

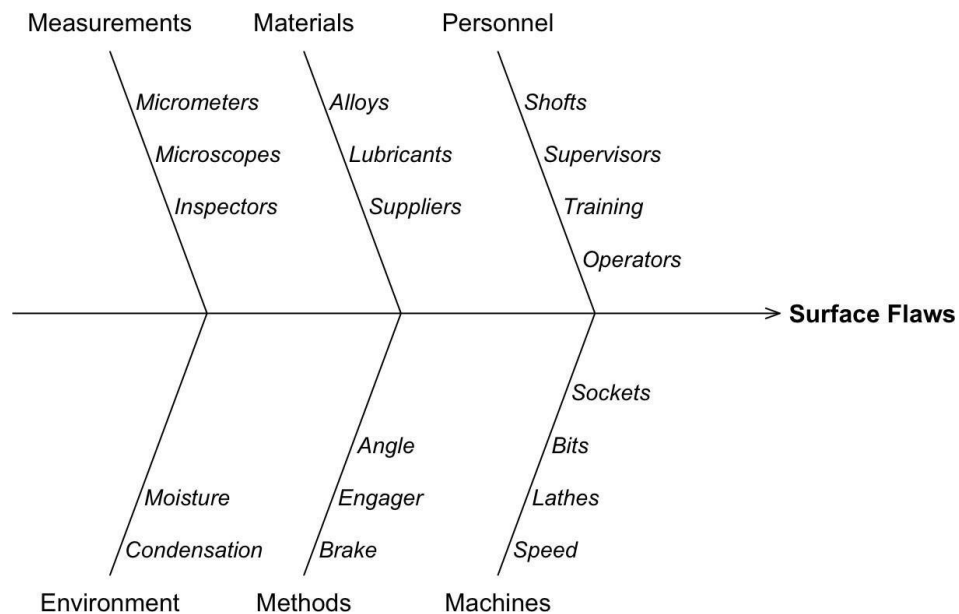
## Clase: Diagramas de Ishikawa

```
# Se activa Librería qcc  
library(qcc)
```

```
## Package 'qcc', version 2.6  
## Type 'citation("qcc")' for citing this R package in publications.
```

```
# Se elabora el diagrama de Ishikawa  
cause.and.effect(cause=list(Measurements=c("Micrometers", "Microscopes", "Inspectors"),  
                             Materials=c("Alloys", "Lubricants", "Suppliers"),  
                             Personnel=c("Shifts", "Supervisors", "Training", "Operators"),  
                             Environment=c("Condensation", "Moisture"),  
                             Methods=c("Brake", "Engager", "Angle"),  
                             Machines=c("Speed", "Lathes", "Bits", "Sockets")),  
effect="Surface Flaws")  
  
## Otro método:  
library(SixSigma)
```

### Cause-and-Effect diagram



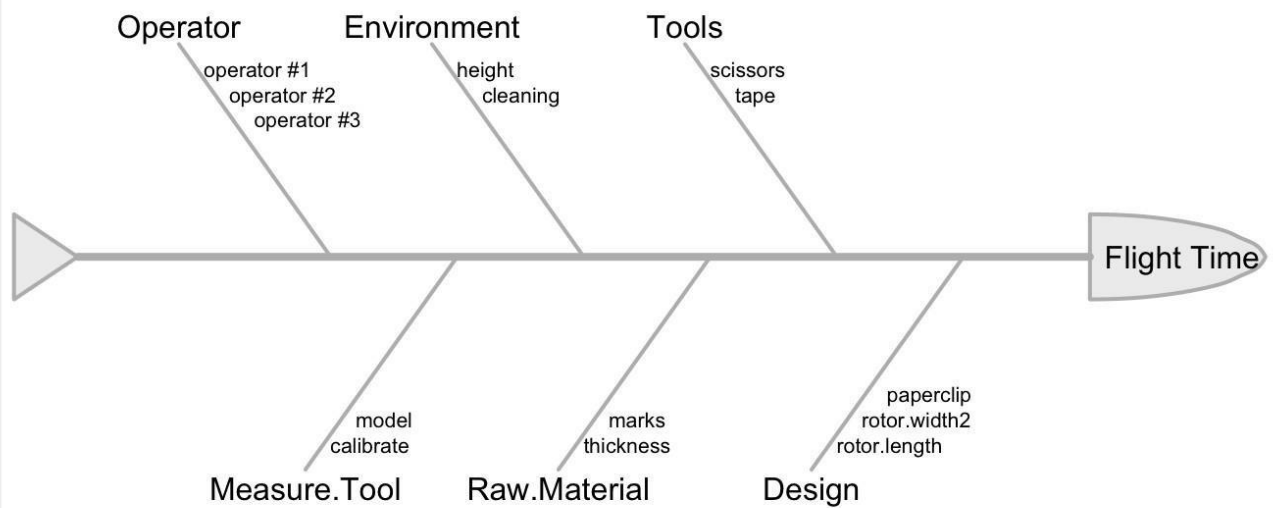
```
# Se elabora el diagrama effect <- "Flight Time" causes.gr <-  
c("Operator", "Environment", "Tools", "Design",  
  "Raw.Material", "Measure.Tool")
```

```

causes <- vector(mode = "list", length = length(causes.gr))
causes[1] <- list(c("operator #1", "operator #2", "operator #3"))
causes[2] <- list(c("height", "cleaning")) causes[3] <-
list(c("scissors", "tape")) causes[4] <- list(c("rotor.length",
"rotor.width2", "paperclip")) causes[5] <- list(c("thickness",
"marks")) causes[6] <- list(c("calibrate", "model"))
ss.ceDiag(effect, causes.gr, causes, sub = "Paper Helicopter Project")

```

## Six Sigma Cause-and-effect Diagram



Paper Helicopter Project