successfully, in order to survive or compete.

The most widely adopted approach to treat a challenge of new technology is to have

Fig. 3.25 How to Treat a Challenge of New Technology



kernel engineers trained in outside course with 76% (Fig. 3.25). The second one is to recruit high school graduate to train them to handle. Ironically, only around 30% of companies assign college graduate to handle the challenge of new technology.

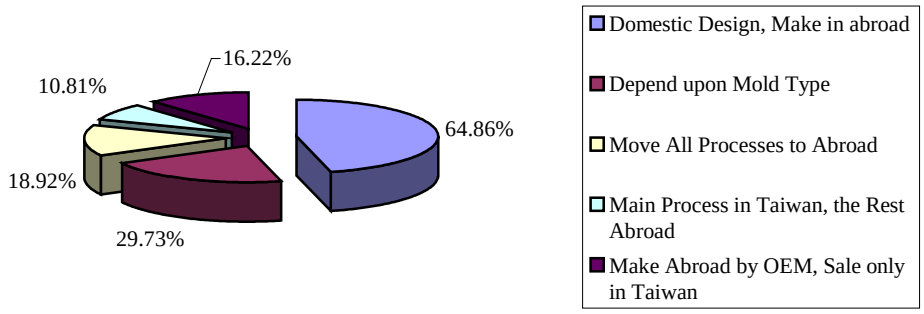
All those facts reflect that even mold and die industry is highly technology intensive, industrial people still have not strong intention to do or acquire research to form company's technical foundation. If this situation cannot be changed, the only result will be low competitiveness.

3.4 International collaboration in Asia

Mostly, Taiwan mold and die companies move to Mainland China to develop new market. Since the newly established enterprise is also owned and run by the original Taiwan mold and die company, this type of cooperation is not considered as international collaboration, and out of the scope set in this study.

From the viewpoint of international collaboration in Asia, as shown in Fig. 3.26, domestic design and make in abroad with 64.86% is greatly desired. Next, depending upon mold type, some will be adequate for cooperation, others will not. The ultimate thought is to move all processes to abroad with 18.92%. Yet, it is more popular than to keep main process in Taiwan. Currently, type of domestic design and make in abroad seems to be O.K. The impact of becoming a member of WTO will emerge soon. All

Fig. 3.26 Planning for International Collaboration



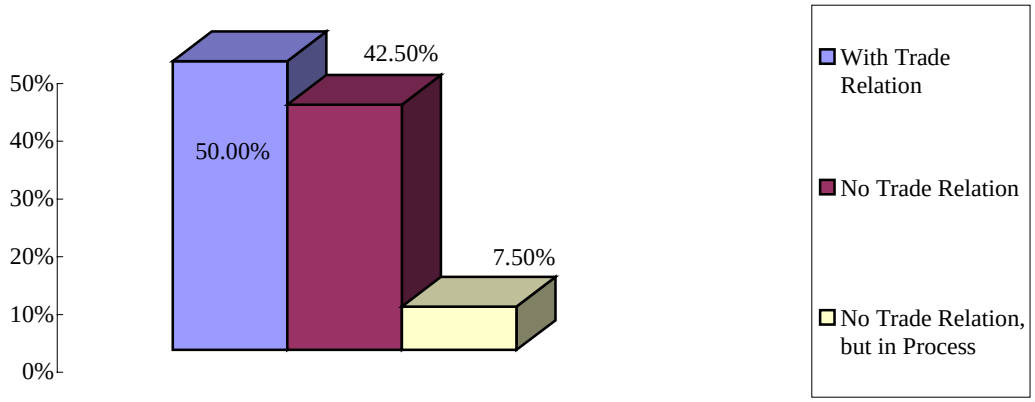


Fig. 3.27 Brief Record of Trade Relation in Asia

activities and consequence in the first year of being a WTO member will cast eternal influence upon near future development.

In the past, Taiwan industry develops intensive trade relation with foreign countries including Asian countries in the neighborhood. Fig. 3.27 somehow presents a brief historical record of said trading contact in Asia. One half of companies of mold and die companies have trade relation with Asian countries, the rest do not.

Be versatile, the policy shown Fig. 3.28 reveal many possibilities with relatively high weight. Around 50% of companies are so customer-oriented that they will support and proceed if some request from customer. The second one is 33.33% with taking into consideration if international collaboration is important. The extreme case is 16.67% with companies, which do not proceed due to fear of technology loss. On the contrary to the former, around 28% of companies decide to proceed definitely to do international

collaboration aggressively.

Fig. 3.28 Policy in International Collaboration and Technology Transfer with Asian Enterprises

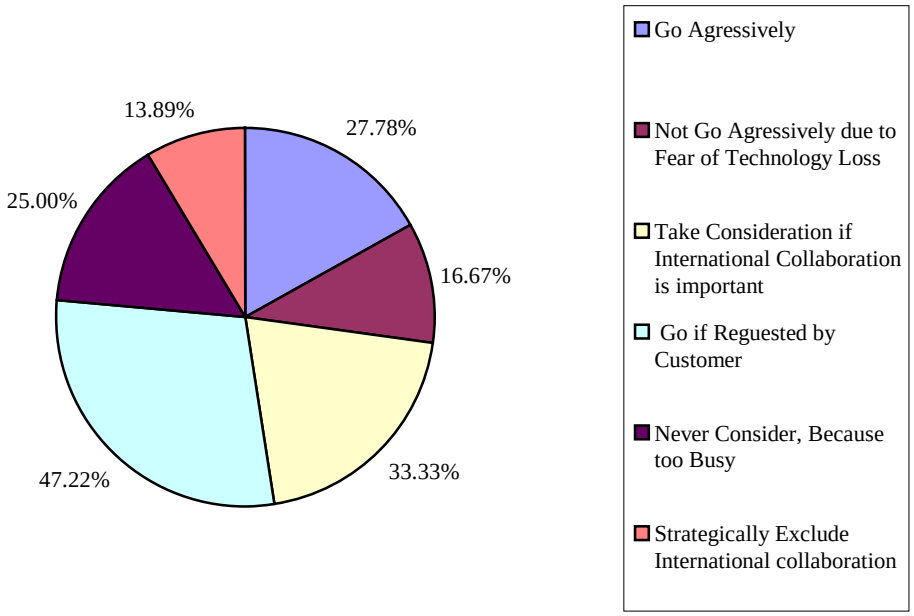
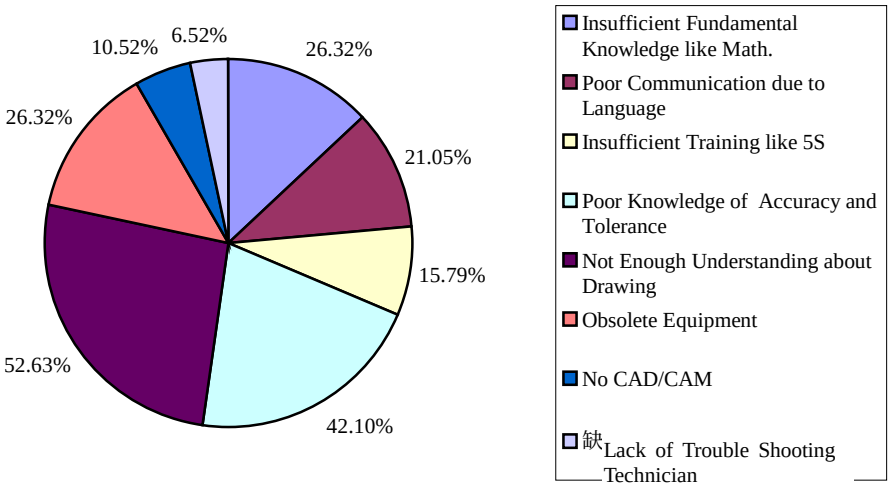


Fig. 3.29 Difficulties in Technology Transfer (M.A.)



Before going further, companies have accumulated some experience in technology transfer in the period of collaboration. Two main difficulties are both in the area of basic

engineering education, as shown in Fig. 3.29.

3.5 Future and strategy of mold and die industry

For the future of Taiwan mold and die industry (Fig 3.30), the opinion about the industry's future, 81.25% of companies answer that they will be divided into two categories. One is a competitive group with powerful technology, another is a weak group losing its power due to rather slow equipment upgrading speed. This extreme anticipation comes from a fact that nobody knows what will happen due to becoming WTO members. The only point they are sure is that the impact will drive the industry to an extreme condition.

The other fear is coming from Asian countries emerging with cheap labor. In this case, Taiwan mold and die industry will be squeezed by the strong and the cheap. Definitely, Taiwan mold and die industry has to find the way to resolve this problem before it comes true. Moving to Mainland China is a fact rather than anticipation.

To manage a company is a tough job, if in depression. Depression generates many problems to drive the company to encounter a series of management issues. Supposed that these issues cannot be handled adequately in time, they will result in unexpected crisis. Fig. 3.31 depicts several hot issues. Production reduction due to domestic depression attracts most attention. Secondly, order loss due to customer's oversea shifting and over-investment on equipment both get 40% attention.

The former is out of mold company's control, but the latter is not. Over-investment on equipment tends to cause cash flow problem easily. Therefore, it is really a terrible issue. To prevent suffering from over-investment on equipment, companies should not

Fig. 3.30 Anticipation for the Future of Mold and Die Industry (M.A.)

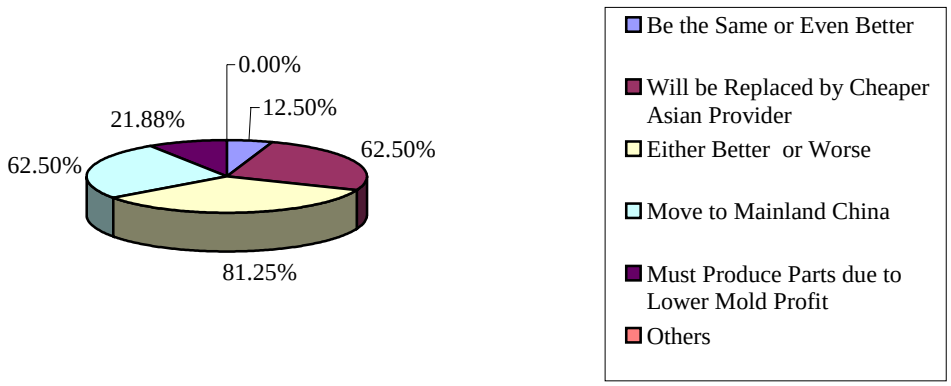
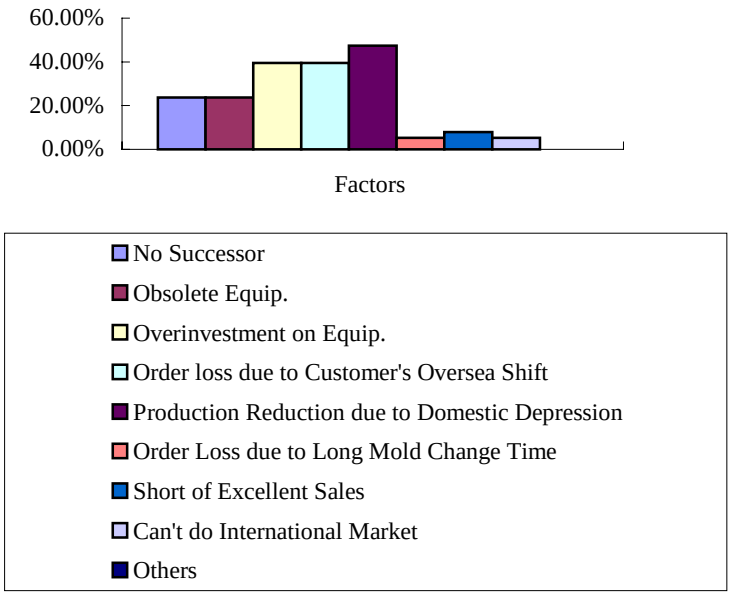


Fig. 3.31 Hot Issues in Company Management



over-estimate the situation. It seems trivial but true. Both no successor and obsolete equipment emerge as concerns with 20% respectively.