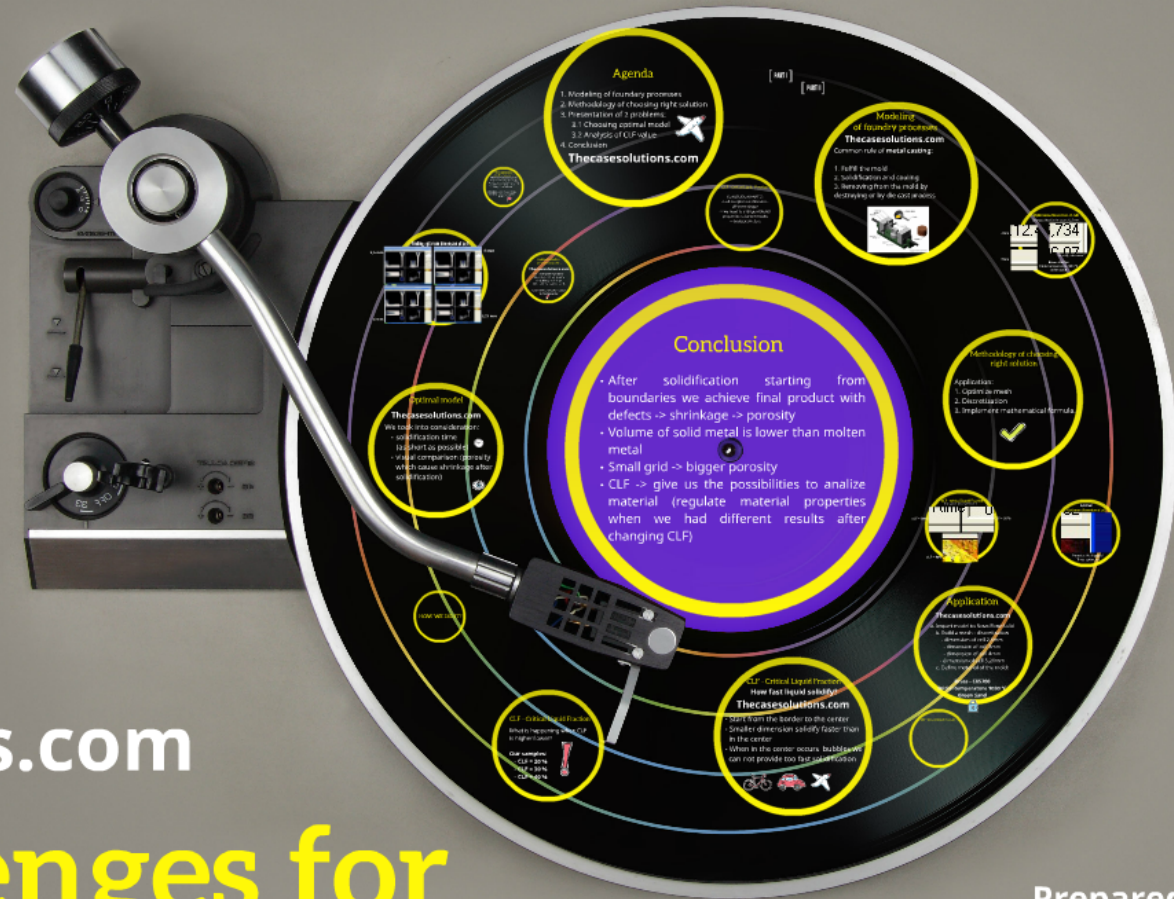


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# New Challenges for Corporate Governance

Prepared by:  
Adriana Kuna  
Ewelina Kuśmider  
MD-IE-32



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# Agenda

1. Modeling of foundary processes
2. Methodology of choosing right solution
3. Presentation of 2 problems:
  - 3.1 Choosing optimal model
  - 3.2 Analysis of CLF value
4. Conclusion



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of cells.  
500k

CLF - Critical Liquid F

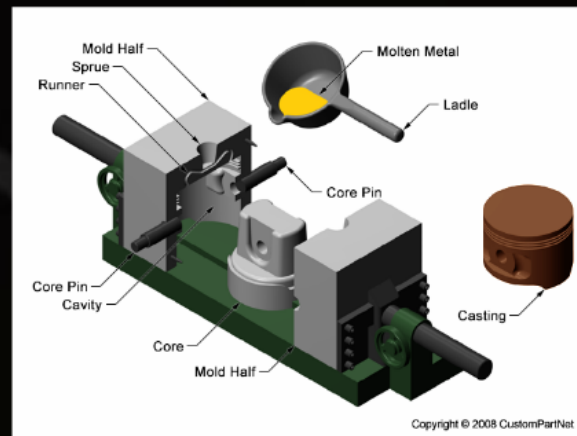
CONLSUSION PAR  
-> all samples are dif  
different shape

# Modeling of foundry processes

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Common rule of **metal casting**:

1. Fulfill the mold
2. Solidification and cooling
3. Removing from the mold by destroying or by die cast process



4 mm

3 mm

# Application

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- a. Import model to Nova Flow Solid
- b. Build a mesh - discretization
  - dimension of cell 2,5mm
  - dimension of cell 3mm
  - dimension of cell 4mm
  - dimension of cell 5,21mm
- c. Define material of the mold:

**Brass - C85700**

**Initial temperature 1030 °C**

**Green Sand**



## Why dimension of cell is important?

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**Decrease dimension of cell:**

- > total number of cell is higher
- > calculation time will be higher
- > change quality of mesh



- **4 mm** gives us around 600k of cells.

- **2,5 mm** gives us around 2500k  
of cells.



Optimal number  
of dimension cells

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We need **lower number** of  
dimension cells. We want to  
find defects, with high  
dimension we can not see it.

**Low number of cells - easier  
to find porosity.**



## Optimal model

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We took into consideration:

- solidification time  
(as short as possible)
- visual comparison (porosity  
which cause shrinkage after  
solidification)





CLF - Critical Liquid Fraction

How fast liquid solidify?

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- Start from the border to the center
- Smaller dimension solidify faster than in the center
- When in the center occurs bubbles we can not provide too fast solidification

