What's Different in Managing Radical Innovations?

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Table of Contents: What's Different in Managing Radical Innovations?

Motivation of this presentation (1)

Sören and I want to dedicate this presentation to our doctor father **Jürgen Hauschildt.**

He has strongly influenced our mental models, our way of doing research, and our way of living engaged scholarship.

Jürgen Hauschildt entered Innovation Management with a with a **contingency view** – expressed by his statement:

„Innovation Management differs fundamentally from Routine Management.“

Motivation of this presentation (2)

This contingency view has implications:

1. It assumes that innovation management has to cope with **fundamentally different task requirements,** like announced in the central theme of our conference: uncertainty and risk are much higher – but also the chances and the task-related motivation potentials to manage or to „entrepreneur“ innovations.

2. Therefore **fundamentally different practices** are needed.

3. In very successful organizations such different practices should emerge, not only at the single project level, but also at the innovation system level, i.e. different management systems will emerge → management innovations can be researched.

Motivation of this presentation (3)

So far, so good … **BUT:**

1. Is this contingency view **empirically** still justified?
2. Innovation management has become a **profession,** larger and larger parts of innovation processes have become **routinized**.
3. What is **really** different in innovation management?
4. Do the same **laws** apply in inovative situations – or do different laws apply?
5. How **strong** are the differences?
6. What are the **specific** differences?

In order to answer such questions **Volker Trommsdorff** and I inititated the research project **INNOVATION COMPASS** and **Sören Salomo** became the **leader** of this research project.

Motivation of this presentation (4)

INNOVATION COMPASS
differs from other research projects in several ways:

1. It is **urban research,** not rural research – a large, but closely integrated team of researchers with specialised themes systematically and quantitatively analysed a large set of radical innovations to answer the common research question: **„What‘s really different in radical innovations?“**

2. In sampling the cases great care was laid on **population validity.**

   The degree of technological and market-related innovativeness had to be much higher than in normal innovations.

Motivation of this presentation (5)

3. Much stress was layed on developing a **measurement system** to operationalize the complex multidimensional construct **innovativeness** = the degree of radicalness of an innovation.

   We are still working to improve this measurement, or to extend ist application from the project to the **firm level.** Other methods like e.g. **Rasch scaling** are now explored.

5. INNOVATION COMPASS is a **multi-informant study.**

6. Actually, in the third wave, we want to revisit our cases, and transform the project into a **longitudinal study.**

Motivation of this presentation (6)

INNOVATION COMPASS has also a high practical relevance:

Jürgen Hauschildt: „The First Task of Innovation Management …
…is Adequate Assesment of Innovativeness!“

- **SMS:** Short Message Service

True **Opportunity**

Perceived Opportunity	low	high
low	X	**under-estimated opportunity**
high	**over-estimated opportunity**	X

- **UMTS:** Universal Mobile Telephone System

- **A380:** New Airplane

True **Risk**

Perceived Risk	low	high
low	X	**under-estimated risk**
high	**over-estimated risk**	X

- **Y2K:** Bug-fixing-Efforts

What is „Radically“ New in Innovations? Technological Change?

Examples of radical technological change:

1. **Digital photography** shifted the base of technological knowledge from chemistry to electronics.

2. **Digital radiology** shifted the kind of knowledge generation from interpretation to quantititative data analysis and simulation.

Effects of Radical Technological Change

1. **Technological Discontinuities** may trigger **eras of ferment** with rapid innovation among competing designs, increased demand, entry of new competitors, cost & value pressures.
2. **„Creative Destruction“** may destroy the value of incumbent firms‘ accumulated knowledge and skills in old technology, and thus challenge big so far very successful firms.

2. Value creation, particularly customer value

Innovations are **radical** if they offer …

- … completely new functionalities which are very important for its users.
- … quantum leaps in performance of already existing functionalities which are very important for its users.
- … quantum leaps in cost reduction for its users.

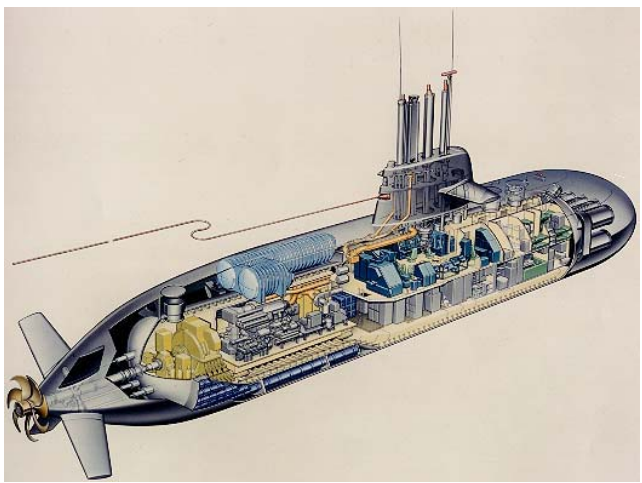
- … quantum leaps in sales increase for its manufacturers.
- … quantum leaps in cost reduction for its manufacturers.

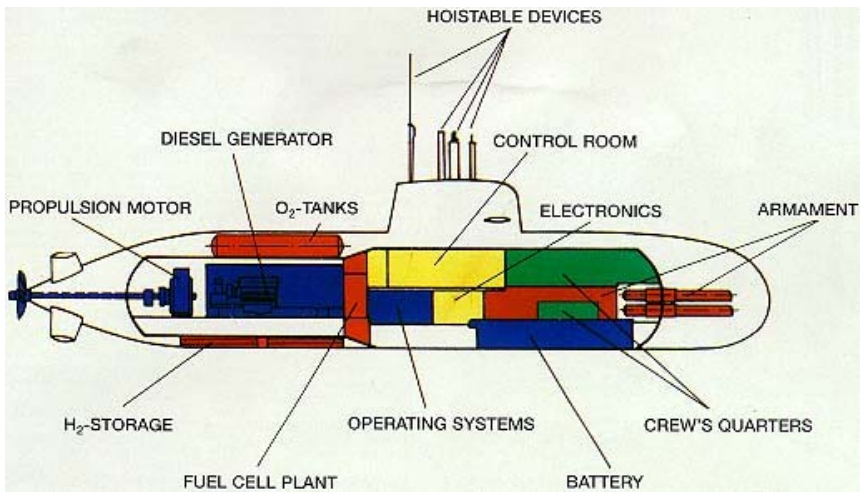
- … quantum leaps in reduction of environmental risks or other risks which are very important for society
- … quantum leaps in increase of cultural values of a society.

Example: U212 A – Submarine

- First submarine in the world to use fuel cells instead of nuclear propulsion (in combination with a diesel engine).
- The propulsion system is extremely quiet and produces no exhaust heat, making the U212 very difficult to detect.

- The U212 can cruise under water for weeks without surfacing.





What is the value of discoveries? Example from Biology

- In the Columbian Andes a new bird has recently been discovered.
- The *Atlapetes latinuchus yariguierum* is a species from the genus of brush-finches.

This discovery illustrates the subjectivity dimension of innovation:

Although this species has been in existence for a long time (and is therefore not new), it can be considered as “new“ to the scientific community. It is also new to mankind, since no one has seen it before.

The Degree of Innovation: Example from Biology

If the discovery of a new animal can be regarded as an innovation, the degree of innovativeness can be measured by the rank, where the newness occurred.

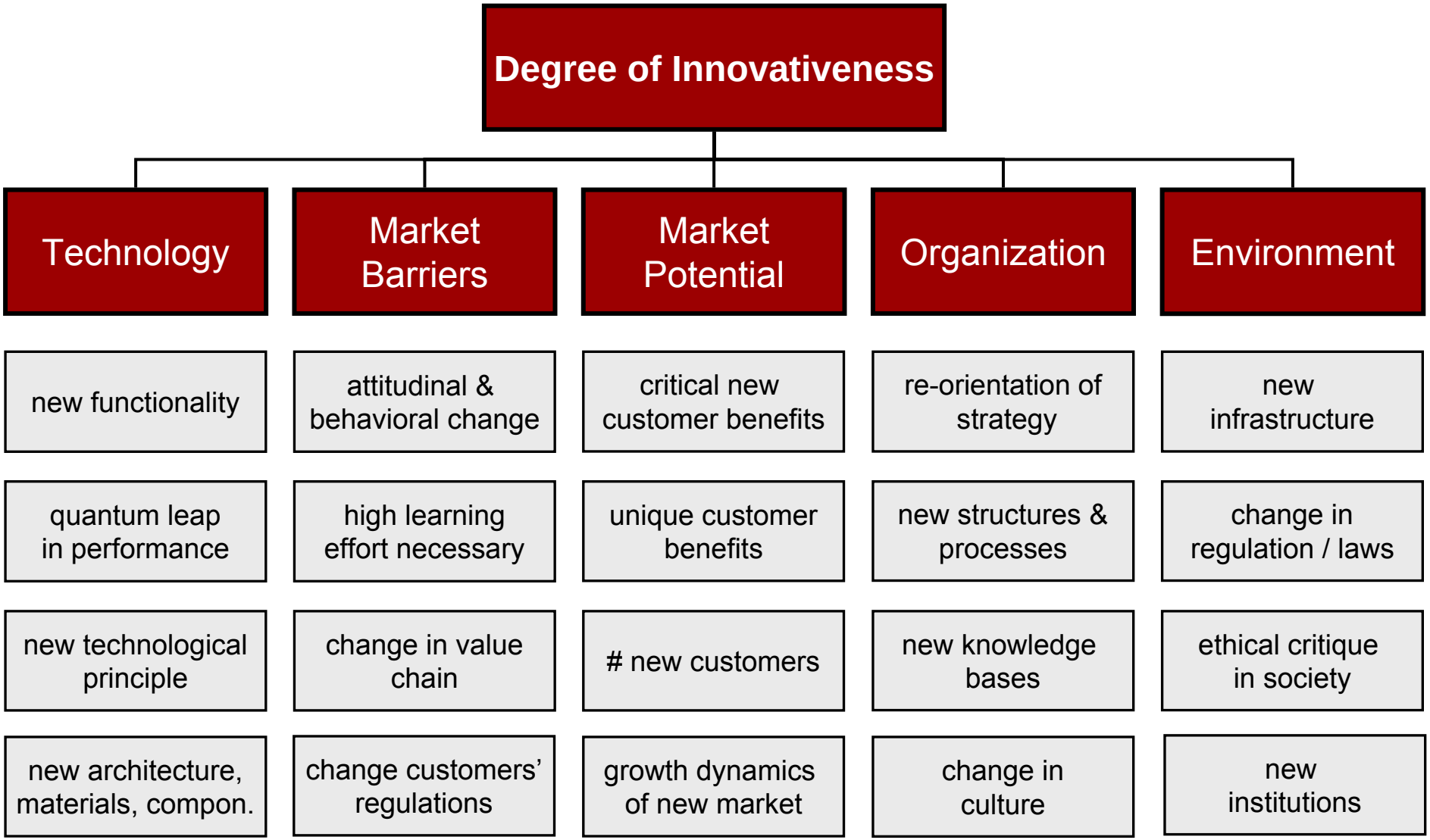
Biological Taxonomy (Ranks excluding subranks)	Yariguíes Brush-Finch	Coelacanth
Kingdom	Animalia (animals)	Animalia (animals)
Phylum	Chordata	Chordata
Class	Aves (birds)	Sarcopterygii (lobe-finned fishes)
Order	Passeriformes (passerine birds)	Coelacanth
Family	Fringillidae (Finches)	
Genus	Brush-Finches	
Species	Yariguíes Brush-Finch	

Degree of Innovativeness

Radical Discoveries … can Change the World

- Recently, we were told that life could exist on a planet very far away from us …
- America has been discovered several times, but the discovery from Christopher Columbus made a difference.
- Columbus had a theory guiding his expedition … and he had good luck!
- Explorations, Heuristiscs, Search-and-Probe-Processes play a big role in radical innovations.
- **HOWEVER: The value of discoveries and of methods leading to discoveries is not full acknowledged!**

What are Radical Innovations: Measurement in INNOVATION COMPASS



Marketing vs. Technology Responses: Very similar Assessments

	Technology*	Marketing*	# of pairs	Significance
New Technological Principle	4,81 / 1,89	4,90 / 1,81	175	n.s.
Significant Performance Enhancement	5,25 / 1,69	5,30 / 1,48	175	n.s.
Squeeze Out Old Technology	4,18 / 1,90	4,42 / 1,85	172	.10
New Costumer Value	5,24 / 1,67	5,11 / 1,73	175	n.s.
Unique Benefits	5,82 / 1,21	5,93 / 1,14	176	n.s.
New Costumers	5,22 / 1,37	5,27 / 1,37	174	n.s.
Behavioral Change Necessary	3,74 / 2,01	3,77 / 1,93	176	n.s.
High Learning Effort	3,40 / 1,85	3,44 / 1,79	176	n.s.
Deconstruction of Value Chain	2,64 / 1,81	2,76 / 1,87	172	n.s.
New Corporate Strategy	3,54 / 2,13	3,55 / 2,16	175	n.s.
New Organization Structure	3,24 / 2,11	3,18 / 2,13	175	n.s.
New Qualifications	3,70 / 1,99	3,65 / 2,06	175	n.s.
Change in Corporate Culture	3,18 / 1,99	3,14 / 1,95	173	n.s.
New Infrastructure	2,20 / 1,83	2,30 / 1,93	176	n.s.
New Regulation	1,95 / 1,80	2,14 / 1,87	175	.10
New Values	1,50 / 1,13	1,55 / 1,28	175	n.s.

* Average / Std. Deviation

MTMM Matrix – Variance Decomposition (Salomo INNOKOMPASS 2005)

	Traits					Methods		Variance Decomposition		
	T1	T2	T3	T4	T5	Techno.	Marketing	Trait	Method	Error
Technology Informant										
T1: Technology	.838					.263		.702	.069	.229
T2: Market Drivers		.583				.701		.340	.491	.169
T3: Market Barriers			.852			.258		.726	.067	.207
T4: Organization Change				.731		.091		.535	.008	.457
T5: Environment Change					.959	-.030		.919	.001	.080
Marketing Informant										
T1: Technology	.770						-.111	.593	.012	.395
T2: Market Drivers		.999					-.043	.998	.002	.000
T3: Market Barriers			.705				-.709	.497	.503	.000
T4: Organization Change				.840			-.277	.706	.077	.217
T5: Environment Change					.865		-.107	.748	.012	.240
							mean	**.676**	**.124**	**.199**

Chi² 28.98 df 16 RMSEA .057 GFI .97 AGFI .92

Table of Contents: What's Different in Managing Radical Innovations?

Relationships between Innovativeness and Innovation Success

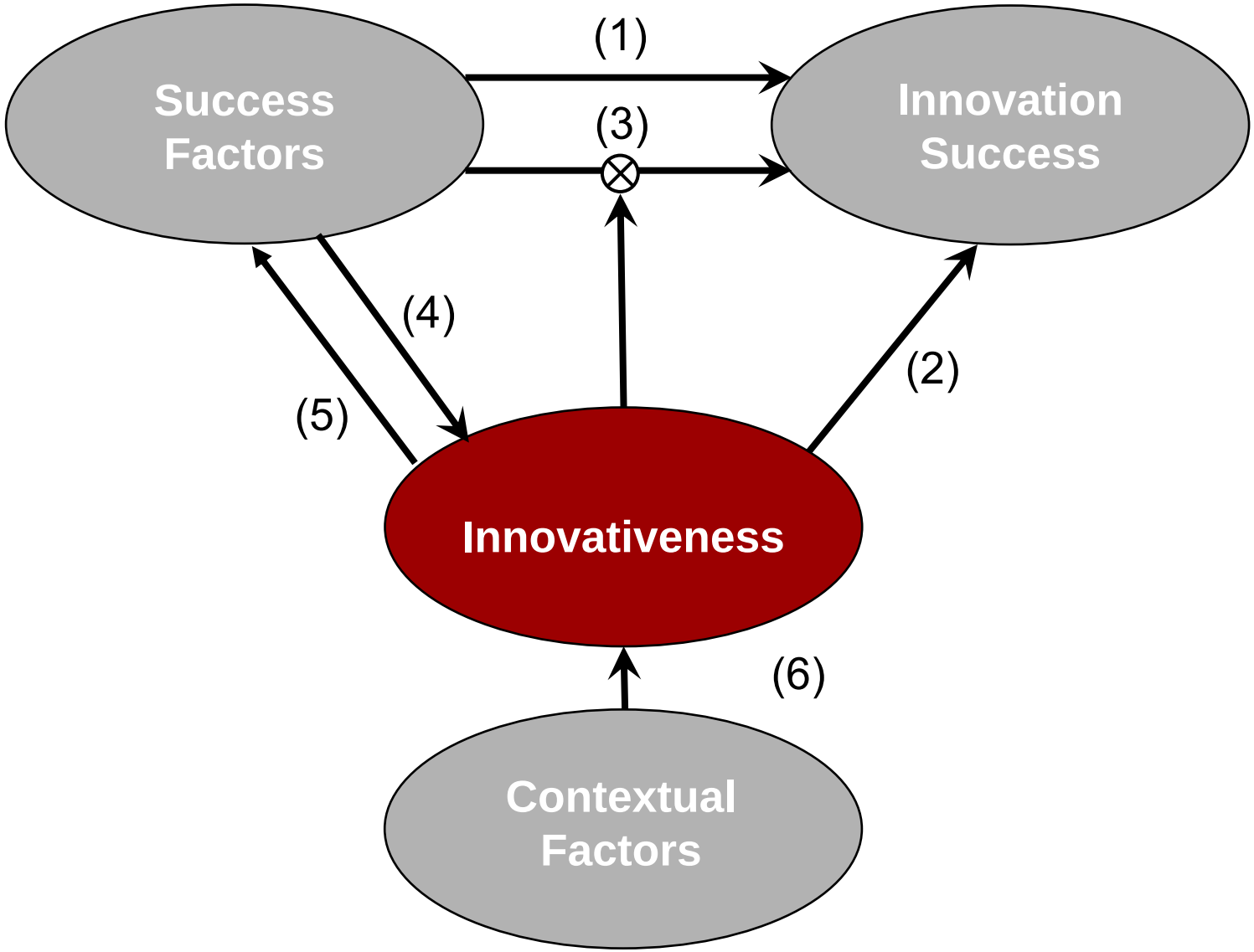


Table of Contents: What's Different in Managing Radical Innovations?

Empirical Studies on Innovativeness and Success: Anything Goes?

Positive Relationship	Mishra et al. (1996) Gatignon/Xuereb (1997) Zirger (1997) Song, Montoya-Weiss (1998)	Swink (2000) Gatignon et al. (2002) Zhou et al. (2005) Jordan (2006)
Negative Relationship	Cooper (1979) Meyer/Roberts (1986) Cooper/Kleinschmidt (1987) Link (1987) Souder (1987) de Brentani (1989) Zirger/Maidique (1990)	Cooper/de Brentani (1991) Cooper/Kleinschmidt (1993) Ali et al. (1995) Griffin (1997) Ali (2000) Olson et al. (2001) Danneels/Kleinschmidt (2001)
Curvilinear Relationship	Kleinschmidt/Cooper (1991) U Kotzbauer (1992) ∩	Avlonitis et al. (2001) ∩ Alam (2003) ∩
No or ambiguous Relationship	Atuahene-Gima/Evangelista (2000) Sivadas/Dwyer (2000) Tatikonda/Rosenthal (2000) Krieger (2005) Maidique/Zirger (1984) Lee/Kim (1987)	Perillieux (1987) Parry/Song (1994) Atuahene-Gima (1996) Schlaak (1999) Robinson (1990) Larson/Gobeli (1989)

Limitations of Prior Research

1. Often single-item scales, often dichotomous classifications ('radical vs incremental')
2. Almost exclusively subjective judgments by single key informants
3. Often retrospective studies → leading to hindsight bias
4. Often cross-sectional studies → causation unclear
5. Measurement scales not adequate for radical innovations
   - Scales for innovation success that have been developed for moderately innovative projects may underestimate the success of radical innovations, since they can exceed the returns of other projects by far
   - No consideration of long-term (non-financial) benefits or side and follow-effects
6. Biased samples towards incremental or moderately innovative projects

Ergebnisse der Meta-Analyse von Kock (2007)

	Success (Uni-dimensional Construct)	**Commercial Success**	**Market Success**	**Profitability**	**Project Efficiency**	**Other Booster**
Innovativeness (Uni-dimensional Construct)	0,266*	0,301*	0,189*	0,227*	0,248*	0,291*
Technological Innovativeness	0,046	0,000	(0,007)	0,105	-0,023	---
Market Innovativeness	0,223*	0,085	0,113	-0,018*	-0,024	(0,393)
Product Advantage	0,586*	0,590*	0,603*	0,595*	0,284*	0,629*
Organizational Innovativeness	-0,292*	-0,322*	-0,300*	-0,337*	-0,123	-0,340*

*** p < 0.01**

Explanations for the negative effect of organizational innovativeness

1. Organizations which are performing poorer, are more willing to take the risk of more radical innovations.

   Therefore higher degrees of organizational change are observed in firms which have less favourable starting conditions.

2. There is a longer time-lag and a more diffused effect for organizational innovations than for product innovations.

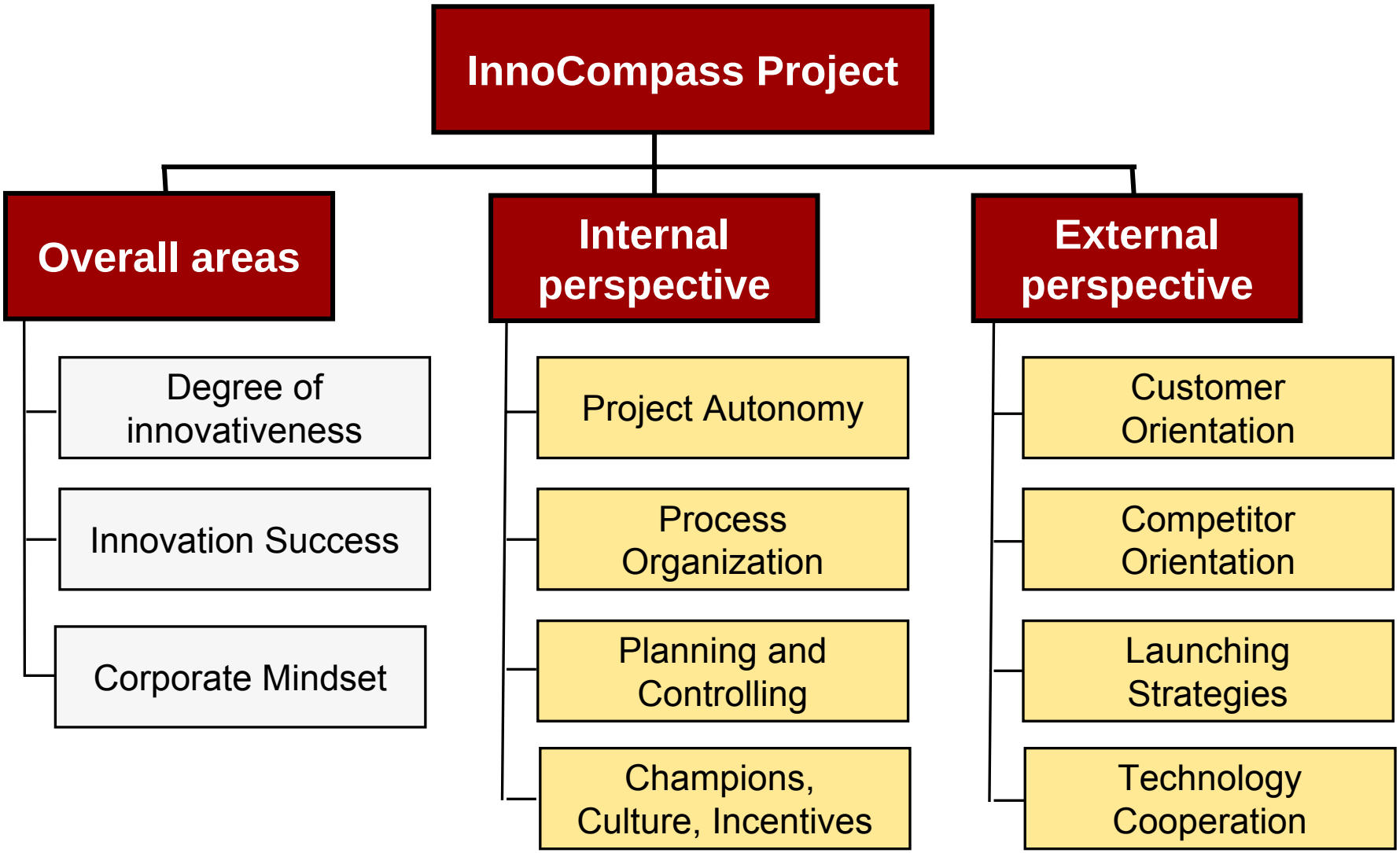
3. Required changes in organizational structures, processes, networks, values, and competences are not fully recognized, therefore the targeted time and budget goals are too optimistic.

→ **Radical innovation have many implications.**

→ **It is important to understand the full range of consequences which are linked to a truly radical innovation.**

Table of Contents: What's Different in Managing Radical Innovations?

Research Themes Innovation Compass



B. Moderator Effects of Innovativeness

4. **Well-known success factors may loose their influence in case of very radical product innovations, they may even show negative influences on innovation success**.

5. **Process formality** – the well-known stage-gate-processes – has a positive main effect – **but the stronger negative interaction effect** turns this success factor with increasing innovativeness from a core competence into a core rigidity.

Summary and Implications (4)

7. **Organizational separation** which is often recommended in case of radical innovations, does not have a significant impact on innovation success, neither for moderate nor for radical innovations

8. **Social autonomy** given thru co-locations of teams supports creates an innovation-friendly project culture, a richer knowledge exchange, and a higher innovation success.

9. This effect increases with incresing innovativeness.

   However, it is not used more often in case of radical innovations.

Summary and Implications (5)

10. The importance of **customer integration** does not diminish with increasing innovativeness, rather it increases.

    However, care should be taken in the selection of and interaction with co-developing customers.

11. The **productive potential of conflicts** appears to rise with increasing levels of innovativeness, because more creative solutions offering win-win are possible.

12. For radical innovations **senior management support** often has a **negative** impact on innovation success.
    This effect increases with increasing levels of innovativeness.

4.1 Process Formality

J PROD INNOV MANAG 2007;24:285–302

THE JOURNAL OF
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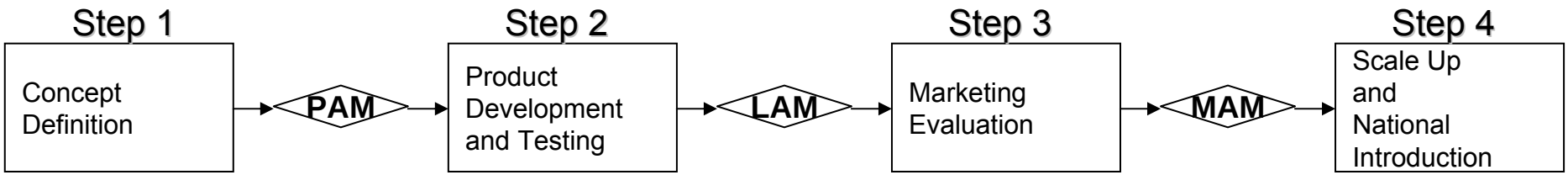
NPD Planning Activities and Innovation Performance: The Mediating Role of Process Management and the Moderating Effect of Product Innovativeness

Sören Salomo, Joachim Weise, and Hans Georg Gemünden

Process Formality and Radical Innovation Success (1)



Existing research and conventional wisdom:

- Projects which follow a structured and standardized process perform better
- Pre-defined gates allow testing of critical conditions and improves efficiency and effectiveness
- Adequate Screening at Gates / Milestones ensures that projects are terminated when not meeting basic requirements

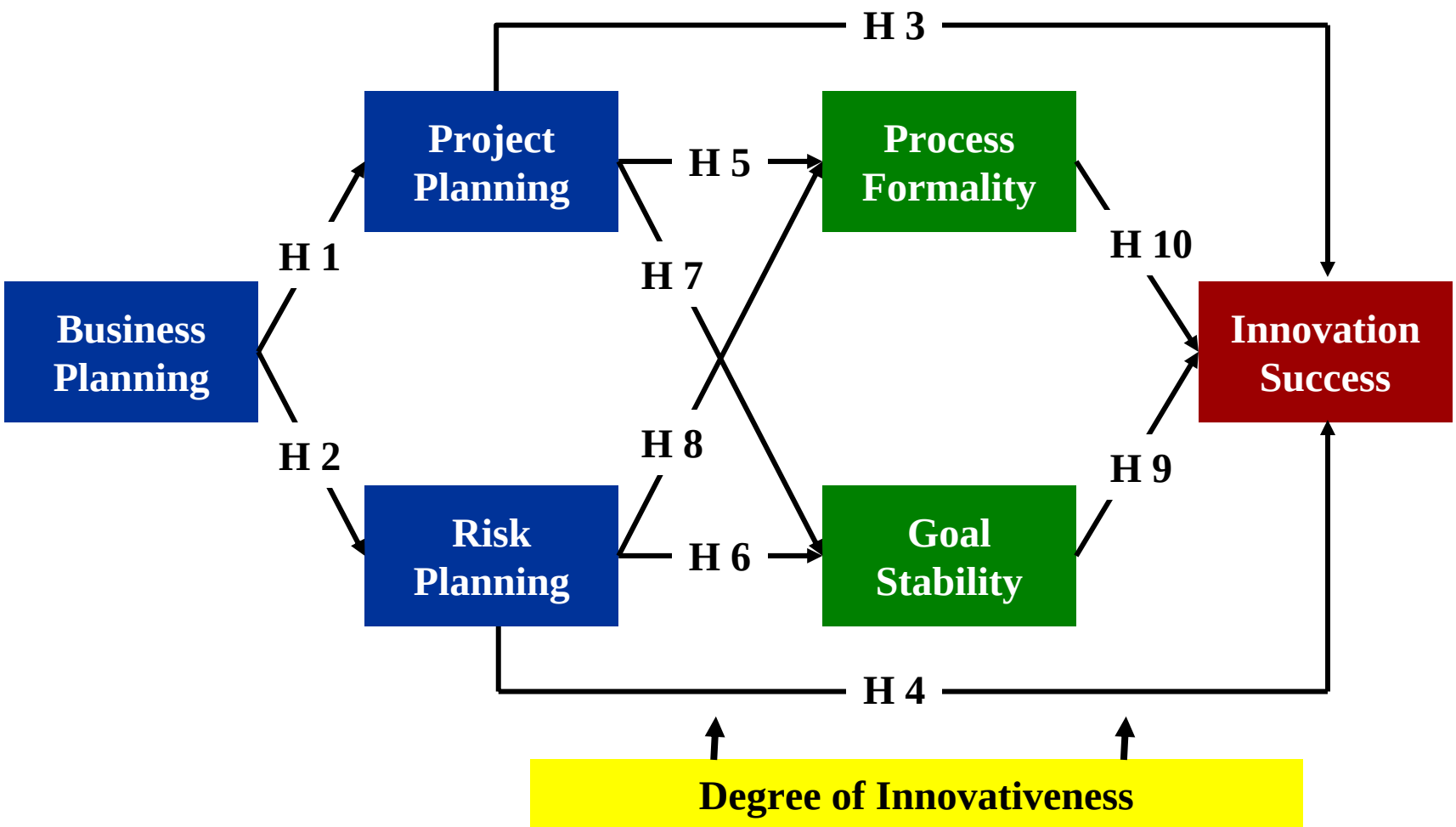
Process Formality and Radical Innovation Success (2)

Conventional Wisdom translated into Research Hypotheses:

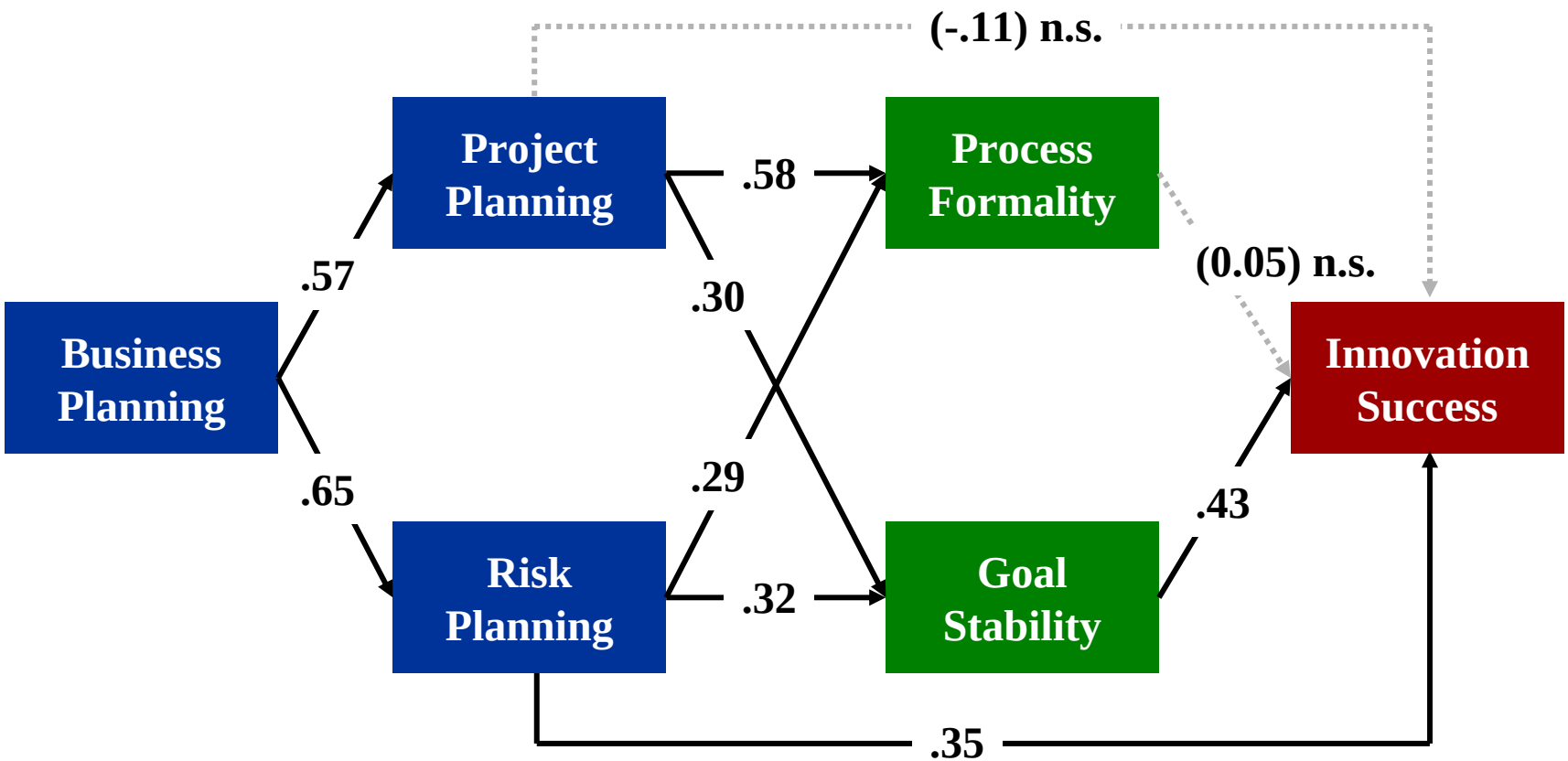
1. Clear performance targets …
2. Management according to milestones … and
3. Strategic decisions at milestones …

… will lead to higher innovation success.

Research Framework: Planning, Process Management and NPD Success



Empirical Results: Planning, Process Management and NPD Success



Moderator effect of innovativeness and process formality

When taking into account interaction effects with innovativeness:

Radical Innovation Projects which follow a structured and standardized process do significantly perform better.

BUT

→ There is also a **negative interaction effect** with degree of project innovativeness and this interaction effect is stronger than the main effect.

→ **The more innovative the project, the higher the negative interaction effect.**

→ **Beyond a certain threshold level of innovativeness this negative interaction effect over-compensates the positive main effect.**

Process Formality and Radical Innovation Success

Table 4. Results of Hierarchical Moderated Regression—Innovation Success[a]

	Innovation Success		
	Model 2a	Model 2b	Model 2c
Main Effects			
Process Formality	.14**	.14**	.16**
Goal Clarity	.48***	.49***	.45***
Moderator			
Degree of Innovativeness (INNOV)		.02	.03
Interaction Terms			
INNOV × Process Formality			−.19*
INNOV × Goal stability			.04
R^2	.34	.34	.37
Adjusted R^2	.33	.32	.34
ΔR^2	.34	.00	.03
F	30.0***	19.9***	13.2***

[a] Standardized beta values are reported

* $p < .10$.

** $p < .05$.

*** $p < .001$.

4.2 Project Autonomy

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The influence of project autonomy on project success

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Project Autonomy and Innovation Success (1)

Mainstream research and conventional wisdom postulate:

1. Innovative projects need strong autonomy in order to be successful.

2. Autonomy is particularly necessary in case of radical innovations, because organizational rigidities and strong current customers prohibit game changing activities.

3. Autonomy is best achieved by creating special organizational units for radical innovation (e.g. Incubator, Corporate Venture Unit, etc.)

Project Autonomy and Innovation Success (2)

- **Proponents of Organizational Separation (mostly case-study-based):**

- Fast (1978), Galbraith (1982), Burgelman (1984), Block/MacMillan (1993), Calantone et al. (1993, 1997), Bower/Christensen (1995), Damanpour/Gopala-Krishnan (1998), Heller (1999), Christensen (2000), Day et al. (2001), Lehmair (2001), Charitou/Markides (2003), …

- **Critical Positions:**

- Bart (1988), Johne/Snelson (1988), Barczak (1995)

Project Autonomy and Innovation Success (3)

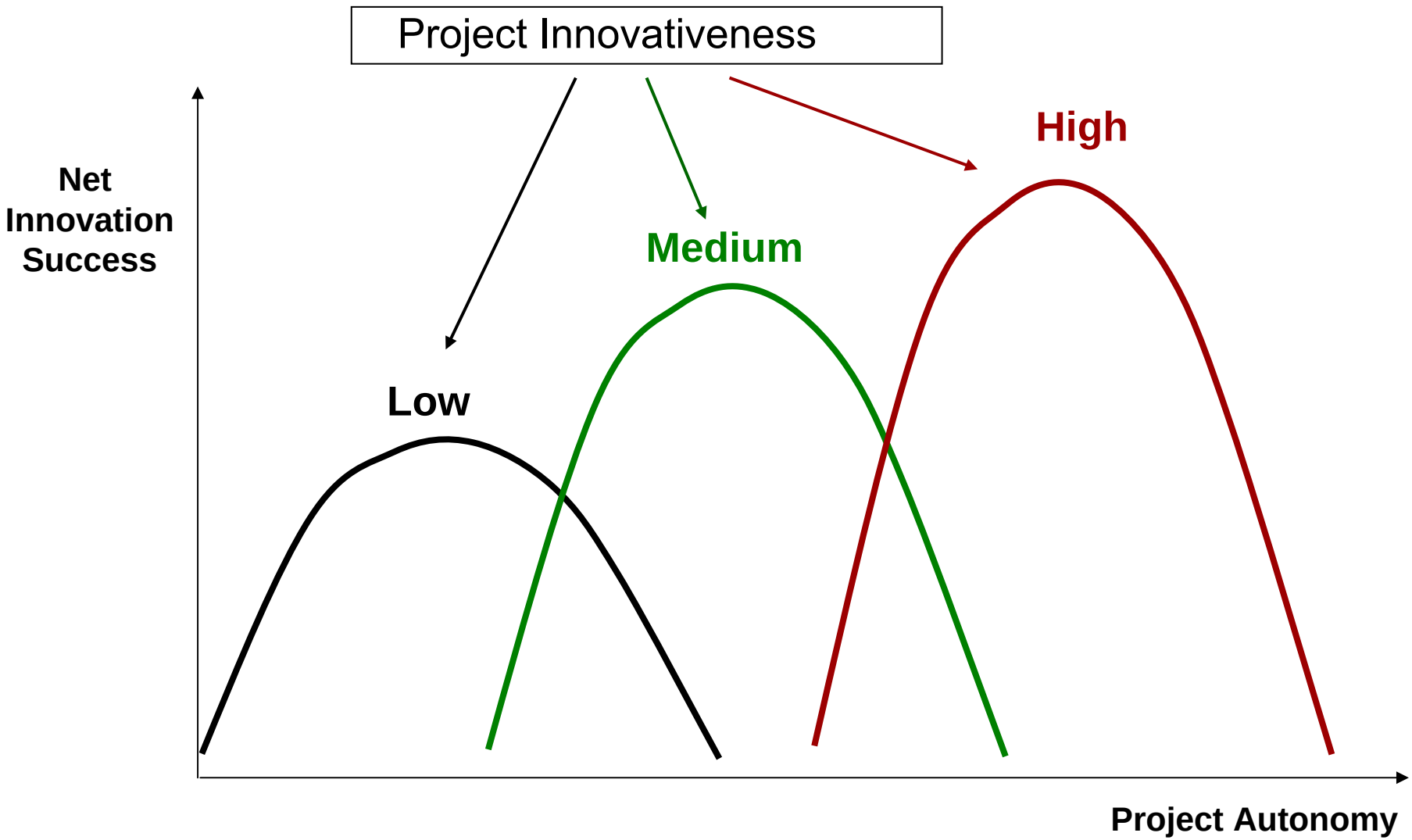
Conventional Wisdom translated into Research Hypotheses:

1. Autonomy increases with project innovativeness.

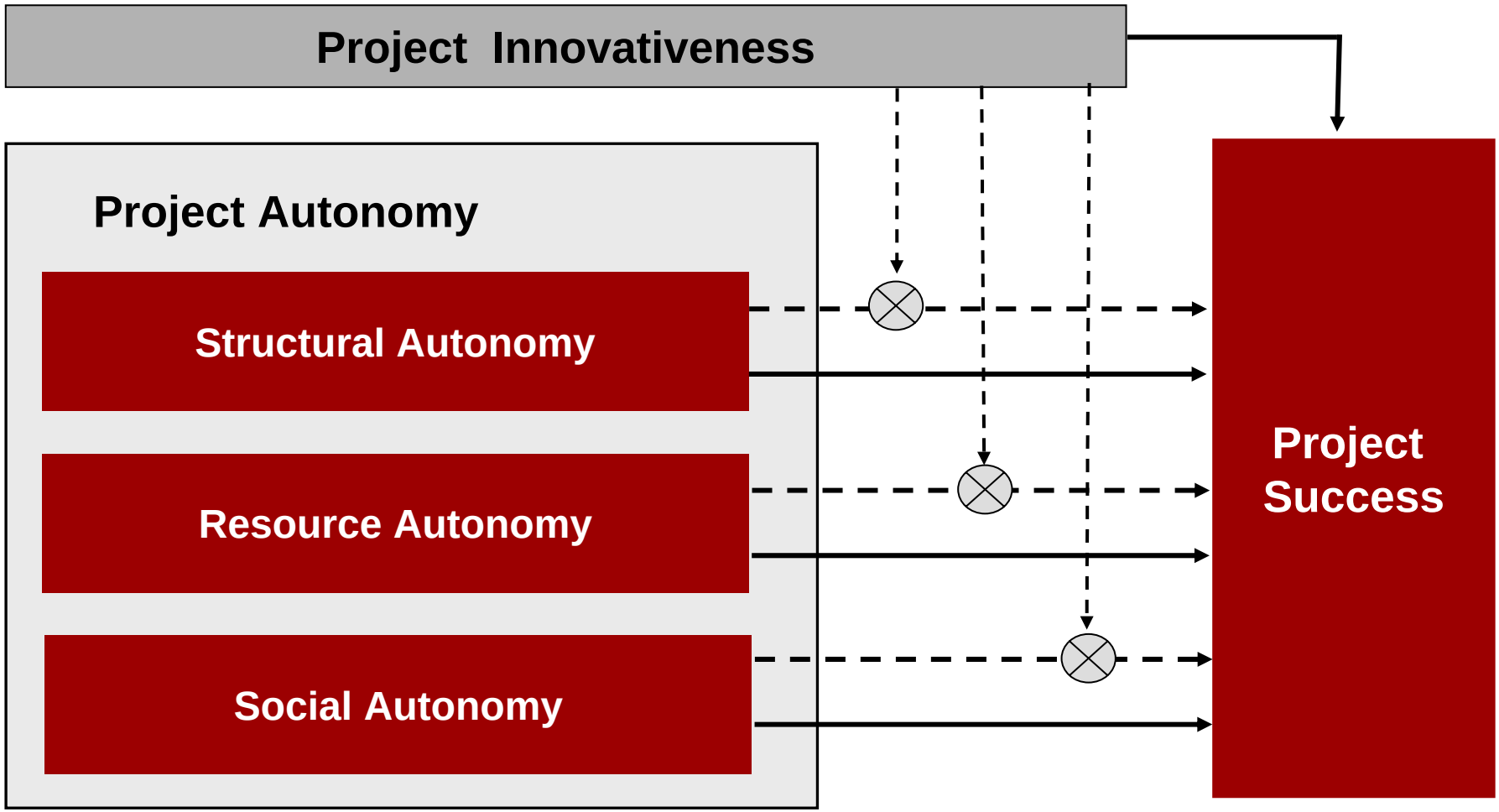
2. Innovation success increases with extent of autonomy.

3. The higher the degree of innovation, the ***more positive*** is the effect of autonomy on innovation success.

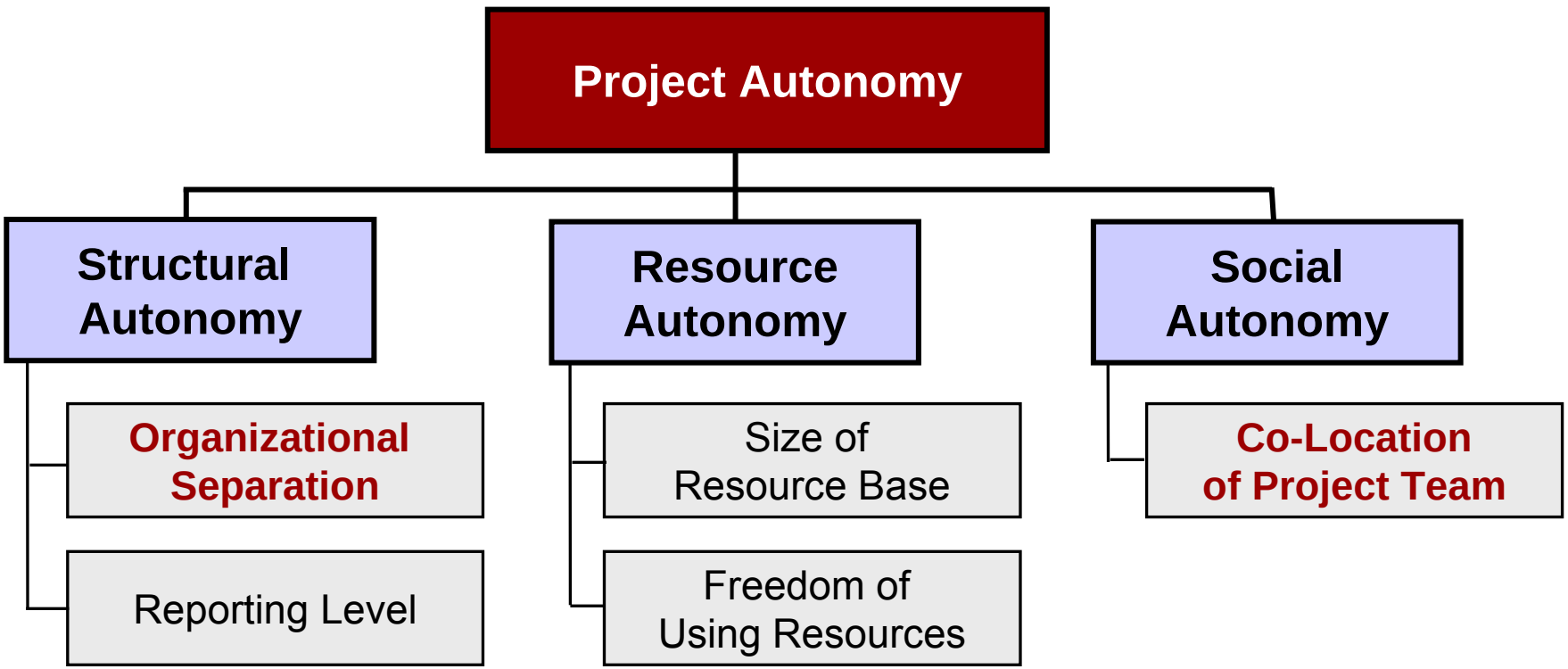
Project Autonomy and Innovation Success (4)



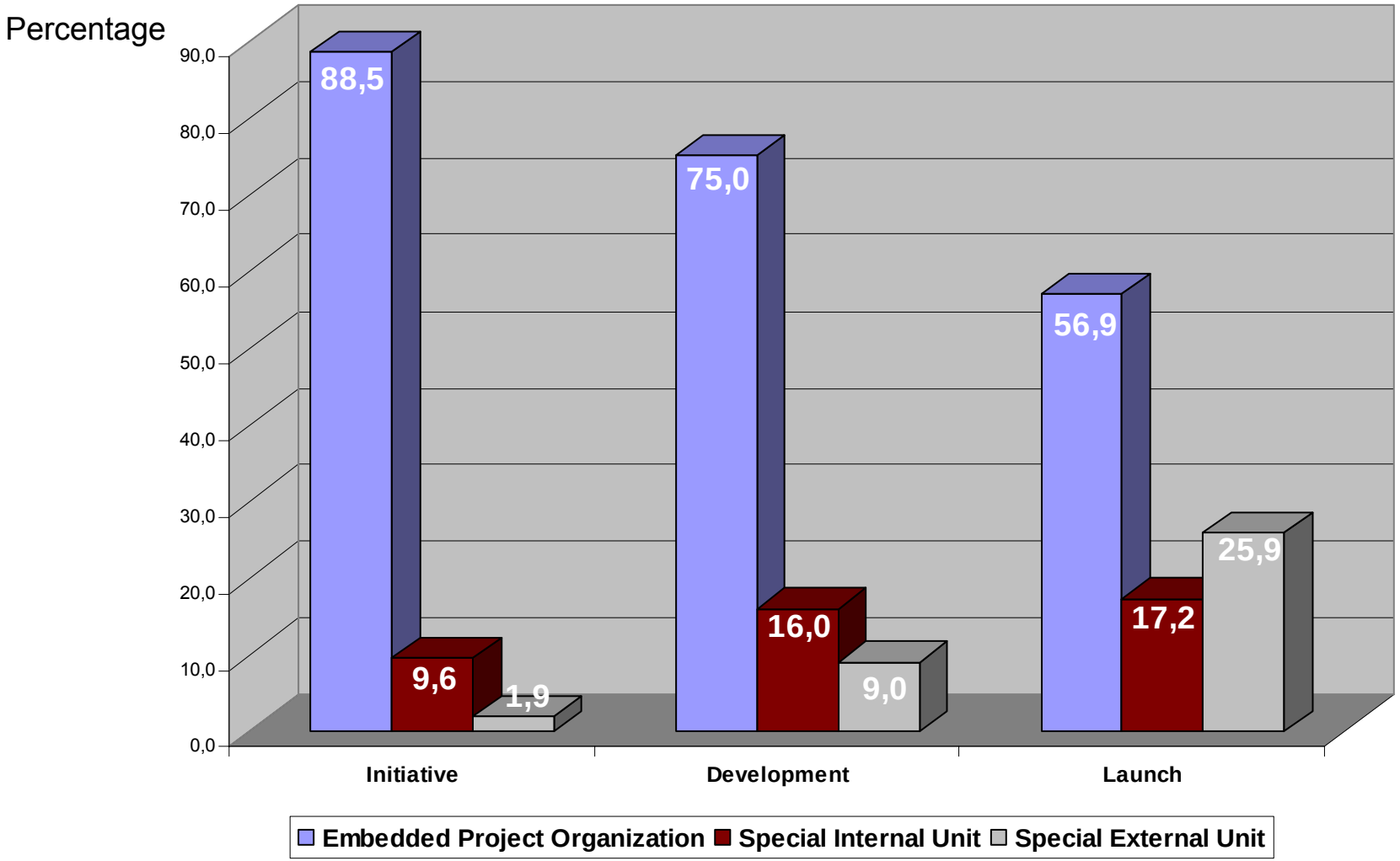
Research Framework: Autonomy, Innovativeness and Success



Dimensions of Project Autonomy



Structural Autonomy: Organizational Separation



Innovativeness and Structural Autonomy

(Correlations, Separation: no separation vs. internal or external special units)

Dimensions of Innovativeness	*Stages*			*Separation, at least in one stage*
	Initiative →	Development →	Market Launch	
Market	0,207*			0,215*
Technology		0,220*		0,245*
Organization	0,249*	0,349***	0,317*	0,406***
Environment		0,257*		0,221*

Structural Autonomy Increases with Innovativeness

Structural Autonomy and Innovation Success

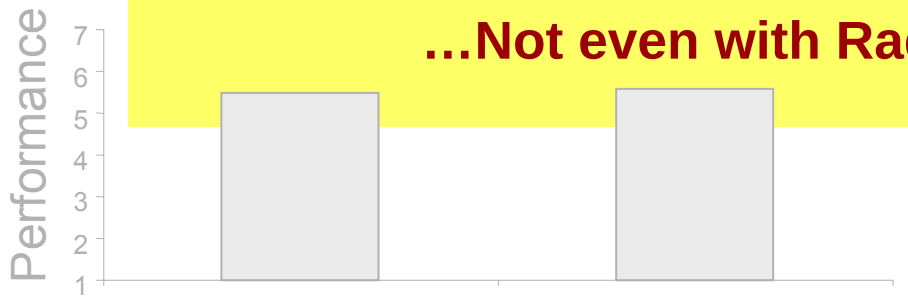
(Correlations, Separation: internal or external vs. no separation)

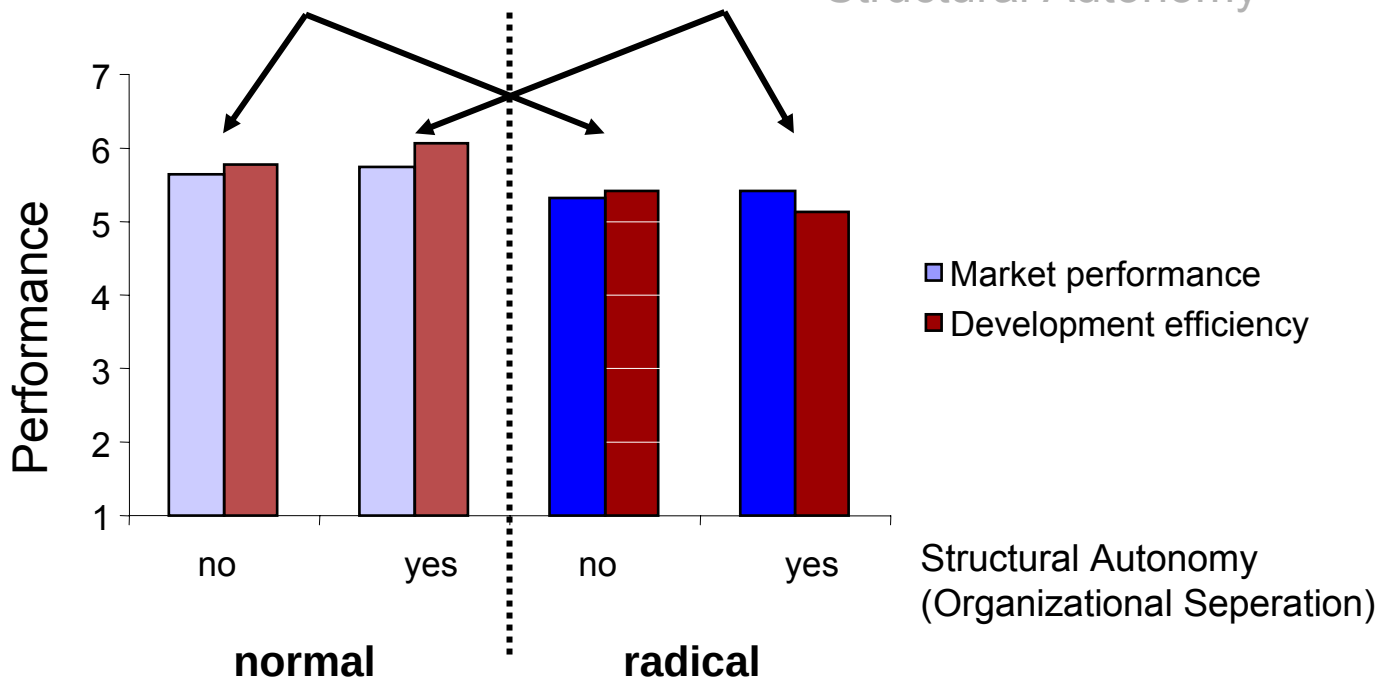
Dimensions of Success	*Stages*			
	Initiative →	Development →	Market Launch	*Separation, at least in one stage*
Quality	- 0,076	- 0,160	- 0,104	- 0,112
Time	0,023	0,092	0,027	0,090
Cost	- 0,097	- 0,022	0,161	0,014
Market*	0,155	- 0,030	- 0,010	0,007

***HOWEVER*: Structural Autonomy Does *Not* Improve Performance**

Structural Autonomy Does Not Improve Performance…

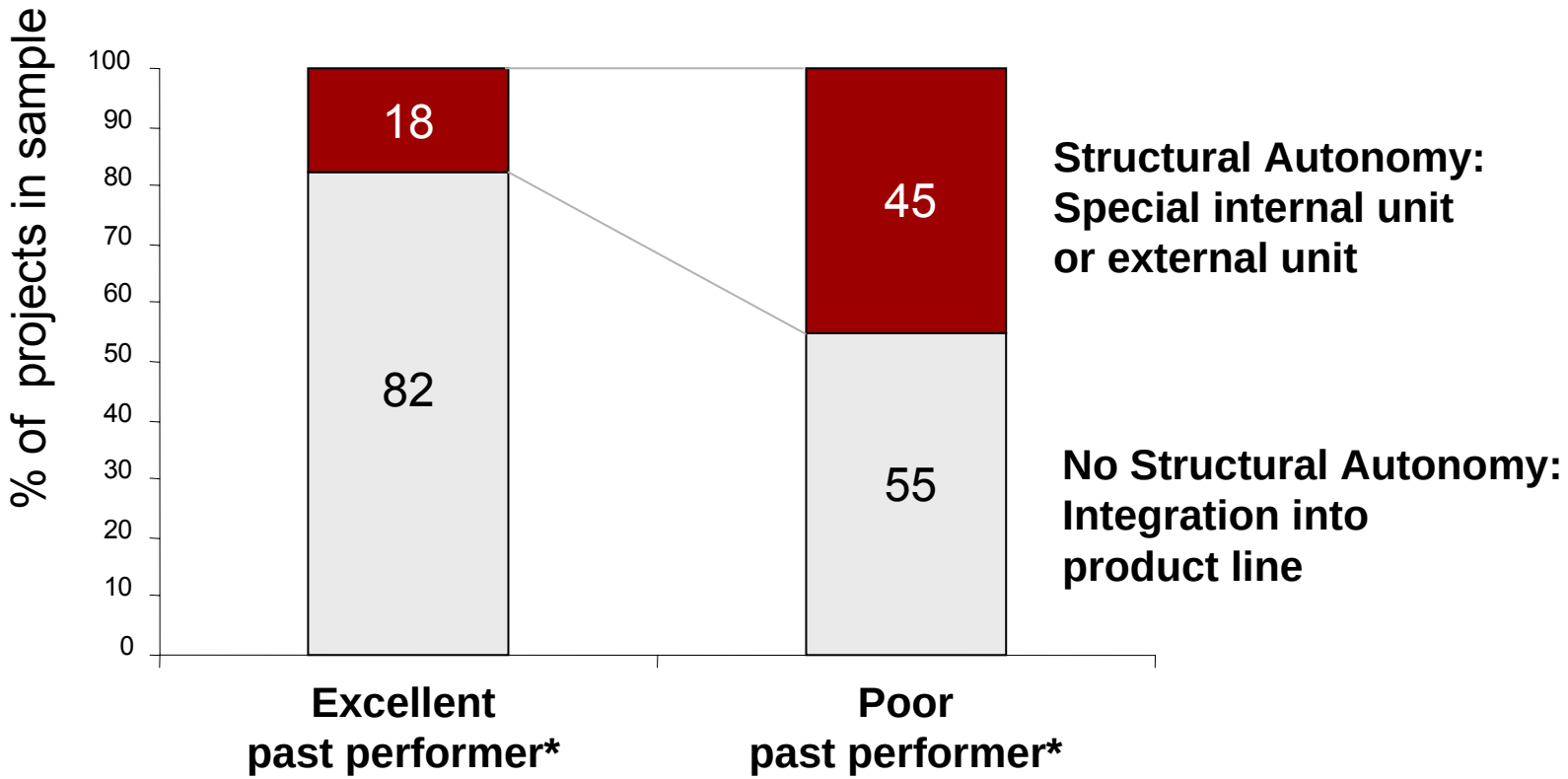
…Not even with Radical Innovations





All moderated regressions are not significant !

But: Poor Performing Organizations separate more often!



* Mean industry adjusted return on sales over the past 3 years before projects were started

Are radical NPD-projects trying to escape their poorly managed firms?

Reasons for Failure of Conventional Wisdom

1. Other Reasons for Separation than theory assumes: Good managers flee poorly lead organizations!
2. Separation creates new interfaces and communication problems and conflicts with existing units.
3. Access to complementary resources is more difficult for separated units than for embedded units.
4. Failures of separated units become visible earlier, there is a higher risk, particularly for radical innovations, that projects are terminated or „frozen“.

Social Autonomy (Co-location of team) and Innovativeness

(Correlations, Co-located vs. dispersed teams)

Dimensions of Innovativeness	*Stages* Initiative → Development → Market Launch			*Co-Location, at least in one stage*
Market	0,098	- 0,007	- 0,072	0,006
Technology	0,037	0,047	- 0,006	- 0,013
Organization	- 0,018	- 0,063	- 0,021	- 0,036
Environment	0,065	- 0,006	- 0,110	- 0,059

Social Autonomy Does *Not* Increase with Innovativeness

Social Autonomy (Co-location) and Innovation Success

(Correlations, Co-located vs. dispersed teams)

Dimensions of Success	*Stages* Initiative → Development → Market Launch			*Co-Location, at least in one stage*
Quality	0,075	0,183	0,061	0,141
Time	0,175	0,249 *	0,311 * *	0,252 *
Cost	0,099	0,214 *	0,161	0,215 *
Competence Dev.	0,117	0,277 * *	0,370 * *	0,255 * *

But: Co-Location Increases Innovation Success significantly.

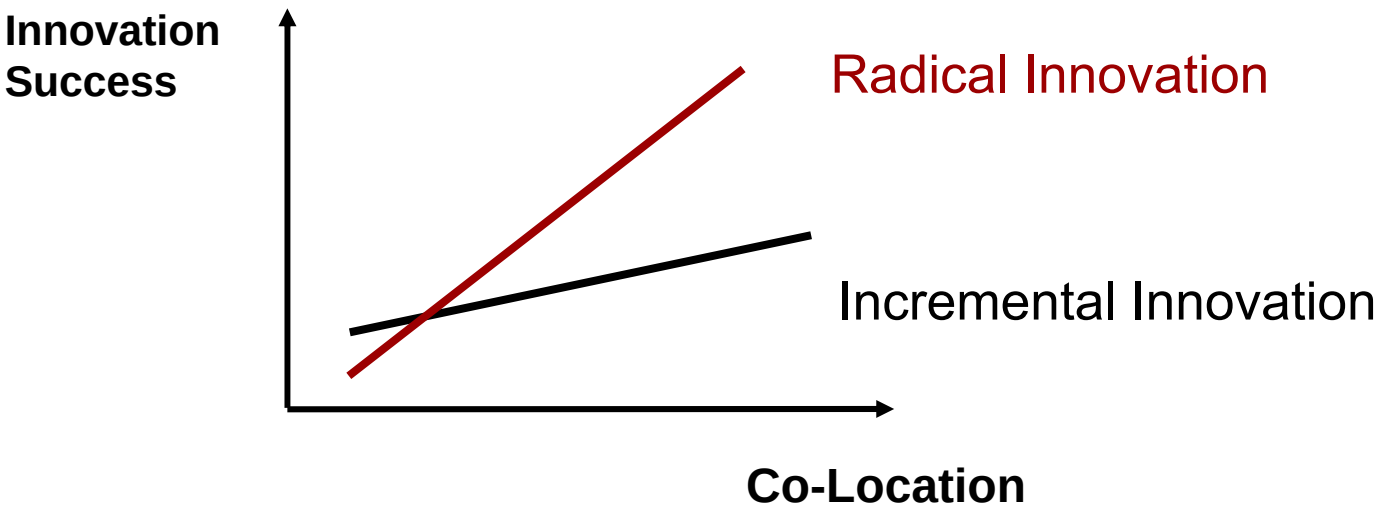
Social Autonomy X Innovativeness → Innovation Success

Moderated Regressions show:

the **higher the degree of innovativeness**

the **more important is a co-location** of project teams.

The effect occurs in later project stages when teams are larger.



Co-Location Changes the Project Culture

Correlation Co-Location with …	Correlation	Significance	N
Team members support each other	0,189	0,057	102
Team members take over responsibility	0,262	0,008**	102
In the team there is willingness to take risks	0,256	0,010*	101
New proposed solutions are accepted	0,340	0,001***	101
The culture offers scope for development	0,282	0,004**	101

Co-location enhances the ability of self-organization !

Summary Social Autonomy and Innovation Success

1. Co-location of teams increases innovation performance, particularly for high degrees of innovation.

2. However, firms do ***not*** use co-location *more often* if degree of innovativeness is very high, i. e. **they do not support team-work when it really matters!**

3. Rather, **other reasons influence co-location decisions:** Additional findings show that larger and older firms rely more on dispersed, global and virtual teams, and on matrix solutions.

   Larger firms could exploit their better opportunities better!

4.3 Early crossfunctional integration

Facilitating information flow across organizational interfaces

Facilitating information flow across organizational interfaces for successful innovation projects – the impact of product innovativeness

By Sören Salomo, Hans Georg Gemünden and Fabian Billing

In: Zeitschrift für Betriebswirtschaft 2007, forthcoming.

Early Crossfunctional Integration and Radical Innovation Success (1)

Existing research and conventional wisdom:

- Projects which integrate all functions early on will develop a master plan which exploits task-critical knowledge from all parties.
- Reliable sub-plans can be broken down, parallel processing is facilitated, and later iterations between functions are reduced.
- Early participation of all functions will also increase acceptance and understanding of project plans and thus accelerate project implementation.

Early Crossfunctional Integration and Radical Innovation Success (2)

Empirical Finding:

- Cross-functional integration has a significant **negative effect** for radical innovations – **particularly in the early stages of the innovation process.**
- For radical innovations it appears to be important, that the new technological concepts are first clarified and validated among a small group of experts.
- Bringing in implementation and controlling issues too early may hinder learning processes.

Early Crossfunctional Integration and Radical Innovation Success (2)

Tab. 2: Results of Regression Analyses[a]

Dependent Variable: Overall Innovation Project Performance

Split Sample: Moderate (m) vs. Radical (r) innovation projects

	Model 1 (moderate)	Model 1 (radical)	Model 2 (moderate)	Model 2 (radical)
Mean team size phase 1 and 2	-.09 (.01)	.03 (.01)	-.08 (.01)	-.11 (.01)
Cross-functional integration: Phase 1	-.15 (.08)	-.38*(.09)		
Cross-functional integration: Phase 2			.04 (.08)	-.24 (.09)
Information quality: Phase 1	-.13 (.02)	.33*(.03)		
Information quality: Phase 2			-.09 (.02)	.21 (.20)
Project steering board	.23†(.06)	.25†(.08)	.16 (.07)	.39*(.07)
Personal informal network	.25†(.09)	.36**(.18)	.26 (.09)	.09 (.17)
R^2	.14	.29	.09	.27
F	1.33*	2.71**	.80	2.81**
emp. *F*/ theor. *F*[b]	3.48 > 2.53*		1.41 < 2.52	

[a] We report standardized beta values (standard error)/ [b] Chow-Test *F* values

† $p < .10$; * $p < .05$; ** $p < .01$

4.4 Customer Orientation

Salomo, S., Steinhoff, F. & Trommsdorff, V. (2003) Customer Orientation in Innovation Projects and New Product Development Success – the Moderating Effect of Product Innovativeness. *International Journal of Technology Management* 26 (5/6): 442-463.

Customer Orientation and Radical Innovation Success

Existing research and conventional wisdom:

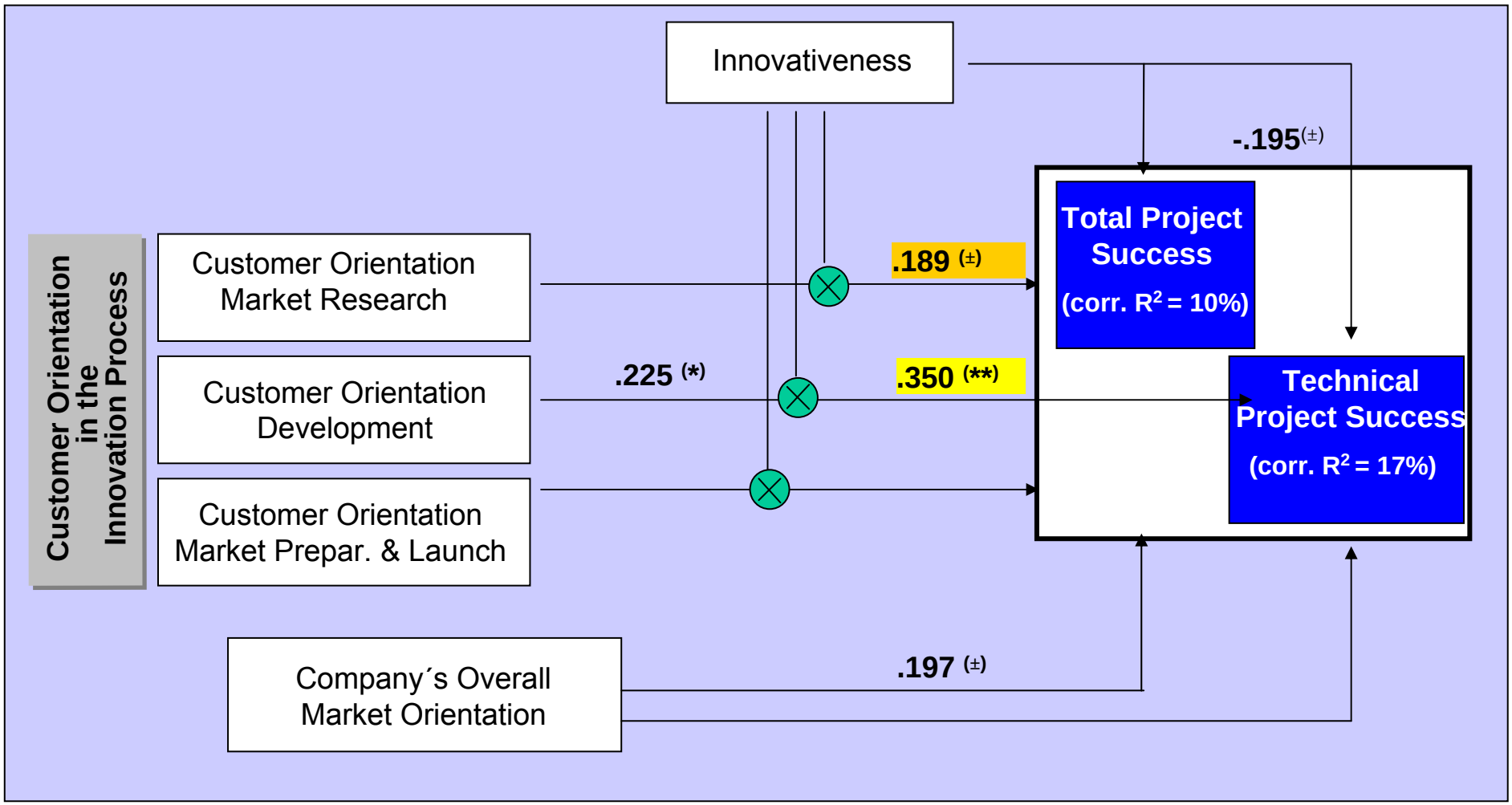
- Customer orientation is important for sales success.
- Customer orientation is also important for innovation success, because customers are also important partners for improving existing products, delivering ideas for new products, and for testing new concepts

… but not for developing radically new products.

Empirical Findings:

- **Customer orientation has a positive impact on innovation success.**
- **This effect increases with increasing innovativeness.**
- **Identification and interaction with lead customers becomes critical.**

Empirical Finding: Importance of Customer Orientation…
… Increases with Innovativeness



Standardized Regression Coefficients, ± P<.10; * p<.05; ** p<.01

Gemünden, H. G., Salomo, S., Hölzle, K, Walter, A. und Schmidthals, J. (2006):

Technologieorientierte Innovationskooperationen bei hochinnovativen Produktentwicklungen.
In: Th. Blecker und H. G. Gemünden (Hrsg.):

Wertschöpfungsnetzwerke. Festschrift für Bernd Kaluza.

Schmidt: Berlin, S. 165-187.

Interorganizational Conflicts and Radical Innovation Success (1)

Existing research and conventional wisdom:

- Conflicts with partners of technology cooperations have a negative impact on innovation success – because knowledge exchanges require trusted partners.

- The negative impacts of conflicts should increase with increasing innovativeness, because more information exchange is needed, and information will be more tacit and sensitive.

Interorganizational Conflicts and Radical Innovation Success (2)

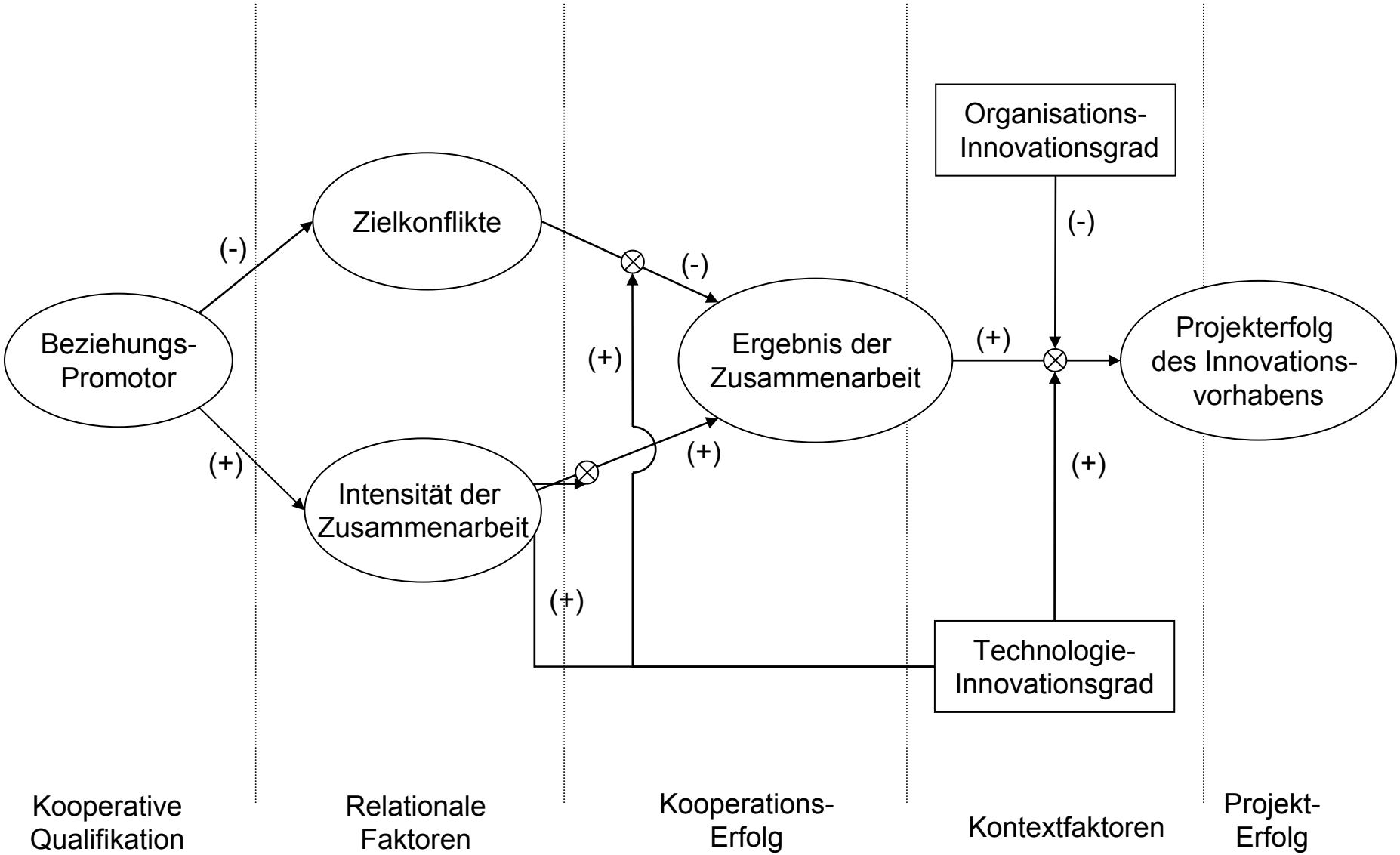
Empirical finding:

- Conflicts with technology partners have a negative effect.
- But the negative effect decreases with increasing levels of innovativeness.

	Technological Innovativeness		
	Low	Medium	High
Quantiles Innovativeness	Lower third	Middle Third	Upper third
Goal Conflicts→ Success	-.765	-.651	-097

→ Higher degrees of innovativeness offer more opportunities to find win-win-situations, zero-sum games are less likely.

Innovationskooperationen: Bezugsrahmen und Hypothesen der Untersuchung



Befunde der Untersuchung

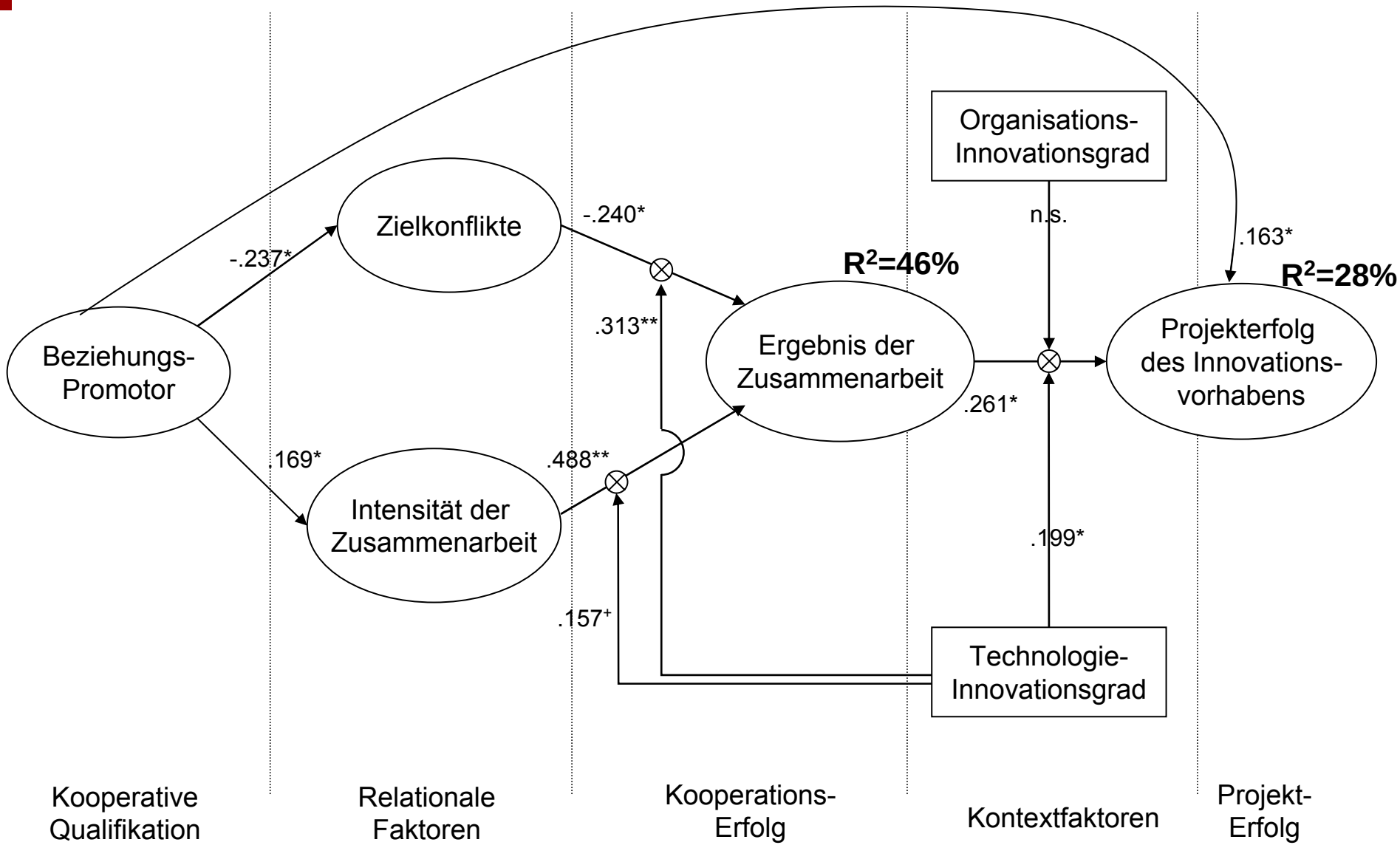


Table of Contents: What's Different in Managing Radical Innovations?

A. Direct Effects of Innovativeness

1. The **direct relationship between innovativeness and innovation success is a complex one.** It is important to differentiate between different dimensions of innovativeness and different dimensions of success.
2. For a **comprehensive assessment** of an innovation it is important to look at all dimensions of innovativeness and all dimensions of innovation success.
3. **Value creation for customers** shows a strong correlation with innovation success for many success measures.
4. Value creation for **other stakeholders** has not been researched often enough to allow generalisations.

Summary and Implications (2)

4. The **negative effects of required organizational changes** are not addressed enough in the literature. There the main emphasis is on technology and market related risks.

   However, firms can not only pick up the desired positive impacts of an innovation, they also have to master the challenge that they close their competence gaps, including cultural and structural changes.

   An adequate assessment of radical innovations should not only take into account technology and market-related chances and risks, but also organizational and innovation-network related chances and risks.

B. Moderator Effects of Innovativeness

4. **Well-known success factors may loose their influence in case of very radical product innovations, they may even show negative influences on innovation success**.

5. **Process formality** – the well-known stage-gate-processes – has a positive main effect – **but the stronger negative interaction effect** turns this success factor with increasing innovativeness from a core competence into a core rigidity.

Summary and Implications (4)

7. **Organizational separation** which is often recommended in case of radical innovations, does not have a significant impact on innovation success, neither for moderate nor for radical innovations

8. **Social autonomy** given thru co-locations of teams supports creates an innovation-friendly project culture, a richer knowledge exchange, and a higher innovation success.

9. This effect increases with incresing innovativeness.

   However, it is not used more often in case of radical innovations.

Summary and Implications (5)

10. The importance of **customer integration** does not diminish with increasing innovativeness, rather it increases.

    However, care should be taken in the selection of and interaction with co-developing customers.

11. The **productive potential of conflicts** appears to rise with increasing levels of innovativeness, because more creative solutions offering win-win are possible.

12. For radical innovations **senior management support** often has a **negative** impact on innovation success.
    This effect increases with increasing levels of innovativeness.

Thanks for your attention !!!

Any questions?