Outline

- Methodology
- MicroDisplay highlights
- Industry trends
- Tools
- Application of tools
Mission Statement

To help MDC become the leading provider of high resolution imaging devices by determining probable scenarios that MDC might face three years down the road and recommending managerial strategies based on these scenarios and MDC’s resources.
Methodology

1. Characterize RPTV and LCOS industries
2. Identify industry trends
3. Develop scenarios
4. Identify scenario-specific indicators
5. Formulated scenario-specific strategies
6. Match industry trends to scenario indicators
MicroDisplay Highlights

- Small startup
- Transitioning to mature company
- Transitioning from small scale production to high volume

Key Strengths
- Substrate IP
- Manufacturing process IP and know-how

Key Weakness
- Manufacturing capital expenditures
Industry Trends

- Industry accepts microdisplays, LCOS, DTV
- Lots of OEMs doing LCOS RPTV
- Lots of new companies doing LCOS
- Companies are specializing and partnering
- Manufacturing shifts to Asia
- Darwinism and and consolidation
Scenarios

Kings of the Mountain
- LCOS becomes the accepted ‘best’ solution for microdisplays
- Many RPTVs use LCOS
- Very few competitors are able to match both price and quality
- Small number of successful LCOS producers
- MDC has opportunity to secure big wins if they can ramp manufacturing to match demand

A Fight to the Finish
- LCOS becomes the accepted ‘best’ solution for microdisplays
- Many RPTVs use LCOS
- Competition succeeds in matching price and quality with their LCOS displays
- Many solutions = no clear standard?
- Possible commoditization

Lonely at the Bottom
- Some other technology becomes the industry answer for microdisplays
- LCOS applications few and far between because no big companies around to push it forward
- Competitors never developed a competitive LCOS microdisplay, possibly because they anticipated the lack of demand
- Possible wins in small niche markets

Barking Up the Wrong Tree
- Some other technology becomes the industry answer for RPTVs
- LCOS applications spring up in other areas besides RPTVs
- Competitors succeed in creating a competitive LCOS microdisplay in terms of quality and price
- All players scramble to find the killer application for LCOS-based microdisplays

Industry acceptance of LCOS as a technology for RPTVs
- High
- Low

Number of key suppliers of LCOS
- High
- Low
Cash Flow Analysis

- Either foundry or MDC sells LCOS
- Foundry production constant for 3 years (1.2 mil/year)
- In three scenarios foundry produces panels
- Foundry begins production in January 2003
- Foundry does everything to make the part (fabricate, sandwich, glue)
- As features improve, production costs also decrease, leaving the cost and price per LCOS unchanged
- MDC sells panel for $250, cost of panel is $100
- MDC process is worth $50/LCOS for Foundry, Foundry’s aid is worth $10/LCOS
Quick NPV View (millions)

Industry acceptance of LCOS as a technology for RPTVs

- Fail to Partner
- Sell Half
- Sell Capacity
- License 50%
- Mix
- Outsource

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Scenario Indicators

Industry acceptance of LCoS as a technology for RPTVs

High

Low

Number of key suppliers of LCoS

High

Low

Kings of the Mountain

A Fight to the Finish

Barking Up the Wrong Tree

Lonely at the Bottom

Panel maker products

diversify

majority of evaluation kits sold to

app-specific

Standards solidify

slowly (>1 yr)

quickly (<1 yr)

outsourcing negotiations

easy

hard

RPTV makers

majority of evaluation kits sold to

other apps

RPTV makers

don't form

form

Consortium(s)
don't form

form

LCOS panel makers ally with

other apps

other apps

$ / performance gap, LCOS vs. other RPTV sol'n's

closes

widens
Scenario Strategies

**Kings of the Mountain**
- Outsource
- Seek several customers
- Tailor product to winning standard

**A Fight to the Finish**
- Outsource
- Partner with specific customer
- Focus on differentiation
  - Technology
  - Price
- Tailor product to customer/partner

**Lonely at the Bottom**
- License for revenue and market pollination
- Look for niche markets
- Sell from internal line
- Charge premium for evaluation kits
- Consider acquisition

**Barking Up the Wrong Tree**
- License for revenue and market pollination
- Look for new applications
- Cross-license with other LCOS makers for pollination
- Sell as many evaluation kits as possible
  - Sell evaluation kits cheaply

**Industry acceptance of LCOS as a technology for RPTVs**
- High
- Low

**Number of key suppliers of LCOS**
- High
- Low
Current Situation

- Industry acceptance of LCoS as a technology for RPTVs: High
- Number of key suppliers of LCoS: High

Current Situation Diagram:
- Panel maker products: diversify
- Majority of evaluation kits sold to: other apps
- Standards solidify: quickly (<1 yr)
- Outsourcing negotiations: hard
- Consortium(s): don't form
- LCOS panel makers ally with: other apps
- Performance gap, LCOS vs. other RPTV sol'ns: closes
- Barking Up the Wrong Tree
- Kings of the Mountain
- A Fight to the Finish
- Loneliness at the Bottom

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Recommendations

A Fight to the Finish
- Outsource to 3\textsuperscript{rd} party
- Buy back and sell
- Establish a partnership with single panel customer
- Work with partner to customize
- Beware of possible shift to Kings of Mountain
- USE THESE TOOLS AGAIN
Thank You

Any Questions?