



**THE EFFECTS OF CURRENT QM INITIATIVES ON
ADMINISTRATIVE AND TECHNICAL INNOVATION: AN
EMPIRICAL COMPARISON IN EUROPEAN FIRMS**

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QM evolution

- Principles (customer focus, continuous improvement, teamwork).
- Elements (leadership, involvement, SPC, supplier relationship,...).
- Orientations (client, cultural change, processes, learning,...).

Quality Control

Malcom Baldrige

EFQM model

Different QM initiatives

ISO Standards

TQM

Six Sigma

Deming model



Different QM initiatives: Six Sigma, EFQM, ISO,...

↳ Different orientations



Different importance of their structural elements

**RESEARCH
PROBLEM**

Different effects on organizational innovation

**RESEARCH
GOAL**

**Comparison between QM initiatives
according to their influence on
technical and administrative innovation**



TECHNICAL INNOVATION

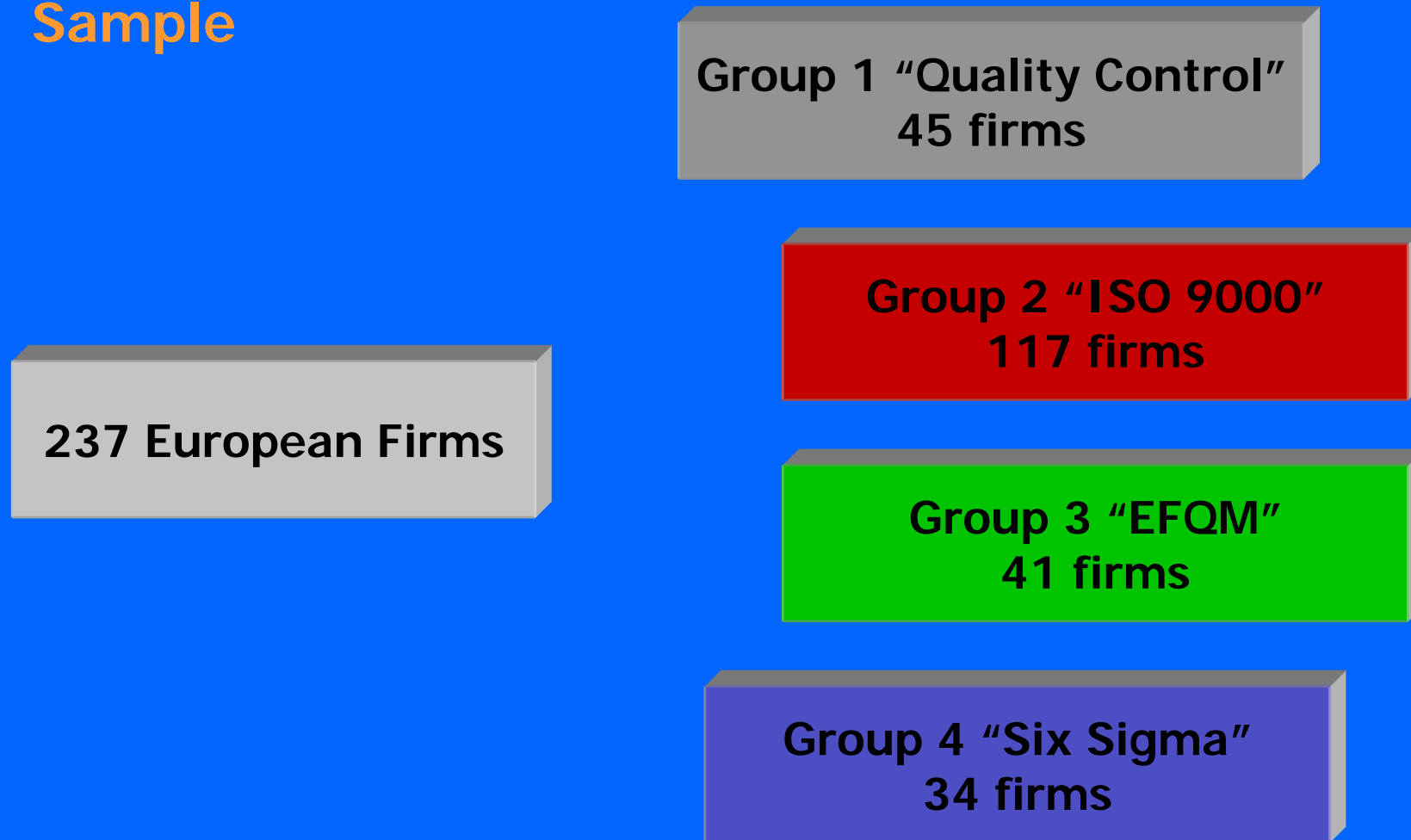
“The implementation of an idea for a new product or a new service, or the introduction of new elements in an organization’s production process or service operation” (Damanpour and Evan, 1984)

ADMINISTRATIVE INNOVATION

“The innovation that occurs in the social system of an organization. It includes rules, structures, recruit personnel, rewards, authority, etc.” (Damanpour and Evan, 1984)



Sample





Results

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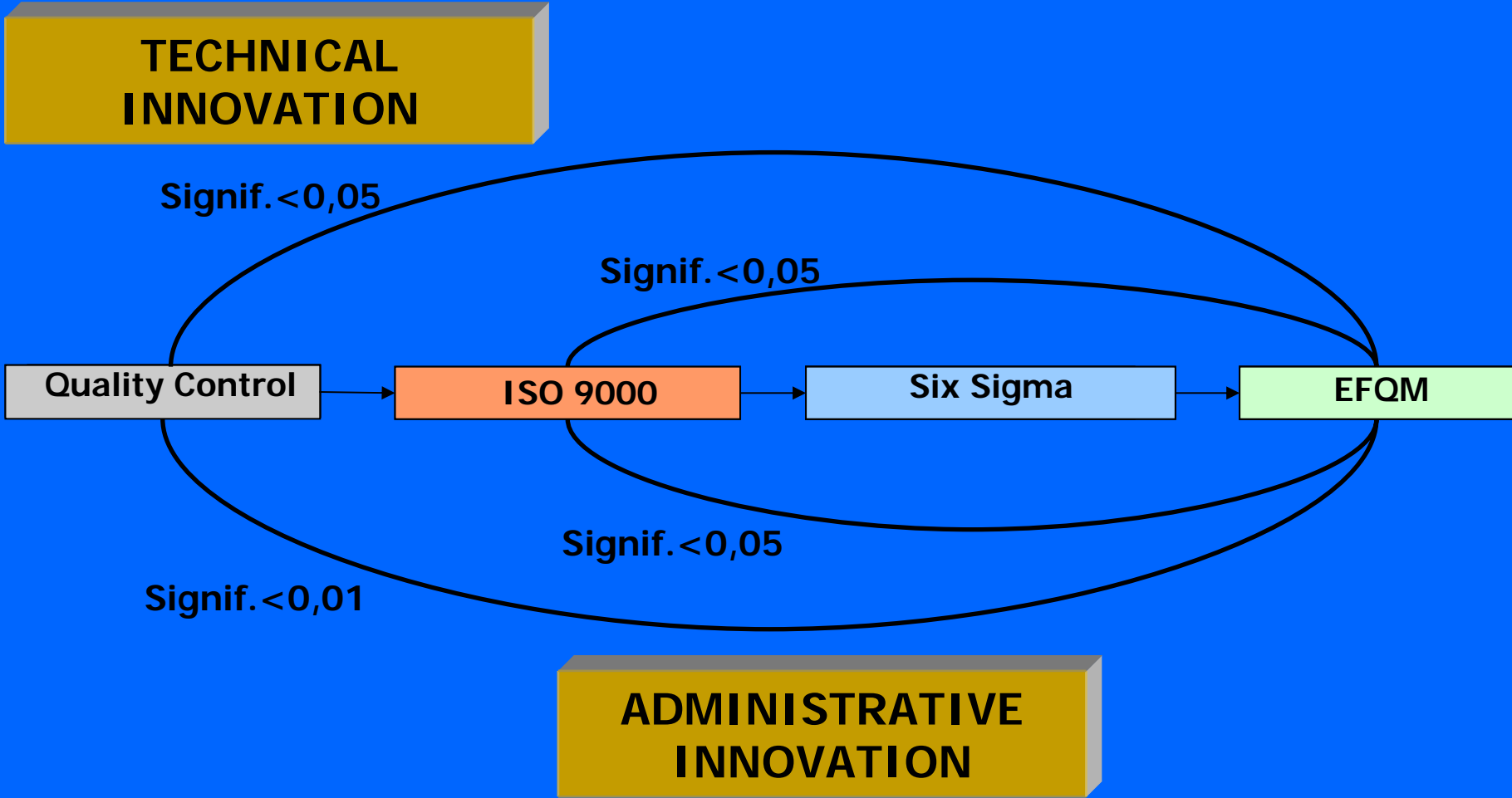
Innovation/ QM Element	Group 1 "Quality Control" and Group 2 "ISO 9000"			Group 1 "Quality Control" and Group 3 "EFQM"			Group 1 "Quality Control" and Group 4 "Six Sigma"		
	T-value	Signif	Means difference	T-value	Signif	Means difference	T- value	Signif	Means difference
TECHNICAL INNOVATION	-,069	,945	-,01846	-2,383	,012*	-,54673	-,536	,593	-,16807
ADMINISTRATIVE INNOVATION	-,797	,428	-,21968	-2,709	,008**	-,82158	-,990	,325	-,32672
Supplier Management	-1,854	,068	-,41803	-1,330	,187	-,35319	-2,422	,018*	-,65707
<i>Benchmarking</i>	-1,672	,098	-,45139	-3,121	,002**	-,91408	-2,027	,046*	-,67526
Training	-2,201	,029*	-,48417	-3,150	,002**	-,94628	-3,759	,000**	-1,12876
Management Support	-2,033	,044*	-,48296	-2,363	,020*	-,69462	-2,555	,013*	-,81771
<i>Empowerment</i>	-2,223	,030*	-,58778	-3,272	,002**	-,96713	-2,613	,011*	-,82378
Teamwork	-1,625	,108	-,42732	-4,606	,000**	-1,32094	-3,197	,002**	-,96669
Continuous improvement	-2,537	,012*	-,62051	-3,035	,003**	-,94499	-2,070	,042*	-,67374
Process Management	-,758	,451	-,22309	-,977	,332	-,37181	-3,282	,002**	-1,25977
SPC	-0,695	,489	-,22155	-2,373	,020*	-,91577	-3,151	,002**	-1,31279



Results

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QM Element	Group 2 "ISO 9000" and Group 3 "EFQM"			Group 2 "ISO 9000" and Group 4 "Six Sigma"			Group 3 "EFQM" and Group 4 "Six Sigma"		
	T-value	Signif	Means difference	T-value	Signif	Means difference	T-value	Signif	Means difference
Technical Innovation	-2,272	,026*	-,52828	-,521	,603	-,14961	1,331	,188	,37867
Administrative Innovation	-2,474	,014*	-,60190	-,392	,696	-,10704	1,753	,084	,49486
Supplier Management	,331	,742	,06484	-1,327	,190	-,23905	-1,331	,187	-,30388
<i>Benchmarking</i>	-1,799	,074	-,46269	-,806	,424	-,22387	,808	,422	,23882
Training	-2,234	,029*	-,46210	-3,707	,000**	-,64459	-,800	,427	-,18248
Management Support	-1,101	,274	-,21166	-1,614	,112	-,33475	-,530	,598	-,12308
<i>Empowerment</i>	-1,862	,066	-,37935	-1,125	,265	-,23600	,593	,555	,14334
Teamwork	-3,690	,000**	-,89362	-2,268	,027*	-,53937	1,369	,176	,35424
Continuous improvement	-1,685	,096	-,32447	-,237	,814	-,05322	1,091	,279	,27125
Process Management	-,537	,592	-,14872	-3,350	,002**	-1,03668	-2,262	,027*	-,88796
SPC	-2,159	,034*	-,69422	-3,051	,004**	-1,09124	-,948	,346	-,39701





Stepwise Regression analysis - "dummy variables"

Quality Control Group

QM elements	Techn. Inn.	Admin. Inn.
Supplier Management	EFQM	EFQM
<i>Benchmarking</i>	EFQM	EFQM
Training	EFQM	EFQM
Top Management Support	EFQM	EFQM
<i>Empowerment</i>	EFQM	EFQM
Teamwork	EFQM	EFQM
Continuous Improvement	EFQM	EFQM
Process Management	-	EFQM
SPC	-	EFQM/ ISO

ISO 9000 Group

QM elements	Techn. Inn.	Admin. Inn.
Supplier Management	EFQM	EFQM
<i>Benchmarking</i>	EFQM	EFQM
Training	EFQM	EFQM
Top Management Support	EFQM	EFQM
<i>Empowerment</i>	EFQM	EFQM
Teamwork	EFQM	EFQM
Continuous Improvement	EFQM	EFQM
Process Management	-	EFQM
SPC	-	EFQM



EFQM / Six Sigma
Greatest development of QM practices
Only difference in Process Management

EFQM
Highest level of administrative and technical innovation observed (significant differences with QC and ISO)

Oriented to Business Excellence

Innovation and Learning component