

MICROMATIC SUMMARY FACT SHEET V4

(Defaults in Quarter 1 – Subject to Change by Instructor)

THE MARKET

- Three sales regions.
 - Regions 1 and 2 are in the United States or Europe.
 - Region 3 can be in Europe, the United States, or China.
 - If Region 3 is in Europe, the currency is Euros (€).
 - If Region 3 is in China, the currency is Yuan (¥)
 - If Region 3 is in the US, the currency is Dollars (\$)
 - Micromatic did not operate in Region 3 in Q0, but it is an option beginning in Q1.
 - Q1 sales potential for all regions is found in the Market Research Report for Q0.
 - Default currency conversion rates
 - € to \$ = \$1.50
 - \$ to € = €0.64
 - ¥ to \$ = \$.14
 - ¥ to € = \$.09
 - There are no tariffs in Quarter 1.
 - Industry Sales potential = the sales potential forecast times the number of companies in the industry.
 - The sales you achieve in each region are determined by (a) the total sales potential for all companies and (b) your marketing effort relative to the marketing effort of other companies.
 - Marketing effort is composed of the price, the change in price from the prior quarter, the quality of the product, the number of pages of local newspaper advertising, the number of pages of trade publication advertising, the money spent on web marketing, the number of product features, the accuracy of the ad message, and the number of salesreps and their sales commission.
 - Marketing efforts in any region are subject to diminishing returns.
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MARKETING

SALES PRICE

- Sales price in Quarter 0 was:
 - In the US = \$70
 - In Europe = €70
 - In China = ¥500.
- Significant changes in price (e.g., greater than 20%) from one quarter to the next have a major impact on units sold. As in the real world, price changes greater than 10% will have a significant impact on units sold.
- You are permitted to charge different prices in each region.
- Sales price can only be charged in integers.

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PRODUCT QUALITY

- Product quality is entered as a marketing decision.
- The money spent on quality affects both market share and the cost of goods sold cost.
 - A charge is added to the cost of each unit sold that quarter (i.e. the quality is added at the point of sale). The charge is not added to the cost of those units in finished goods inventory.
 - The quality expenditure on the Cost of Goods report equals the money spent on quality times the number of units sold that quarter.

TRADE PUBLICATIONS

- Affects sales in the quarter you purchase the ad and in the following quarter.
- Affects only the region in which you purchase the ad.
- Cost per page:
 - In the US = \$3,000
 - In Europe = €3,000
 - In China = ¥7,000
- Maximum number of pages you can buy in a quarter per region is 99.

LOCAL NEWSPAPER ADVERTISING

- Affects sales only in the quarter in which you purchase the ad.
- Affects only the region in which you purchase the ad.
- Cost per page:
 - In the US = \$1,000
 - In Europe = €1,000
 - In China = ¥5,000
- Maximum number of pages you can buy in a quarter per region is 99.

WEB MARKETING

- WEB marketing expenditures affect sales only in the quarter in which the money is spent.
- The money spent promoting your product on the WWW affects sales in all regions.

FEATURES DEVELOPMENT

- Product features are enhancements made to the product that make it more marketable.
- Money spent on Features Development is spent on research to discover new features to add to your product.
 - It is unknown how much you need to spend to create features, but it is known that the more that you spend on features development, the more likely you will create a feature.
 - Any money spent in a quarter is accumulated into a total spending account. It is total spending on features development that determines whether a feature is created.
- Any new features created in a quarter are added to all items produced in that quarter and to all items in Finished Goods Inventory.
- The number of features that have been created is displayed on the S&A Report.

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AD MESSAGE

- The ad message selected (Price, Quality, Service, Features, General) affects sales based on the accuracy of the message. For example, if your message is quality and your quality is less than the average quality in the industry, you will be penalized with fewer sales. If your message is quality and your quality is greater than the average quality in the industry, you will be rewarded with more sales.
- The ad message can vary by region. However, you must use the same message for all forms of advertising (newspapers, trade publications, and web marketing) within a region.
- The ad message can vary from quarter to quarter; however, this may imply an unclear strategic direction for the firm.

SALESREPS

- **Salary** per quarter per salesrep:
 - In the US = \$10,000
 - In Europe = €10,000
 - In China = ¥11,000
- Salesreps **hired** in a quarter will be trained in that quarter and be ready to promote sales in the following quarter. For the quarter during which a salesrep is hired, for each salesrep hired you pay a hiring, training, and salary cost. Unless changed, the default cost are:
 - **Hiring cost**
 - In the US = \$2,500
 - In Europe = €2,500
 - In China = ¥2,000
 - **Training cost**
 - In the US = \$5,000
 - In Europe = €5,000
 - In China = ¥1,800
 - **Salary cost**
 - In the US = \$10,000
 - In Europe = €10,000
 - In China = ¥11,000
- You can pay salesreps a **commission** in an effort to increase salesperson performance. The higher the commission, the more motivated the salesrep is to promote your product.
- You can **transfer** salesreps to another region. The transfer cost per salesrep is:
 - Between regions in the US = \$7,500
 - Between regions in Europe = €7,500
 - Between the US and Europe = \$12,000
 - Between the US and China = \$50,000
 - Between the Europe and China = €50,000
- The salesreps leave the company at the end of the quarter that you fire them.
- If you have a **stock out** in a region, you will lose one or more salesreps, depending on the size of the stock out. This will not occur if you have no salesreps in that region.
- You can hire at most 99 salesreps per region each quarter.

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MARKETING RESEARCH

- Click on the box (☑) for each item of research information desired.
 - The **cost of the research** option you select is shown on the screen. This is the total cost for the item selected, regardless of the number of companies operating in the industry.
 - **Sales Potential** information.
 - You have two options for purchasing Sales Potential information.
 - Sales Potential for the Next 4 Quarters provides the sales potential per company by region for each of the next 4 quarters.
 - The second research item on sales potential allows you to buy information on one quarter that you select. If you select this option, you must also enter the quarter number for which you desire information. You can buy sales potential information through Q20.
 - To determine the industry sales potential multiply the sales potential per firm for each region by the number of firms in the industry and add the regional sales potentials generated.
 - The sales potential is **not** a guarantee of the sales your company will receive in a particular quarter. The number of units your company sells will be the result of your marketing effort relative to the marketing efforts of the other companies in your industry. Therefore,
 - To sell the potential demand for a quarter, your marketing efforts must equal the average marketing efforts of all companies in your industry.
 - To sell **above** the potential demand for a quarter, your marketing efforts must be **above** the average marketing efforts of all companies in your industry.
 - For **all other marketing research** options you select, you will receive the information purchased for all companies in the industry for the price shown on the Marketing Research decisions panel.
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OPERATIONS

RAW MATERIALS

- **Purchase costs** for raw material are as follows:

<u>Units ordered</u>	<u>Price In the US</u>	<u>Price In Europe</u>	<u>Price In China</u>
1 – 9,999	\$10.00	€10.00	¥95.00
10,000 – 19,999	\$9.00	€9.00	¥80.00
20,000 and above	\$8.00	€8.00	¥70.00

- **Price breaks** are based on units purchased by region, not by the total for all regions.
- **Raw Materials ordered** in a quarter are delivered in the following quarter. For example, raw materials purchased in Quarter 2 will be delivered in Quarter 3.
- Raw Materials are **paid** for in the quarter in which they are received; i.e., COD.
- Raw Material Order **Shortage**
 - In the US and Europe A 7% probability exists that only 80% of the raw material order will be delivered. The remaining 20% will never arrive.
 - In China A 14% probability exists that only 50% of the raw material order will be delivered. The remaining 50% will never arrive.
- **Carrying cost** for the beginning units in raw material inventory are as follows:
 - In the US = \$2.00
 - In Europe = €2.00
 - In China = ¥6.00

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- Selecting the **Liquidate** option allows you to sell all raw material inventory in a region. If you choose this option, you will receive 50% of the value of inventory as shown on the Raw Material Report.

WORK FORCE

- **Wages** per worker per quarter
 - In the US = \$7,500
 - In Europe = €5,500
 - In China = ¥9,000
- The **cost to hire** a new worker
 - In the US = \$3,000 plus the regular worker wages
 - In Europe = €3,000 plus the regular worker wages
 - In China = ¥25,000 plus the regular worker wages
- You need to **hire workers** one quarter in advance of the first day of work, e.g., if you hire workers in Quarter 2, they will be available to produce your product in Quarter 3.
- You need three people to form a crew. A **partial crew** cannot produce **any** units.
 - Each crew can produce 1,000 units without overtime.
 - A crew can produce a maximum of 20% above its normal capacity. For example, if a crew's productivity is 1,000 units, it can produce 1,200 units. The first 1,000 units would be produced at regular time. The last 200 units charged at the overtime rate.
 - Overtime occurs if you exceed either the crew's production capacity or the plant's total current capacity (owned + leased), whichever is most constraining.
- **Overtime** pay rates
 - In the US = \$45.00 per unit
 - In Europe = €45.00 per unit
 - In China = ¥210.00 per unit
- **Worker turnover** is computed based upon the number of workers in each region.
 - In the US and Europe **normal turnover** is 10%.
 - There is a 7% probability that you'll lose **one additional worker** per region
 - There is a 3% probability that you will lose **two additional workers** per region.
 - In China **normal turnover** is 7%.
 - There is a 15% probability that you'll lose **one additional worker** per region
 - There is a 7% probability that you will lose **two additional workers** per region.
- **Discharged** workers leave at the beginning of the quarter. They are discharged before turnover is calculated.
- **Laid off** workers leave at the beginning of the quarter and return automatically the next quarter.
 - In the US Lay off cost per workers = \$3,000
 - In Europe Lay off cost per workers = €3,000
 - In China Lay off cost per workers = ¥700

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- **Worker productivity** declines if a company does not spend enough money on **worker training** and **plant maintenance**.
 - Money spent on worker training and plant maintenance affects worker productivity in the quarter following the quarter in which it is spent.
 - There is no prior information on how much you need to spend to avoid a decline in worker productivity or to achieve an increase in worker productivity. You will have to determine this through experience.
- **Manufacturing Costs**
 - Total manufacturing costs are direct material, direct labor, overhead costs, plus depreciation.
 - Overhead costs
 - In the US = 50% of the total labor cost
 - In Europe = 50% of the total labor cost
 - In China = 150% of the total labor cost

FINISHED GOODS

- You can **subcontract** the production of your product with a local manufacturer.
 - Units purchased from a subcontractor are available for sale in the same quarter as purchased.
 - The **cost of subcontracted units** is shown on the Material and Inventory Costs screen. Default costs are:
 - In the US = \$63.00 per unit
 - In Europe = €63.00 per unit
 - In China = ¥440.00 per unit
 - The subcontract cost shown does not include money spent to improve the quality of the product.
- Production is limited by the number of full crews available, crew productivity, plant capacity, and the number of units of raw material available.
- Finished goods **carrying costs** are based on the number of beginning units in finished goods inventory. The unit costs are as follows:
 - In the US = \$3.00 per unit
 - In Europe = €3.00 per unit
 - In China = ¥18.00 per unit

PRODUCT TRANSFERS

- You can **transfer** finished goods (but not raw materials) to another region. Transfer costs per unit are as follows:
 - Between regions in the US = \$5.00
 - Between regions in Europe = €5.00
 - Between the US and Europe = \$10.00
 - Between the US and China = \$19.00 from/to R1 \$15.00 from/to R2
 - Between the Europe and China = €19.00 from/to R1 €15.00 from/to R2

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PLANT

- You currently **own** plant capacity in Region 1 that can produce 10,000 units per quarter. This capacity will last through Q19.
- You currently **lease** plant capacity in Region 1 to produce 6,000 units per quarter.
 - **This lease terminates at the end of Q7**, reducing your production capacity by 6,000 units in Q8. If you do not take action to replace this leased capacity (e.g., renew the lease or build plant capacity), you will lose 6,000 units of production capacity in Quarter 8.
- You must have a minimum of 5000 units of capacity to operate in Region 1 and a minimum of 3000 units of capacity to operate in Regions 2 and 3. This applies to both plants purchased and plants leased.
- **Depreciation** is computed straight line over 20 quarters.
- Money spent on **plant maintenance** affects the cost of manufacturing your product.
 - Insufficient spending on plant maintenance will affect worker productivity.
 - There is no prior information on how much you need to spend to avoid a decline in worker productivity or to achieve an increase in worker productivity. You will have to determine this through experience.
- Adding plant capacity
 - **Build new capacity.**
 - Enter the number of units of production capacity you desire.
 - Current **purchase cost** per region is shown on the Plant Decisions screen.
 - The minimum purchase for an addition is 1,000 units in a region after you have reached the minimum size plant required for that region (i.e., 5,000 units in Region 1 and 3,000 units in Regions 2 and 3).
 - Payment terms are 20% down, 80% the next quarter.
 - There is a two quarter delay from when plant capacity is purchased and when it is ready for producing product. For example, if purchased in Quarter 2, the plant is under construction in Quarter 3, and operational in Quarter 4.
 - **Lease plant.**
 - Enter the number of units of production capacity you desire.
 - Current **lease cost** per region is shown on the Plant Decisions screen.
 - The minimum lease is 1,000 units.
 - You can lease a plant for 4 quarters or 8 quarters.
 - There is a one quarter delay from when plant capacity is leased and when it is ready for producing product. For example, if a lease is purchased in Quarter 2, the plant is operational in Quarter 3.
- **Sale of plant** capacity,
 - You must sell a minimum of 1000 units.
 - You must sell the oldest plant capacity first.
 - You will be paid the book value of the plant sold (Purchase price less accumulated depreciation).
 - You will receive the cash from the sale of the plant in the following quarter.
 - You can use the units sold in the current quarter.
 - You lose the capacity at the **beginning** of the following quarter (e.g., plant units sold in Quarter 2 can be used to produce units in Quarter 2, but not in Quarter 3).

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- Administrative Costs
 - There is a **fixed administrative charge** for operating a plant in Region 1.
 - In the US = \$50,000
 - In Europe = €50,000
 - There are **additional charges** for operating plants in Regions 2 and 3.
 - Region 2 = \$30,000 if in the US and €30,000 if in Europe
 - Region 3 = \$30,000 if in the US, €30,000 if in Europe, and ¥520,000 if in China
 - Additional administrative charges begin in the quarter after you order additional capacity in a new region.
 - **Technological improvements**
 - There is a one quarter delay from when you purchase a tech improvement until it is operational.
 - You pay for a tech improvement the quarter after you order it.
 - If you technologically improve capacity in a region, you must technologically improve any additional plant capacity added in that region at a later date.
 - Costs are amortized via a depreciation charge over 20 quarters.
 - If you choose to sell a tech improvement, the selling price is its book value.
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FINANCE

- If Region 1 is in the US, the financial statements will be in dollars (\$). If Region 1 is in Europe, they will be in Euros (€). For this summary, dollars are used as the currency in the following bullets. If Region 1 is in Europe the number would be the same, only the currency would change. For example, your line of credit will be either \$400,000 or €400,000.
- **Short-term loan** funds are received in the quarter requested.
 - If the loan requested is insufficient to fully cover your cash flow needs when the quarter is processed, your loan request is cancelled and you will receive an emergency loan for twice the existing interest rate displayed on the screen. This means that if you request a short-term loan for \$200,000 but need \$200,001, your loan request is denied and you will incur an emergency loan for the full \$200,001 not for the \$1 you were short in your request.
 - The maximum amount you can request is displayed as your line of credit on the financial decisions screen. In Quarter 1, your line of credit is \$400,000.
 - You are required to repay what you borrowed in the following two quarters in two equal payments. For example, if you borrow \$100,000 in Quarter 2, you will pay \$50,000 in Quarter 3, and \$50,000 in Quarter 4.
 - You can make an extra payment on your short-term loan to pay it off early, if you desire.
 - The base interest rate is 10% adjusted for your debt asset ratio at the beginning of the quarter.
- **Short-term Investment Deposits** are paid in the quarter in which they are made.
 - Are paid in the quarter in which they are made. Payment is shown on the Cash Flow Statement.
 - Interest income is paid the quarter after you have made an investment.
 - Current investment rate is 5%.
- **Withdrawals of short-term investment** are received in the quarter requested.

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- **Dividends** are paid in the quarter in which they're declared.
 - In order to influence the stock price, the dividends must be at least \$.05 per share.
 - You retire stock before you declare any dividends each quarter.
 - If you retire stock in the same quarter in which you pay a dividend, the dividend paid is based on the number of shares outstanding after the stock is retired.
 - You cannot issue a dividend if the transaction results in negative accumulated retained earnings.
 - You pay dividends the quarter that you declare them.
- **Stock issues** take place and the proceeds are received in the quarter requested.
 - You cannot issue stock if the current price minus the broker's commission is less than the \$10 par value.
 - The minimum number of shares you can issue in a quarter is 1,000 shares
 - The maximum number of shares you can issue in a quarter is 10,000 shares
 - You will pay a broker's commission fee of 10% on all stock transactions.
 - The Minimum # Shares Outstanding that you can have is 120,000 shares.
 - The Maximum # Shares Outstanding that you can have is 240,000 shares.
- **Stock retirements** occur in the quarter in which they were made (i.e., retired).
 - You cannot retire stock if the transaction results in negative accumulated retained earnings.
- **Stock price** is determined by the previous period stock price, earnings or losses per share, continuous quarters of profit or loss, amount of dividends, number of continuous quarters that you pay dividends, price-earnings ratio, and random market factors.
- **Bond sales** are received in the quarter requested.
 - Bond sales are for the purchase of plant capacity and technological improvements.
 - All companies start with one bond.
 - Current new bond interest rate is 10%.
 - Interest payment on new bonds starts the quarter after you receive the bond and continues until the bond is paid off.
 - Bond repayment is made over the 20 quarters following the issuance of the bond.
 - You can make an extra payment on your first bond to reduce its outstanding balance.
 - There is a surcharge of 3% on additional (i.e., early) bond payments.
 - The maximum number of bonds outstanding at any one time is two (2).
 - To get an additional bond, you must first retire the first (i.e., oldest) bond. Do this by entering the amount outstanding for Bond #1 shown on the Balance Sheet.
 - You can include the money needed to retire the first bond with your new bond request, if you have insufficient funds from other sources to make the early payment.
 - If the extra payment for the first bond is insufficient to pay it off early, your new bond request will be denied. The program does not allow you to overpay your extra payment.

INCOME TAXES

- The income tax is 50% of pretax income.
- No taxes are paid when a loss occurs in a quarter.
- If you lose money in a quarter, you will not pay taxes for that quarter.
 - Losses in a quarter serve as a tax shelter against taxes owed on profits generated in later quarters.
 - The calculation of whether you are due any tax refunds because of losses you incurred earlier is done in the last quarter of each year (i.e., Quarter 4, 8, 12, and 16).
- End-of-year adjustments in taxes paid in order to make the cumulative effective rate 50% on earnings for the year. This occurs in Quarters 4, 8, 12, and 16

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CASH FLOW

Cash Receipts

- 50% of **sales revenues** are received as cash in the quarter the sale is made. The remaining 50% becomes Accounts Receivable and is collected as cash in the next quarter. There is no bad debt.
- **Stock issues** and **bond sales** are received in the quarter requested.
- **Sale of plant capacity** funds are received one quarter after you sell the plant. For example, if you sell plant capacity in Quarter 2, you can use the plant in Quarter 2. You will lose the plant capacity at the beginning of Quarter 3 and receive the cash in Quarter 3.
- **Short-term investment** interest earned is received the quarter after you make the investment.
- **Withdrawals of short-term investment** are received in the quarter requested.
- **Short-term loan requests** are received in the quarter requested. The maximum amount you can request is displayed as your **line of credit** on the financial decisions screen. In Quarter 1, your line of credit is \$400,000.

Cash Disbursements

- **Raw material purchases** are paid the quarter after you ordered the materials. The payment includes the cost of carrying raw material in inventory from last quarter into the current quarter.
- **Subcontract units** pay in the current quarter.
- Interest charges on **short-term loans** are paid the quarter after the loan is received.
- **Interest charges on bonds sold** are paid over 20 quarters beginning one quarter after the bond is sold.
- **Dividends issued** are paid in the quarter in which they were issued.
- **Income taxes** are paid in the quarter after you incur the tax obligation. For example, if you earn a profit in Quarter 1, you will have to pay taxes on that profit in Quarter 2. So, the amount shown as “Provision for Income Taxes” on the Income Statement is not paid in cash until the following quarter.
- **Bond retirement** begins the quarter following the sale of the bond. A bond is retired in 20 equal payments.
- **Stock retirements** are paid in the quarter in which they were purchased (i.e., retired).
- Payments for **purchase of plant** capacity are 20% down and 80% in the following quarter.
- **Plant Lease payments** begin the quarter following the lease purchase.
- **Short-term loans** are paid in two equal payments in the two quarters after it was received.
- **Maintenance** is paid in the current quarter.
- **Investment deposits** are paid in the quarter in which they are made.
- **Labor, quality, and overhead** expenses are paid in the quarter in which they are incurred.
- **Warehouse operations** expenses are paid in the quarter in which they are incurred.
- **S & A** expenses are paid in the quarter in which they are incurred.
- **Emergency Loans** appears if your cash payments are greater than your cash receipts, plus any short-term loan request you entered.
 - If this occurs, your short-term loan request is denied and your company is given an emergency loan for the full amount needed to bring your to bring your cash balance up to zero. This means that if your Net Cash Flow is \$-300,000 and your short-term loan request was \$200,000, your emergency loan will be for \$300,000. It will not be for the \$100,000 difference between your Net Cash Flow and your short-term loan request, because your loan request was denied (cancelled).
 - The interest rate on this emergency loan is double the standard interest rate up to a maximum rate of 30%, depending upon your company's debt-asset ratio.