Non functional specs
System Architecture Study Group

Piet van Rens

June 2014

What is the question?
That is the question!

settels savenije
van amelsvoort

specifications

Quantified expectations from:

                            client
                            user
                            investor
                            and all other steakholder

Distinct expectations but also the unspoken expectations and feelings.

settels savenije
van amelsvoort

What to do?

Don't do what the client asks for

but:

Do what the customer should have asked,
in case he took enough time to
formulate the right questions correctly.

Free after prof ir. W. van der Hoek 1976

settels savenije
van amelsvoort

Expectation stakeholders

All stakeholders: Customers
                      future customers colleagues of customer
                      (end-)users
                      factory
                      direct department manager
                       safety manager
                       public organisations
                      shareholder
                      own colleages and seniors
                      recylists
                      customer support
                      maintenance
                      architects
                      governements

settels savenije
van amelsvoort

Stakeholders are human like persons

Bad/ good mood
Thinking by brains and belly
Sensitive for fashion
Influenced by competitors/marketing messages etc.
(Slow) influencable by calculations/opinions
etc

settels savenije
van amelsvoort

Search/find stakeholders

Especialy the sharp ones!!

settels savenije
van amelsvoort

Management as stakeholder

settels savenije
van amelsvoort

Example: glass press for TV tubes

±1979

Asked for by management of BM (Engineering departement)

Spend : 5 man years development

Prototype 2.500.000 guilders

Test technical succes!!

Champagne

Higher Managment stopped the project after the test.

Given reason: No spareparts to keep it in production

We learned a lot!!!!

settels savenije
van amelsvoort

Expectations Users

Extreme important

Can be changed by fashion. Go from a pot of coffee to expensive senseo

Add smelley gel to a shaver

Use a dustbag in a vacuum cleaner

Customer survey:
Does the user change his habits? What should be the question for the user
The customer is right! ?

settels savenije
van amelsvoort

robot vaccuum cleaner Philips Research Lab. including customer survey ±1975

Do you like the robot?

Demo: ashtray upside down in empty room
Switch on robot 200 W

Expectations: vaccum cleaner is better as the power is higher 2000 W is ok.
The robot is very inefficient. It doesn't see the ash on the carpet.
Corners are importent to look after. Robot doesn't reach the corners.
A vacuum cleaner has a dust bag. This robot doesn't.

Conclusion: I am more efficiënt. My vacuum cleaner is better and cheaper I don't like it

Conclusion managment: There is no need for robots in vacuum

settels savenije
van amelsvoort

2000 Watt vacuum cleaner

About 1982

A 2000W vacuum cleaner sucks better than a 12000 W vacuum cleaner
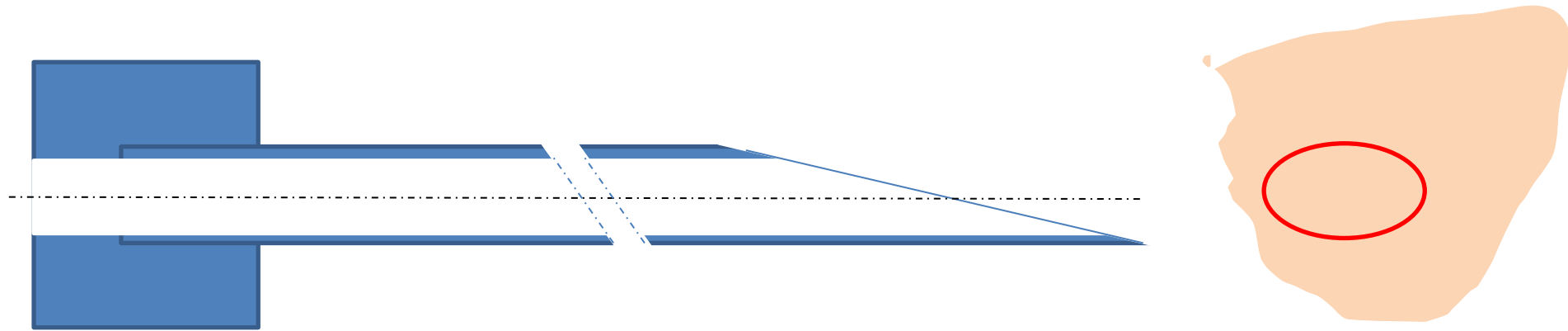A new engine design was improved from 2200 W to 1800 W
On request on customer expectatons a 200 W resistor is build in in the new
Vacuumcleaner with 1800 W engine.

settels savenije
van amelsvoort
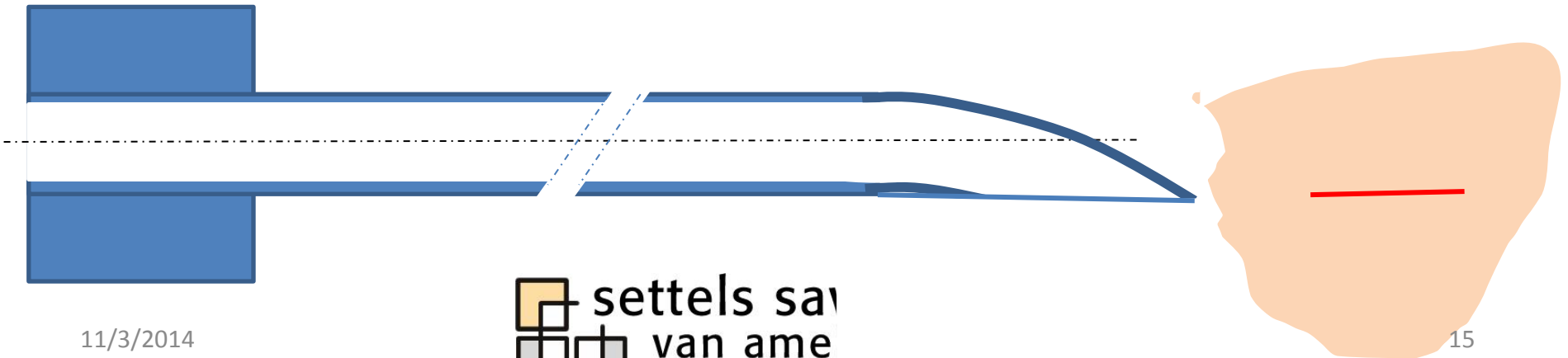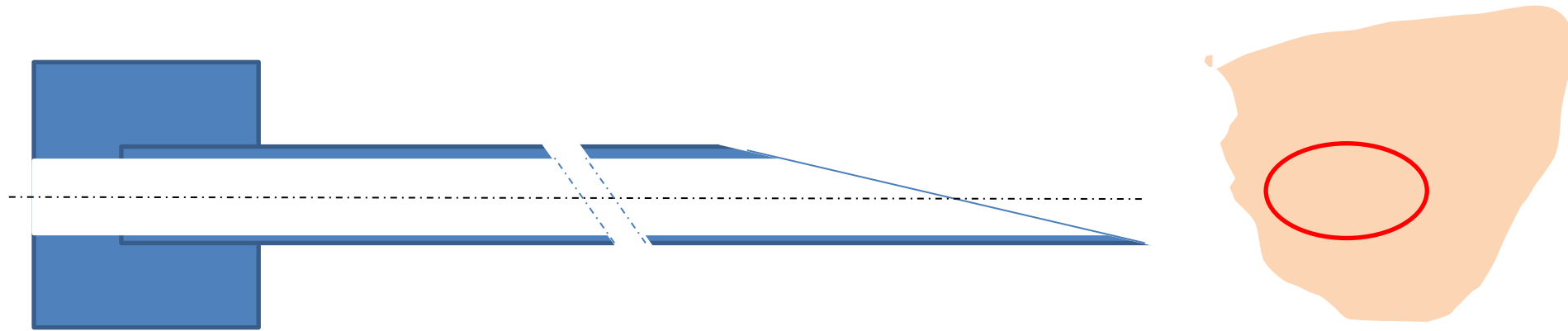
Injection needles THE ±1976

settels savenije
van amelsvoort
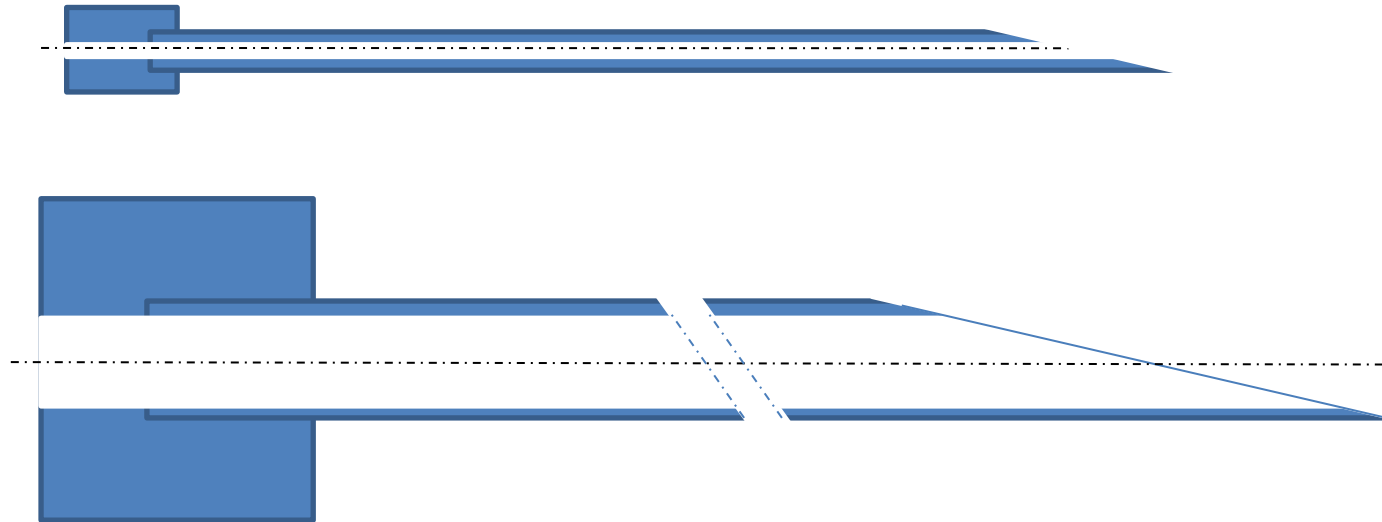
Injection needles punch the vanes
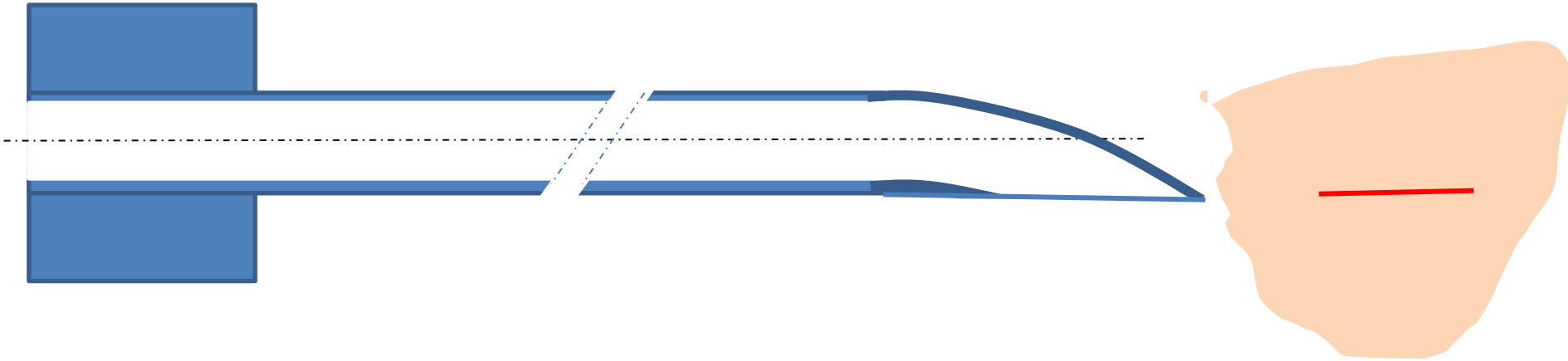
Can you invent a needle that not punches the skin and vanes to avoid particles in vanes and shorten or avoid bleeing?

Yes we can!

settels savenije
van amelsvoort

Injection needles punch the vanes

settels sav
van ame

Injection needles punch the vanes

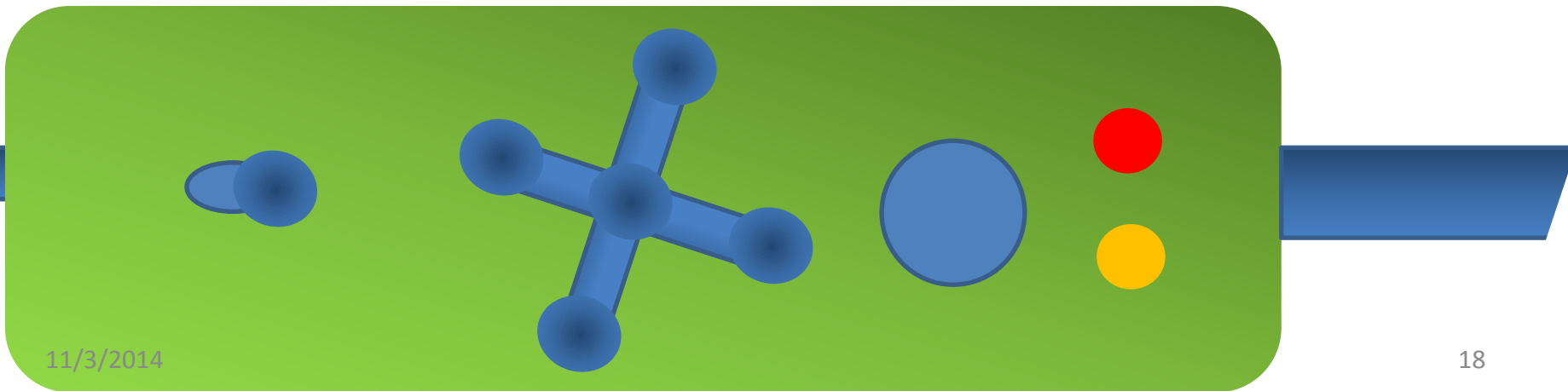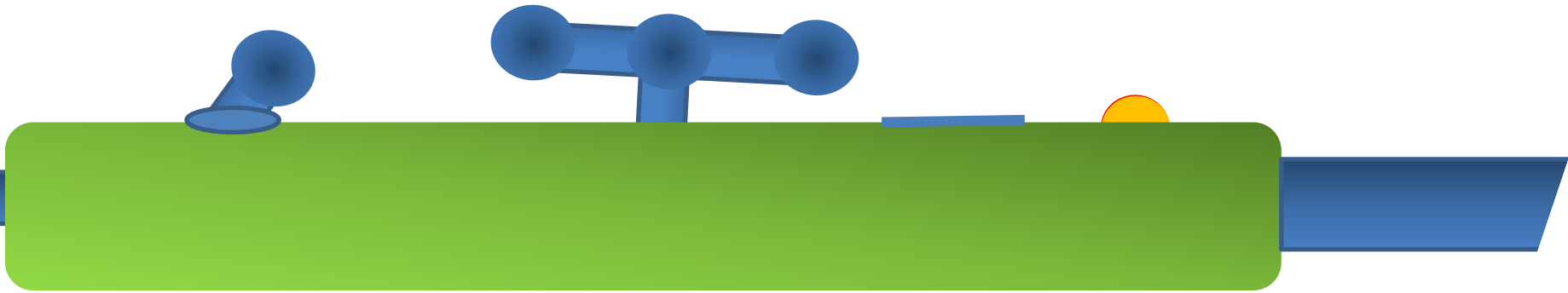Needle makes a small cut. The skin and the wall of the vanes close the cut automaticly without scarfs.
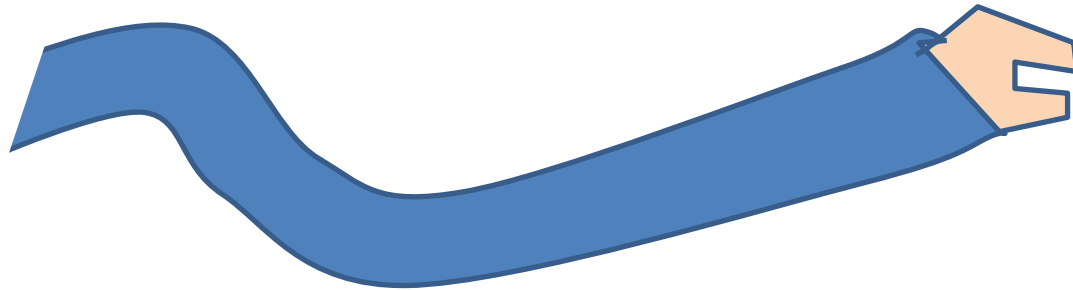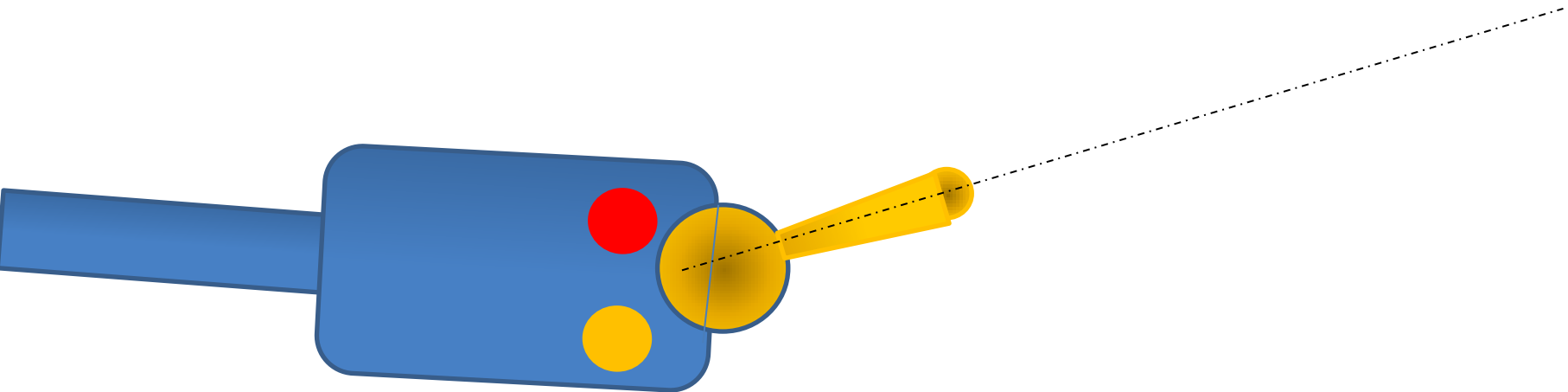Easy to produce!

Perfect!!   ?????? ??

settels savenije
van amelsvoort

Use of needle should be 180º rotated

Learning to nurses/users!!!!

settels savenije
van amelsvoort

Test probe in testines ATL 1995

proposal

Intuitive movement joystick parallno andefsecoort
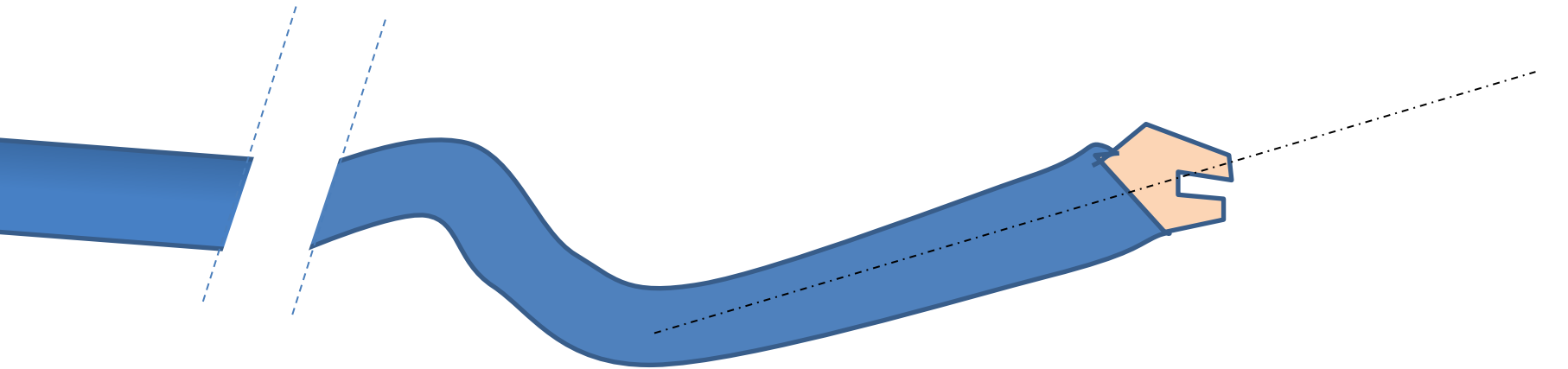
settels savenije
van amelsvoort

Can only be used by experienced specialists!

settels savenije
van amelsvoort

Expectations of IDEA-box

About 1975

An idea came up to put tools for a vacuum cleaner in a on board cabinet.

Idea is rejected: The customer dont want it.

About 1980 every vacuum cleaner has tools on board

settels savenije
van amelsvoort

Expectations of investors

Do I get my mony back?
What are financial risks?
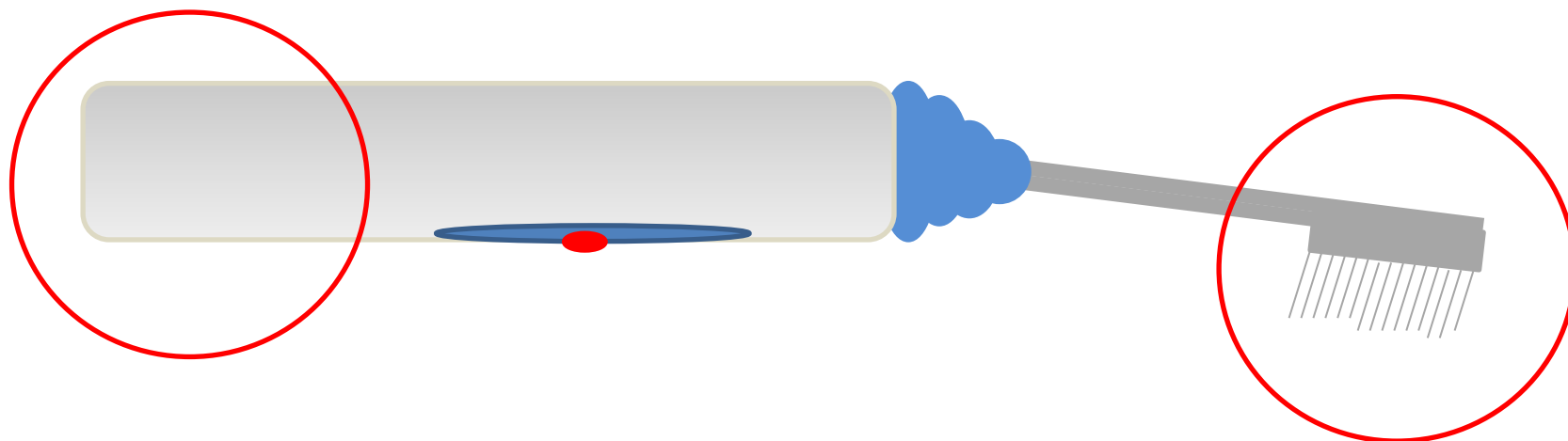
Is there any patent protection?
Risk on law violations?
Safety risks?
Branding positive?
Personal credits?

settels savenije
van amelsvoort

Vibrating toothbrush

No sharp edges!
Water tight

settels savenije
van amelsvoort

Matrix incuding weighing factors

weigjht / product	1	3	3	2	5	1	5	4	4	tot
A	1	0	2	3	1	3	1	1	2	38
B	2	2	5	1	4	2	4	5	5	**82**
C	0	1	2	2	2	4	4	4	2	71
D	1	1	4	0	2	2	3	2	2	64
E	1	0	1	4	0	2	0	3	5	34
X	4	1	1	0	1	4	0	3	5	51

Matrix to remember all items in the decision process

Than make decisions on gut feeling!!!

settels savenije
van amelsvoort

Conclusions!

Which is the right way?   I don't know!!!

settels savenije
van amelsvoort

Concluding statements!

1 A product designer needs vision! He should be an entrepeneur.

2 Vision can be improved by knowing all stakeholders opinions
Communication skills are extreme important for a designer.

3 A multi-multi-multi team (in a good condition) can be helpful.

4 We know the opinions of all our stakeholders. Designing is a gamble.

settels savenije
van amelsvoort