



Report from the FINA
Swimwear Approval Commission (SAC)

Prof. Jan-Anders Manson

Presented to the FINA-Bureau
Dubai, UAE
13 December, 2010

Presentation outline

1. Background to the FINA-SAC's objectives
2. Report from Swimwear Approval Commission (FINA-SAC)
3. Assessment of today's position

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Sport and Technology: An non-desired issue beyond swimming

The New York Times

May 8, 2009, 8:12 PM

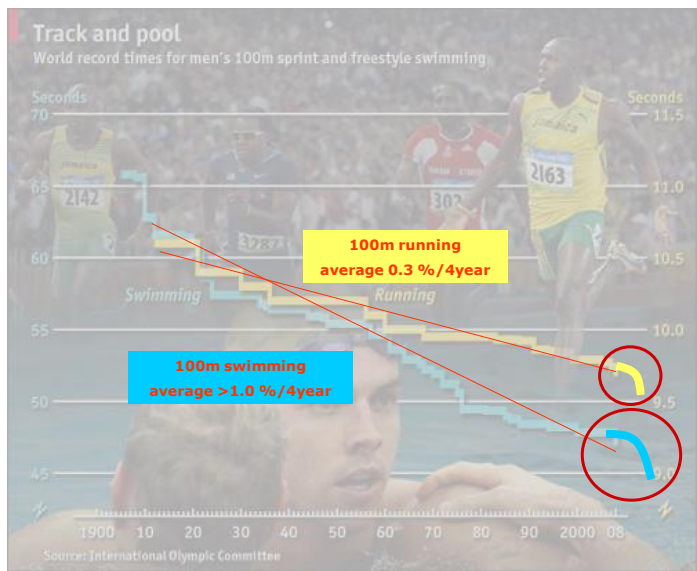
Is It the Athlete or the Equipment?

By THE EDITORS



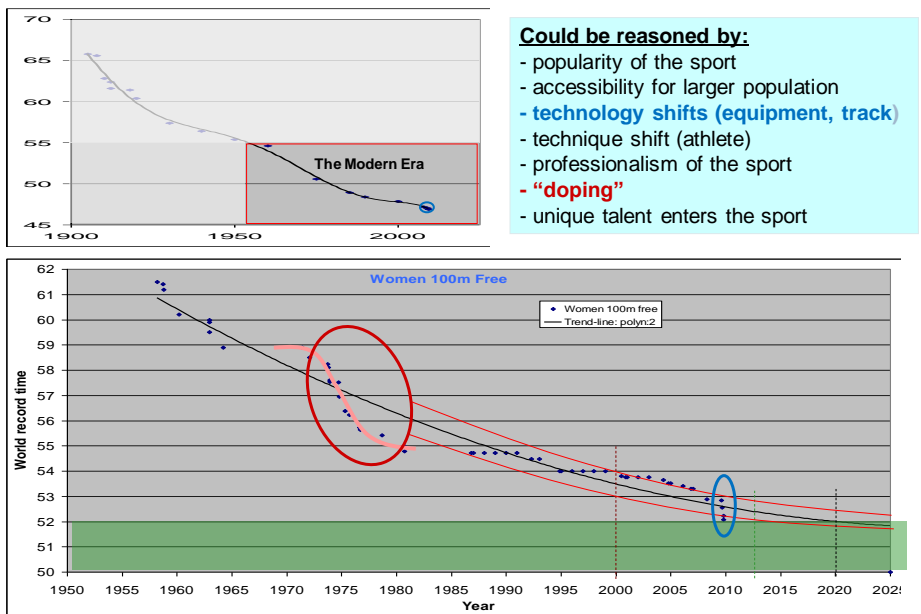
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An exceptional evolution in 2009



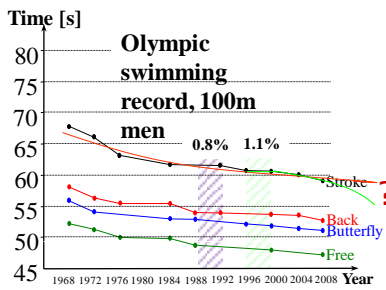
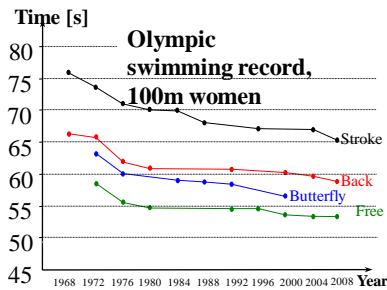
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An analyses of the evolution: long time-span



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An analyses of the evolution: **medium time-span**



Olympics Seoul - Barcelona (1992)



Olympics Atlanta - Sydney (2000)



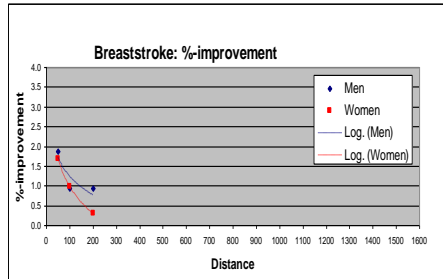
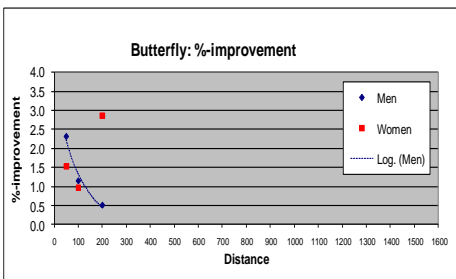
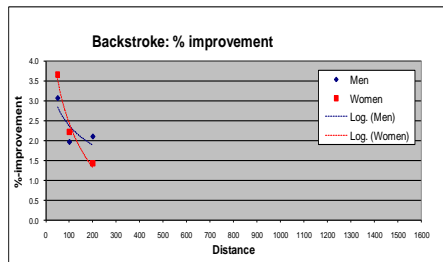
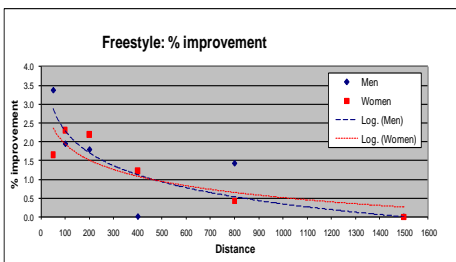
Rome WC (2009)



Interval	1988 – 1992 (4 years)	1996 – 2000 (4 years)	Rome WC-2009 (One event)
Record disciplines	21/32	25/32	43 world records
Average improvements	0.8%	1.1%	1% +/-0.5%

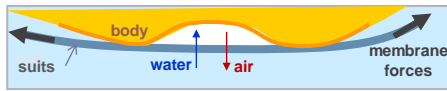
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An analyses of the evolution: **short time-span**

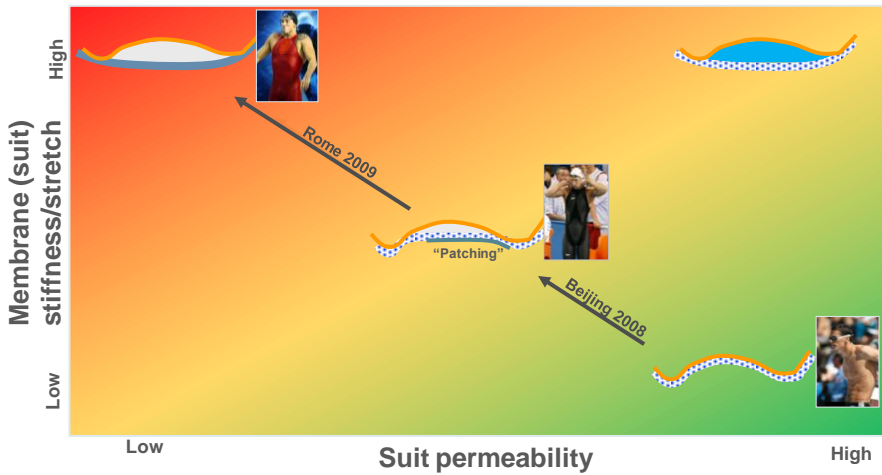


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Could the evolution be explained in a coherent and "simple" way ?

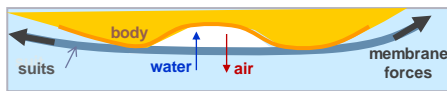


- Air/water exchange
- Membrane (suit) forces

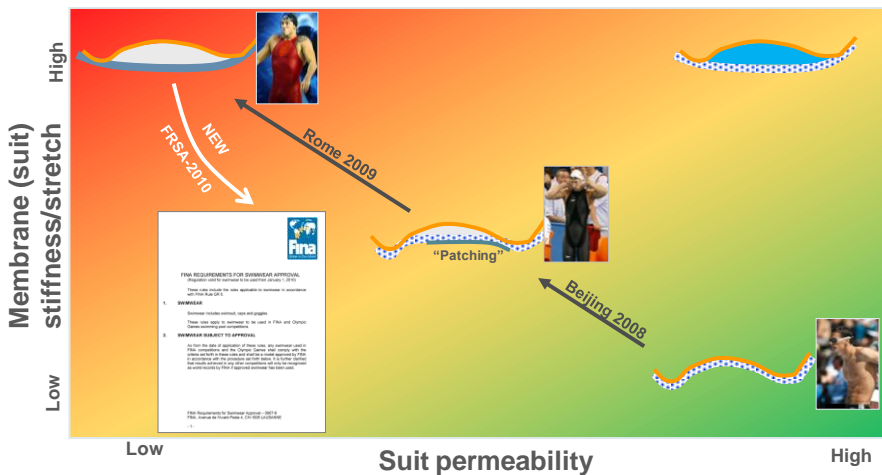


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The new FRSA: reasonable "back-track"



- Air/water exchange
- Membrane (suit) forces



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Phenomena and implication of new rules					
Phenomena	Related parameters	Approach for inspection	Tests	Rules for Rome	Rules for 2010
Buoyancy	Weight / density	Weight in water	Buoyancy (vacuum)	1 Newton (after vacuum)	0.5 Newton (after vacuum)
	Trapped air pockets	Visual: independent layers	Visual	Tight fit to body contours	Permeable textile
	Superficial coatings/impregnation	Wetting	Buoyancy (wetting)	Visual	No surface treatment
		Porosity	Permeability	-----	> 80 l/m ² /s (*)
Hydrodynamic resistance	Overall resistance	Dynamic resistance	Towing-channel	-----	Less coverage
- Swimming motion	Propulsion support	Video	Underwater video	-----	-----
- Suit configuration	Garments material	Optical	Visual	-----	Textile fabric
	Thickness	Thickness measurement	ISO 5084	1 mm	0.8 mm
	Body/suit cross section	Visual / scanner	Visual / scanner	Tight fit to body contours	- Less coverage - Textile
	Local compression	Scanner / optical	Body-scan	-----	- " -
- Surface, form and wave drag	Body coverage	Dimension / Body coverage	Visual / measurements	Visual / measurements	Less coverage
	Surface roughness	Suit texture	Rugosimeter / visual	-----	Textile
	Patch distribution	Dimension / Body coverage	Visual / measurements	-----	Textile
	Interfacial surface bubbles	Wetting	Buoyancy (wetting)	-----	- Textile - Less coverage
	Local grip to water	Roughness	Rugosimeter / visual	Visual	Visual
	Physiology	Body compression	Body/suit scan difference	Deformation work	-----

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The SAC Committee and Implementation Team

FINA –SAC Committee



Prof. J.-A. Manson
Chairman
Europe

Prof. S. Takahashi
Member
Japan

Prof. B. Blanksby
Member
Australia

Prof. D. Pendergast
Vice Chairman
USA



SAC-TEAM



EPFL-LTC

Ms. Ch. Deville
Coord. Assistant

Dr. Judith Waller
Sci. Support

Dr. C. Spadaro
Sci. support

Mr. K. Schadegg
Testing

Mr. J-B. Leran
Testing

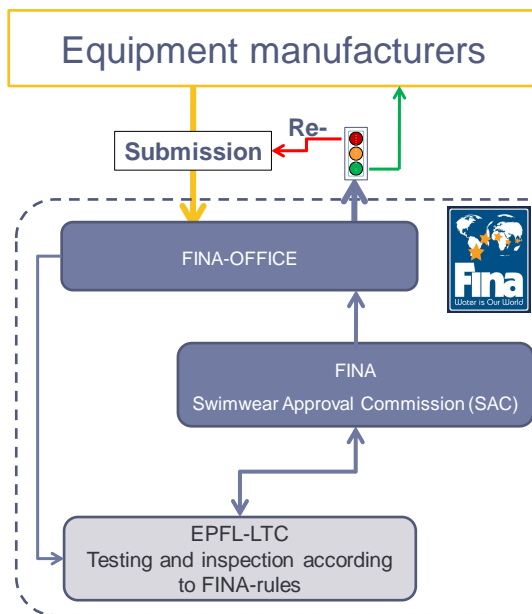
FINA

Mr. J-P. Morand,
Legal Advisor

Mr. P. Medvedev
Rep. FINA

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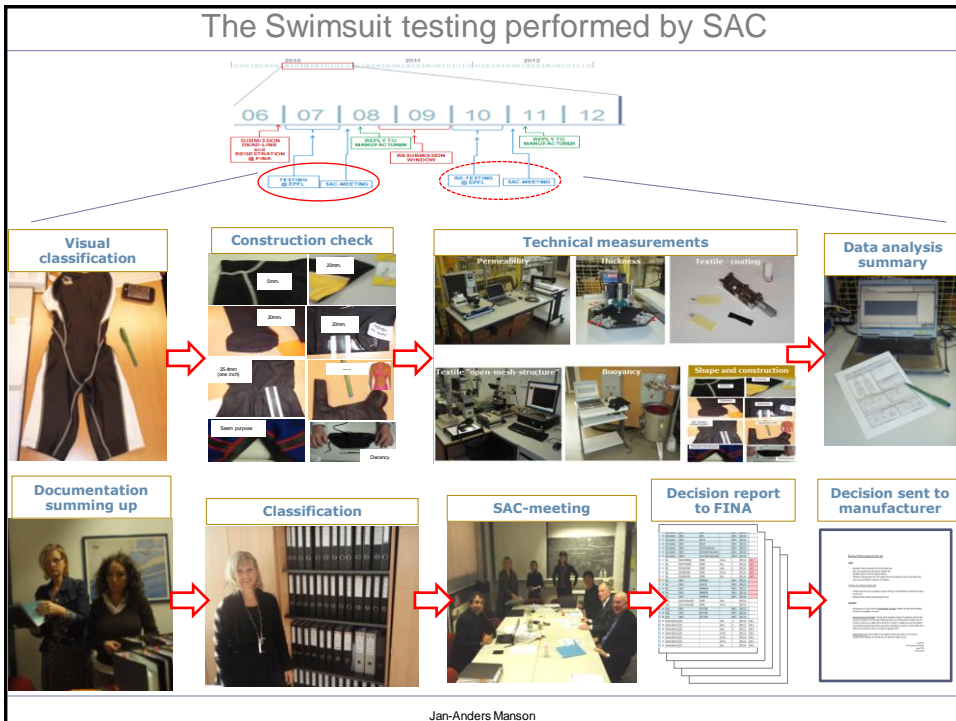
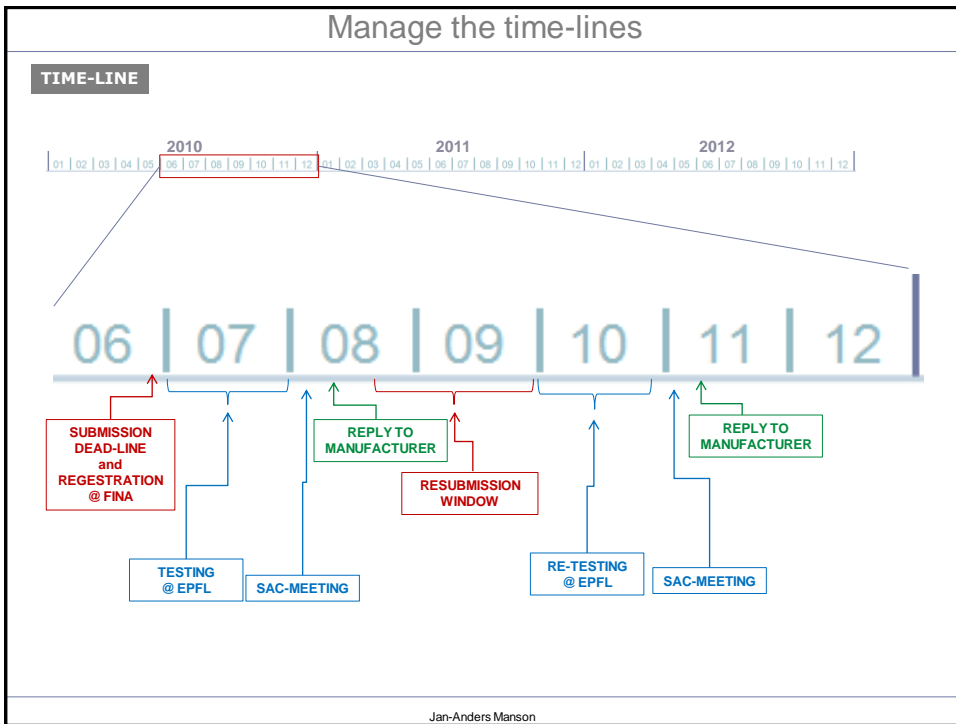
Formal process for SAC-approval



SAC - Responsibilities

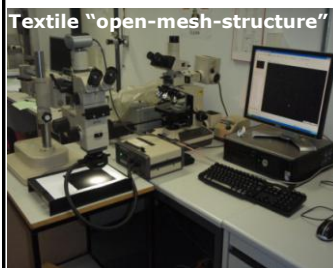
- Evaluation and recommendation
- Ruling implementation
- Competence access
- Forums for dialogs
 - Athletes & coaches
 - Teams, NF's
 - Manufacturers

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The Swimsuit testing performed at EPFL-LTC

TESTING
@ EPFL

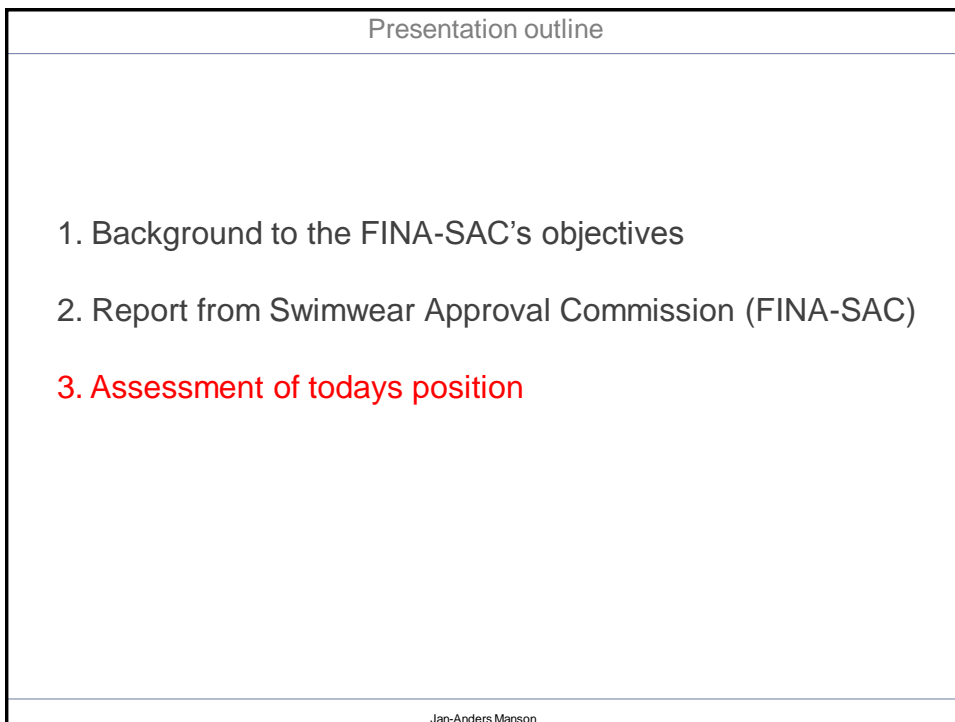
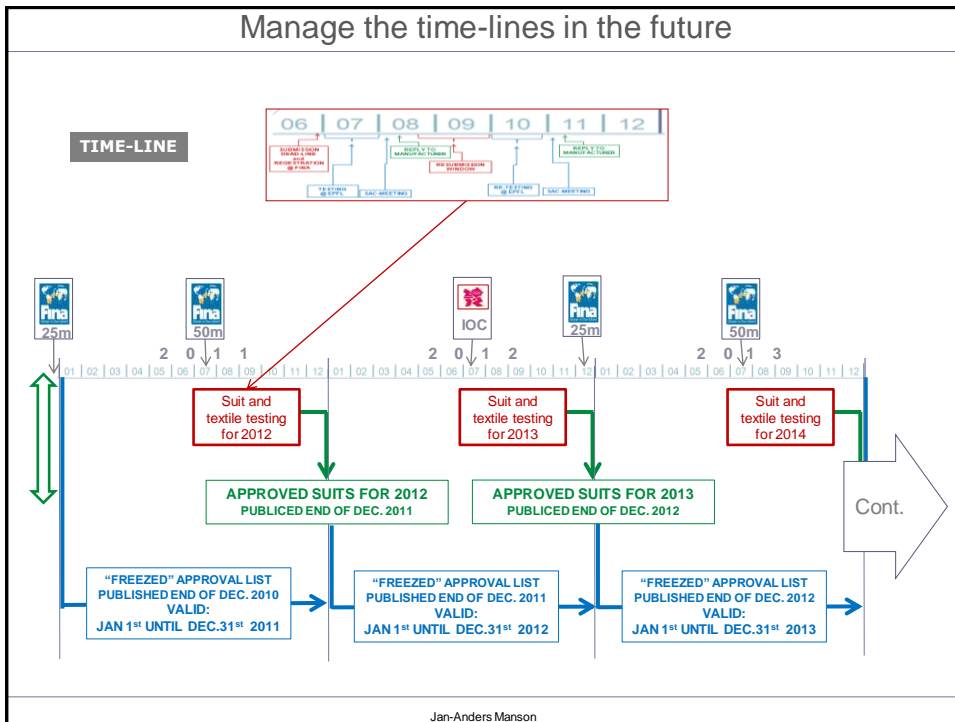


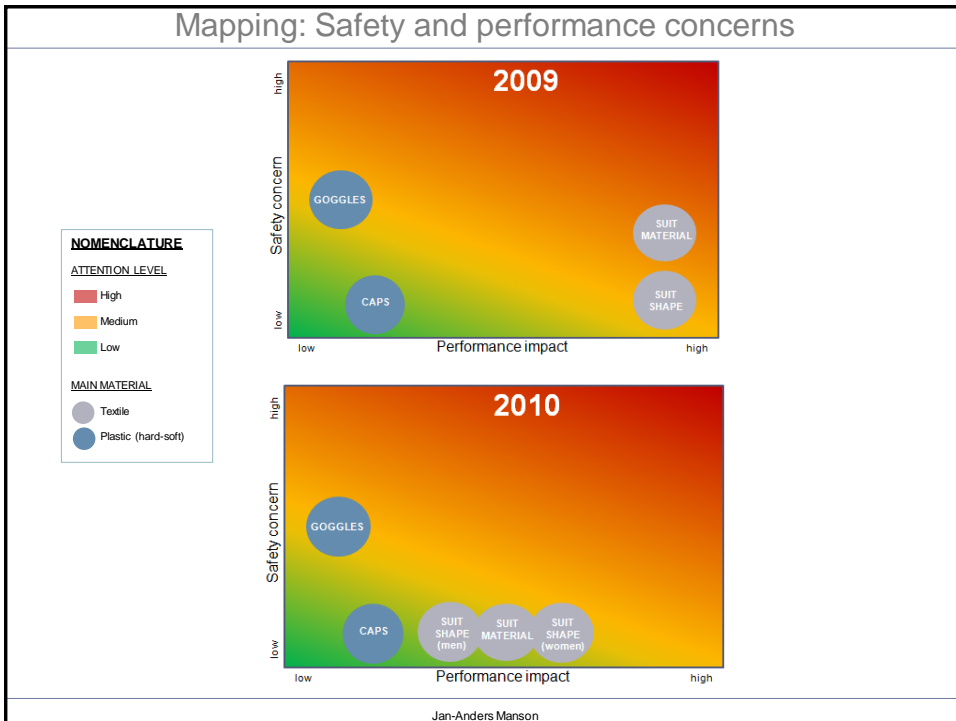
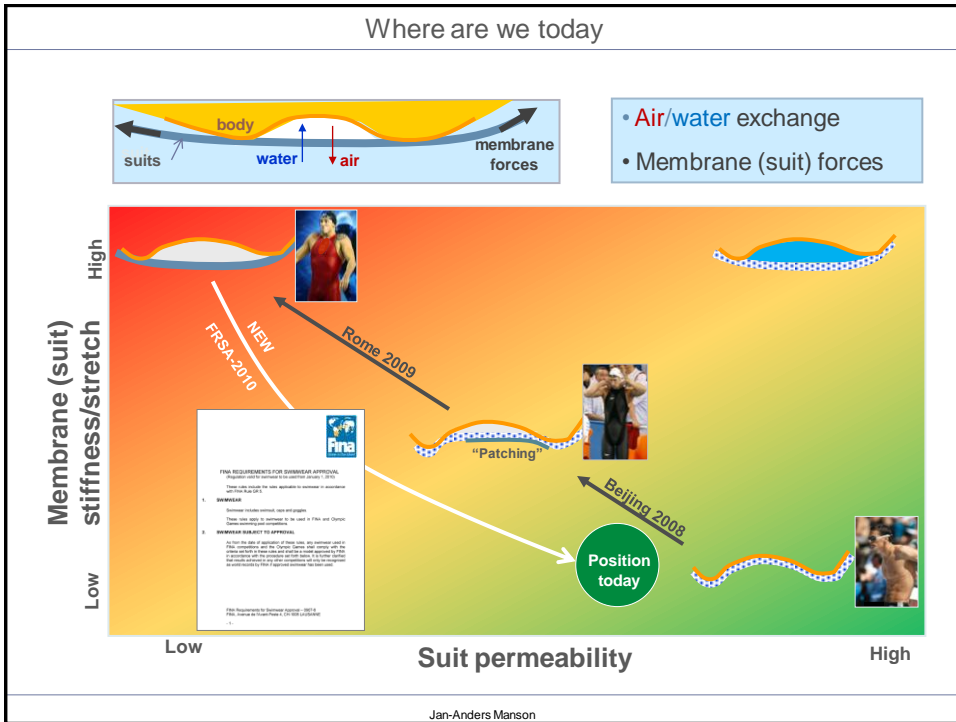
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Statistics of submission, resubmission and contacts

Submission Dead-line	Number of suits Submission	Resubmission Dead-line	Number of suits Re-submission	Number of tests
July 2010	Suits 338 Textiles 135	Sept 2010	Suits 240 Textile 114	Suits approx. 600 Textiles approx. 1000
Open Water	Suits 35 Textiles 36			Suits approx. 50 Textiles approx. 70
OTHER INTERACTIONS				
Full SAC Commission meetings	2-3/year			
FINA office meetings	On weekly basis			
Support testing for manufacturer	Approx. 100			
Company visits	Approx. 20			
Seminars/workshops	Manufacturer, Coaches, Media			
Equipment development	Test equipment manufacturer: TEXTEST AG			

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Swimming today



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On behalf of the SAC-members

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