

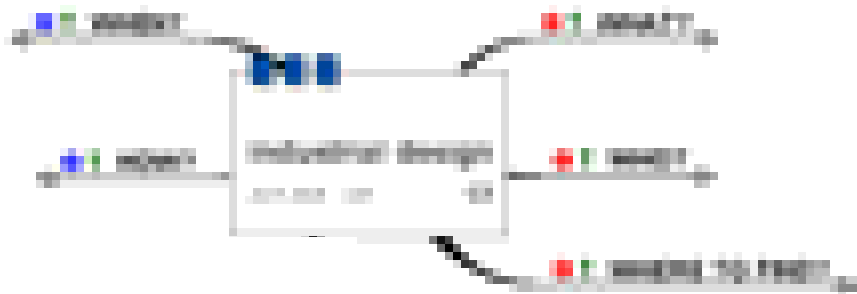
# Industrial design

Timo Silvonon  
HUT 22/04/2005

S-72.124  
Product Development of Telecommunication Systems



# The plan

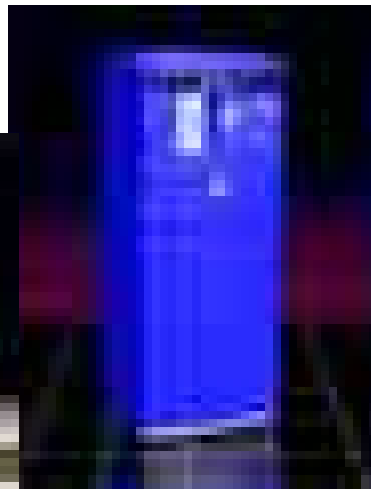


## Timo who?

- Industrial designer
- BA, University of Art and Design, Helsinki 1995
- MA, University of Art and Design, Helsinki 1998
- International Design Business Management minor
  - HUT
  - HSEBA
  - Nokia Display Products
- Thesis: "Acquiring And Integrating Consultant Industrial Design To Nokia Display Products' Product Creation": outsourcing manual for ID managers
- Design consultant and educator 1995-

## Timo where?

- Vaajakallio Design
  - 1995-1997
  - Internship
  - Consultant



## Timo where?

- Entrepreneur
  - 1996-1998
  - Product design
  - Concepts
  - Graphic design
  - Web design



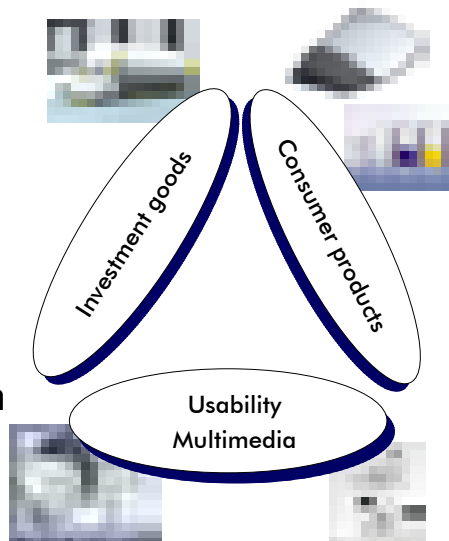
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## Timo where?

- 5D Design consultancy
  - 1998-2003
- Industrial designer
  - Production equipment
  - Tools, protective gear
  - Fireplaces, ovens
  - PCs and add-ons
- Product multimedia
  - and usability
  - Extended from design
- Marketing director



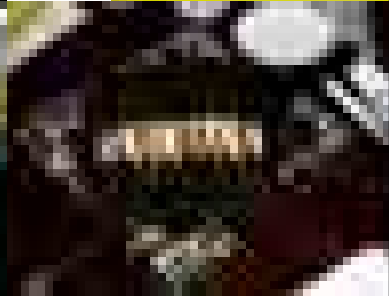
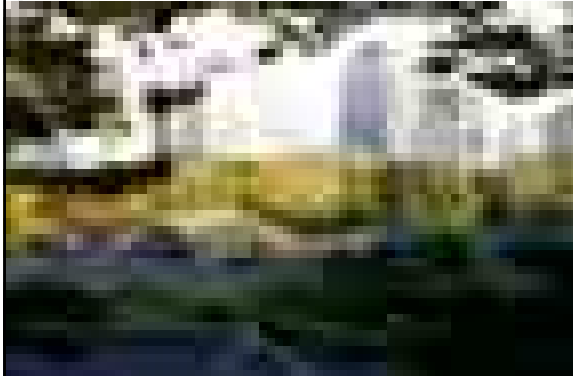
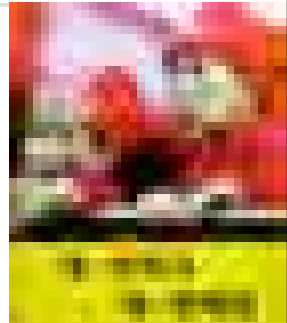
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# Timo where?

- Korea 2003-2004
  - Seoul National University: invited professor, industrial design
  - Samsung Design Membership: Mentor, Product design



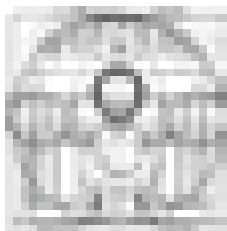
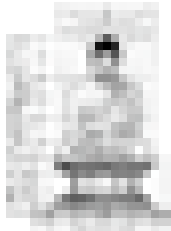
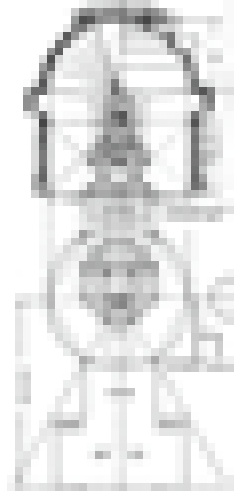
# WHAT?



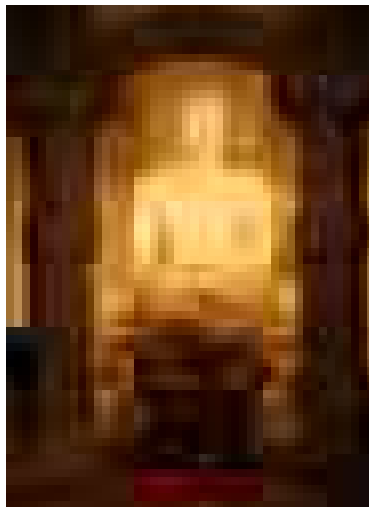
## Industrial design: one definition

Sokkuram grotto: the perfection of buddhist architecture

- Construction
- Ventilation
- Moisture control
- Sunlight
- Composition
- Perspectives
- Emotion



## Industrial design: Samsung definition



*"The Balance of Reason and Feeling"*

## Global brands: Suunto

- Diving

- Sailing

- Mountain climbing

- Precision Instruments and compasses



## Global brands: Polar

- Heartrate monitors
- Fitness software and on-line trainers

- Weight watching

- Running

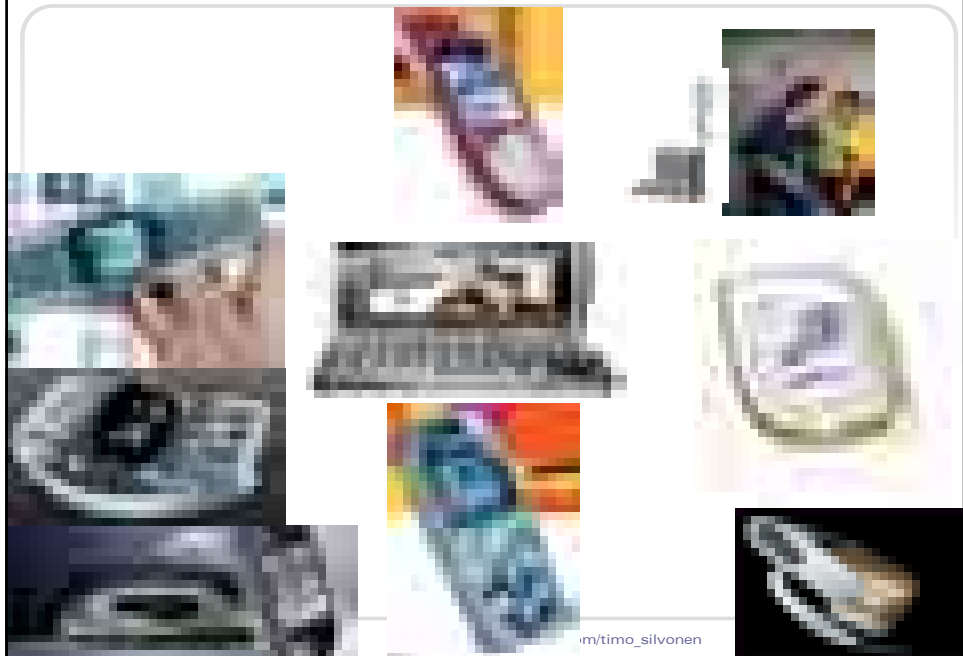
- Cycling

- Fitness for health

- **"Fitness with style"**



## Global brands: Nokia

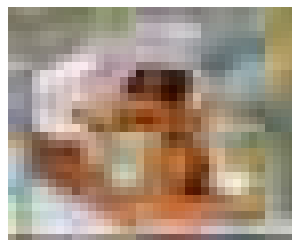


## Examples

- Machinery

- Metso OptiCart

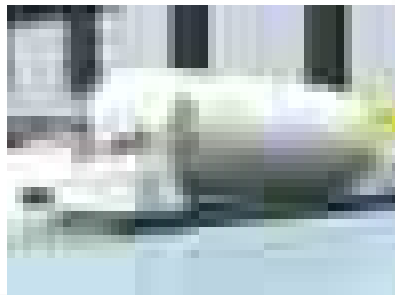
- Transferring up to 150 ton paper reels for storage and additional processing
- The transferring mechanism and -gates were taken away from all the production line machines



Old

- Sheet metal design

- Keeps clean
- "LEGO" electronic modules
- Houses GUI
- Prevents sitting on cart
- Hides novel technology



New

## Examples

- Medical

- Finndent FD-3700

- weighs 70 kg
    - turns around the patient's hip's pivot
    - enables better reach reducing shoulder strain
    - recycled lump padding
    - Detachable, zipped upholstery



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## Examples

- Investment / professional goods

- NAPS HydroGenio fuel cell

- laboratory prototype commercialized
    - integral urethane cast



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## Design research in Finland

- Quite advanced processes
  - Usability
  - Contextual studies
- Good network
  - Finland internationally well respected
- Good support
  - TEKES, Academy of Finland
- Easily outsourced
- Research helps map the scene and the skills

## Concepts

Most multi-disciplinary work:

- Management
- Marketing
- Engineering
- Industrial design
- Behavioural science
- Users
- Non-users!
- Nature



Some become "real" projects, some don't - maybe yet

# Concepts



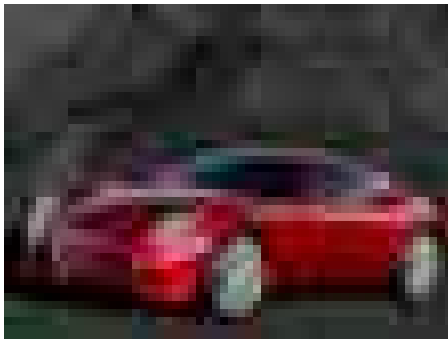
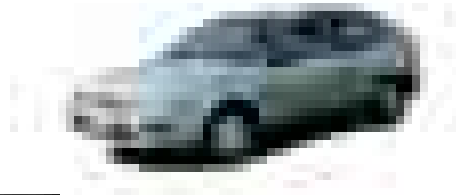
Circular Printer  
Seoul National University & Samsung Electronics

Mobile phone inspired by MiniMac  
Timo Silvonon

# Emotions

reason and economics vs.

passion and lust



And what makes the  
difference?

# Consumer electronics

Name a computer model:



# Consumer electronics

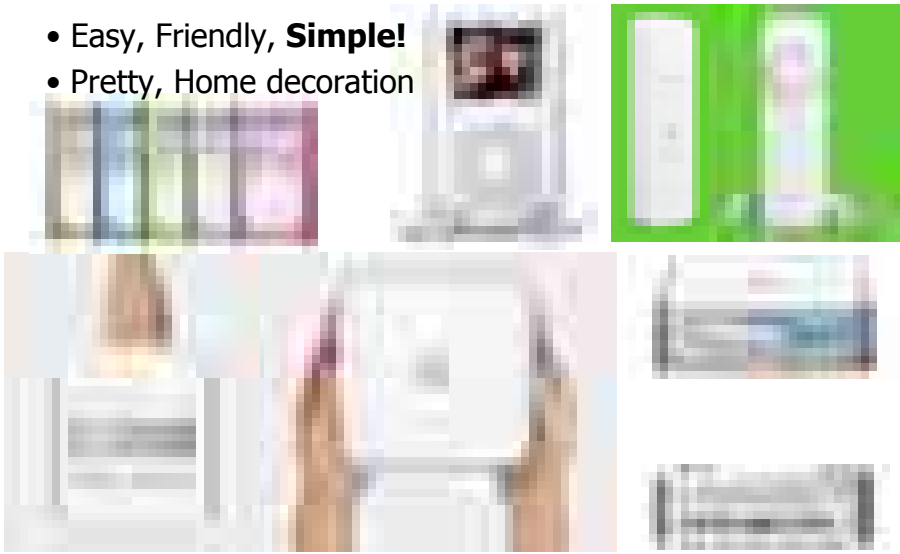
VISION BECOMES BRIEF

- You get the box home
- In 10 minutes you are surfing in the Internet
- Name a computer brand women like:
- Name a computer model many other products imitated



# Consumer electronics

- Easy, Friendly, **Simple!**
- Pretty, Home decoration



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# WHO?



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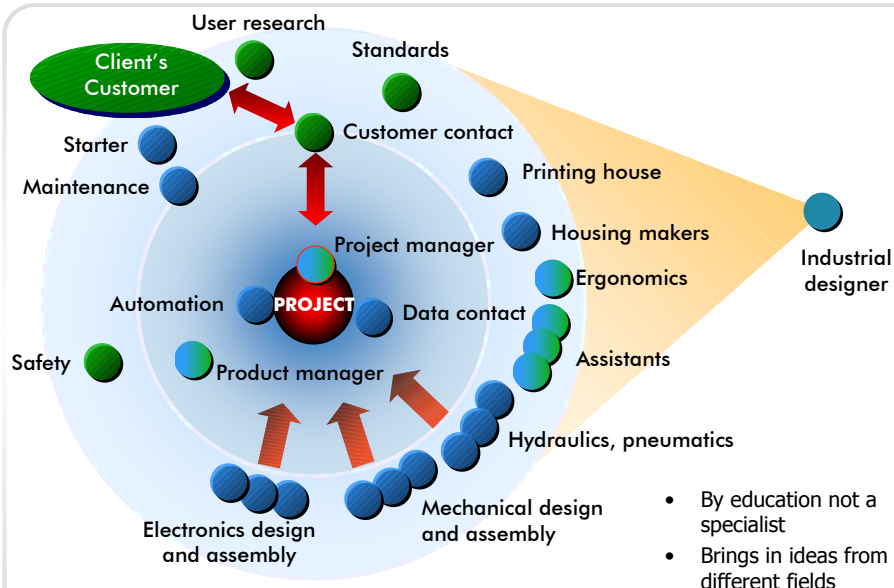
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# Visual people

- Art education
  - Form giving
  - Composition
  - Color
  - Form and color psycholog
  - Graphic design
- Engineering basics
  - In some countries ID faculties in engineering colleges
  - Industrial designers are somewhat technically oriented
- Usability and ergonomics
  - Humanscale, dimensioning, workspaces
- Think in real 3D
  - Sculptor view: cube is not an extruded rectangle



# Holistic views: machine design



- By education not a specialist
- Brings in ideas from different fields

## Actor - mediator - communicator

- Industrial designer's role can be
  - ▶ "Realiser"
    - ideas all the way to production, marketing material all the time
  - ▶ "Visualiser"
    - especially vital in the vision phase. Renderings and models bind the product development team and users together.
  - ▶ "Emotionalist"
    - emphasize of desired values and emotional aspects
  - ▶ "Imager"
    - helping supporting the brand with the product
  - ▶ "Missing link"
    - in the middle on technology, marketing and end-users
  - ▶ "The official lunatic"
    - The catalyst to question, break rules, turn concepts inside out and upside down, encouraging bringing out new approaches.

## Where to find it? Finland

- Finnish design top site: [www.finnishdesign.fi/home](http://www.finnishdesign.fi/home)
- TEKES [www.tekes.fi](http://www.tekes.fi)
  - ▶ DESIGN 2005!  
[http://websrv1.tekes.fi:8080/opencms/opencms/OhjelmaPortali/Kaynnissa/MUOTO\\_2005/en/etusivu.html](http://websrv1.tekes.fi:8080/opencms/opencms/OhjelmaPortali/Kaynnissa/MUOTO_2005/en/etusivu.html)
- Design On = 2005 Year of Design

# International industrial design

- Nordic Design study [www.nordicdesign.org](http://www.nordicdesign.org)
- DMI = Design Management Institute  
[www.dmi.org](http://www.dmi.org)
- IDSA = Industrial Designers Society of America  
[www.idsa.org](http://www.idsa.org)
- Coroflot, Core77: "Mapping the designer genome"  
[www.coroflot.com](http://www.coroflot.com), [www.core77.com](http://www.core77.com)

# WHEN?



## Efficient timing for ID

- Before PDP (Product Design Project)
  - Concepts and scenarios are essential in this business
- Integrated in PDP
  - Involved from start
  - Budget!
  - Top management support
    - High-positioned champions like in all projects
- Accurate, a.k.a not late, timing will cost less!

## HOW?





## Look for

- Experience
- Knowledge
  - The field in question
  - Other fields at least or more important
  - General cultivation needed for global products
- Communication skills
  - Visual, presentation, language skills are an axiom
  - Persuasion
  - Adaptation
- -> Chemistry!
- **C r e a t i v i t y**
  - Designers becoming scientists also loses something
  - Test it. It's the industrial designer's job, no one else's.

## Use the lack of knowledge

The obvious is obvious only for product developers

- In a team of specialists, priorities compete!
- For an industrial designer, only an overall good product is the goal.
- Should ID be the negotiator?

Not knowing enough is a strength!

- Why? Why? Why? WHY NOT? Ask like a child
- -> simulates the end-user
- Go to the roots and reasons
  - Does our product-to-be have a right to exist?

## Creative questions behind the product

Do I need

- The best hammer in the market OR
- Nails on the wall OR
- Photographs of Mexico on the wall OR
- Do I actually want my living room to be cosier
  - by reminding me of Mexico
  - by reliving the warmth and the lovely stuccos



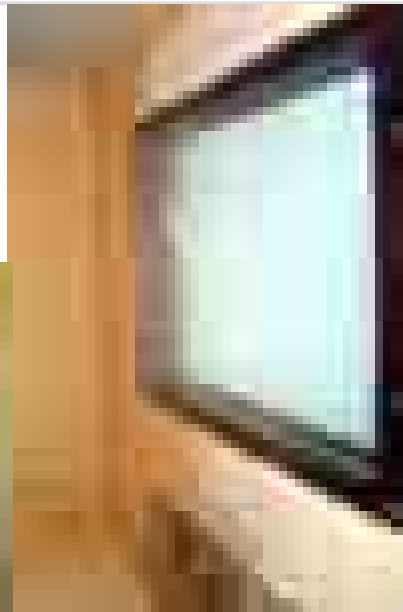
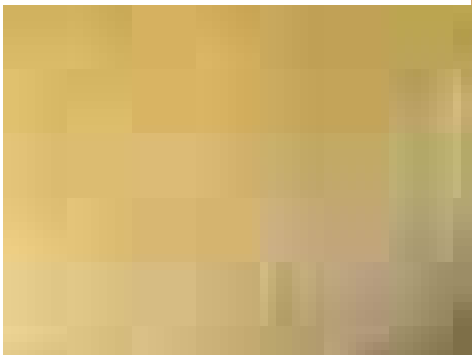
## Creative questions behind the product

The result

Bring Mexico to home

- Plaster rendering
- Sponge - warm yellow

No hammer used



## New idea development

- You have discussed the “mind- and process mapping” techniques:
  - ▶ Brainstorming
  - ▶ Mind Mapping
  - ▶ SWOT analysis
  - ▶ Six Thinking Hats
  - ▶ Synetics
  - ▶ Force Field Analysis
- Add:
  - ▶ Scenario-building
  - ▶ Observation leading to innovation
  - ▶ Crossing borders of cultures
  - ▶ Crossing borders of disciplines
  - ▶ Crossing borders of industries

## Support creativity

- Efficiency
  - ▶ “You cannot speed the coming of the Big Idea” BUT
  - ▶ You can maximize the time spent on letting it come
  - ▶ Time & effort vs. results
  - ▶ Plan documentation: Ideation material available to all
- Reduce routines
- Keep yourself on your toes, then team
  - ▶ Push out of comfort zone
  - ▶ Switch all roles
- Constraints give freedom!

## Reduce routines

- There are no secretaries anymore!
- Time is crucial and more limited than ever before
  - Kill **all non-productive work**
  - Mindmanager to Word, PowerPoint, HTML, Project
  - One thing done once for everybody
- People with artistic background are especially sensitive to bureaucracy
  - as should all parties in innovation business be
- Spend time planning documentation of creative work
  - not to spend any time looking for it

## Push out of comfort zone - constantly

- Change all roles in a project: rotate them
- Go to new places, meet new people
- Eat new dishes
- See new arts, listen to new music
- Try new sports
- "To **boldly** go where no man has gone before"
- Get used to being out of comfort zone
  - comfort zone becomes larger
- Forget appropriate approach
  - see what the opposite direction gives

## Constraints give freedom!

- "At least we don't have to do it this way"
- Focus on OPPORTUNITIES in SWOT

## Design =

Electronic  
Software  
Mechanical  
Package  
Marketing  
Industrial  
... to name a few

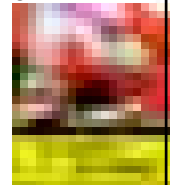
Nobody achieves anything alone

## Great players, lousy teams...

- Real Madrid
  - Statistics of victories: the best soccer team in history
  - The most expensive and awarded players in history
    - Zidane, Ronaldo, Beckham, Figo... sum exceeds 1 billion €
  - Team achievements 2005
    - Dropped out of Champion's league quarterfinals
    - Will not win La Liga (Spanish League)
- Korean national team in World Cup 2002
  - Ever heard any player names before?
  - Beat giants Italy and Spain to semifinals
  - Finished fourth

## Great teams... theory

- Guus Hiddink's genius
  - Very experienced coach and probably a D-type
  - Understood the SWOT of the "material" and the culture
    - No experience nor strong tactical knowledge, no time to get it
    - Not very sophisticated technique
  - BUT
    - A group culture. Group interest before individual interests
    - Extremely hard workers, good endurance
    - Long tradition of body control and good physical structure
  - What did he do?
    - Used the element of surprise, trained in peace
    - Built a strong sense of unity with 50 million Koreans
    - Trained the team to better fit than any other
    - Koreans simply outran the surprised opponents
- Get the most out of the particular material you have



# It is always personal

## **DISC** personality types

- Carl G. Jung
- William Moulton Marston
- 1920s
- Axes: Sensation-intuition, thinking-feeling
- All people can be characterized in D, I, S & C -types
- Most are combinations of 2 or 3, < 1 % of Finns one type

# DISC

- **D** = Dominant
  - Independent, busy, tell rather than ask, like change (vs. stability). Task-oriented (vs. people). Achiever, competitive.
  - Focus on own goals rather than people.
  - Tell rather than ask.
  - Ask 'What?'
- **I** = Influential
  - Social, persuasive, friendly. Energetic, busy, optimistic, distractable. Imaginative, focus on the new and future.
  - Poor time managers. Focused more on people than tasks.
  - Tell rather than ask.
  - Ask 'Who?'

# DISC

- **S** = Steady
  - ▶ Consistent, like stability. Accommodating, peace-seeking. Like helping and supporting others. Good listeners and counsellors. Close relationships with few friends.
  - ▶ Ask, rather than tell.
  - ▶ Ask 'How?' and 'When?'
- **C** = Conscientious
  - ▶ Slow and critical thinker, perfectionist. Logical, fact-based, organized, follows rules. Don't show feelings. Private. Few, but good friends.
  - ▶ Big-picture, outlines.
  - ▶ Ask 'Why?' and 'How?'

## How to deal with them?

Set up a team  
gather all knowledge needed  
put them to work  
and wait...



## How to deal with them?

- With **Dominant** people
  - ▶ Build respect to avoid conflict
  - ▶ Focus on facts and ideas rather than the people
  - ▶ Have evidence to support your argument
  - ▶ Be **quick, focused, and to the point**
  - ▶ Ask what, not how
  - ▶ Talk about how problems will hinder accomplishments
  - ▶ Show them how they can succeed

## How to deal with them?

- With **Influential** people
  - ▶ Be social and friendly with them, building the relationship
  - ▶ **Listen** to them talk about their ideas
  - ▶ Help them find ways to translate the talk into useful action
  - ▶ **Don't** spend much time on the details
  - ▶ Motivate them to follow through to complete tasks
  - ▶ **Recognize their accomplishments**

## How to deal with them?

- With **Steady** people
  - ▶ Be genuinely interest in them as a person
  - ▶ Create a human working environment for them
  - ▶ **Give them time** to adjust to change
  - ▶ Clearly define goals for them and provide ongoing support
  - ▶ Recognize and appreciate their achievements
  - ▶ **Avoid hurry and pressure**
  - ▶ Present new ideas carefully

## How to deal with them?

- With **Conscientious** people
  - ▶ Warn them in time and generally **avoid surprises**
  - ▶ Be prepared. Don't ad-lib with them if you can
  - ▶ **Be logical, accurate and use clear data**
  - ▶ Show how things fit into the bigger picture
  - ▶ Be specific in disagreement and focus on the facts
  - ▶ Be patient, persistent and diplomatic

## Generalisation: Engineer mind

- Typically a combination of **S** and **C**
- **S/C** best sides: technically competent, organised, fact-based, logical, calm, perfectionist.
- **S/C** problems: Avoid conflict, like stability. Follows rules, does by the book.
- Look for **I!** Join forces with **I** for innovation

## Generalisation: Designer mind

- The best designers have **I** combined to **C**
- **C** best sides to a designer
  - Critical thinker, logical, fact-based.
- **I** best sides
  - Outgoing, energetic, emotional, exciting, expressive, open-minded. Imaginative, focus on the new and future.
- **I** problems
  - Spontaneous, distractable, careless. Poor time managers.
  - I conflicts with C
- Designer, look for **S** and **D**, you need them both!

## DISC Conclusion

- Excellent players don't always mean an excellent team
- Team members must complement, not repeat each other. Conflict must be constructive
  - Amount of **D**, **I**, **S** and **C** must be in balance
  - All have to learn to deal with other AND their own types
- You must consider the other personality to effectively communicate and persuade
  - Hearing is not enough, others must be **able to listen to you.**
- Idea worth trying
  - Team **C** and **D** with **B**
  - managed by someone who understands all four types
  - champion being an **A**, fighting for the team on a higher level

## The end

- Thank You

