BIOTEXFUTURE

TRANSITIONLAB INSIGHTS SESSION 3

SUCCESS FACTORS IN SUSTAINABLE TEXTILE INNOVATION:
AN EMPIRICAL INVESTIGATION

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TRANSITIONLAB INSIGHTS
ABOUT THIS SERIES

TRANSITIONLAB INSIGHTS SERIES

TODAY

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BIOTEXFUTURE → TransitionLab

A 5-year, **cross-industry R&D program** (>30 partners)

VISION: Transform the textile industry from petrol- to biobased

Jointly led by RWTH Aachen University and adidas

Funded by the Federal Ministry of Education and Research (BMBF)

Bundesministerium für Bildung und Forschung

www.biotexfuture.de

WHY? Tackle the societal challenges for the transformation of the textile industry

HOW? Create knowledge about
- **success factors** as well as
- **ethical, legal and social implications (ELSI)**

of this transformation

← **FOCUS OF TODAY**

ABOUT OUR STUDY

The goal of this research is to investigate success factors in sustainable textile product innovation by conducting an empirical investigation

Reference:

Rese, Alexandra; Baier, Daniel (2021): Success factors in sustainable textile product innovation: An empirical investigation (Report No. 3). BIOTEXFUTURE.

Rese, Alexandra; Baier, Daniel; Rausch, Theresa Maria (2021): Success factors in sustainable textile product innovation: An empirical investigation, to appear in: Journal of Cleaner Production.

ABOUT OUR STUDY

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RESEARCH QUESTIONS

a. **Which factors determine the success of sustainable textile product innovations?**
b. **Do success factor values separate successes from failures?**
c. **Do the results vary depending on the success aspects taken into account?**

METHODOLOGY (following Cooper 1990, 2017; Rese, Baier 2009 and many others)

1 Define and operationalize success aspects and success factors

Based on literature review, expert interviews, market overview

2 Select successful and less successful innovations

Based on literature review, expert interviews, market overview

3 Evaluate and compare

Evaluations by experts and managers responsible (surveys), comparisons

Managerial implications,

predictions and selections (learning from the past)

1 DEFINE SUCCESS ASPECTS AND SUCCESS FACTORS

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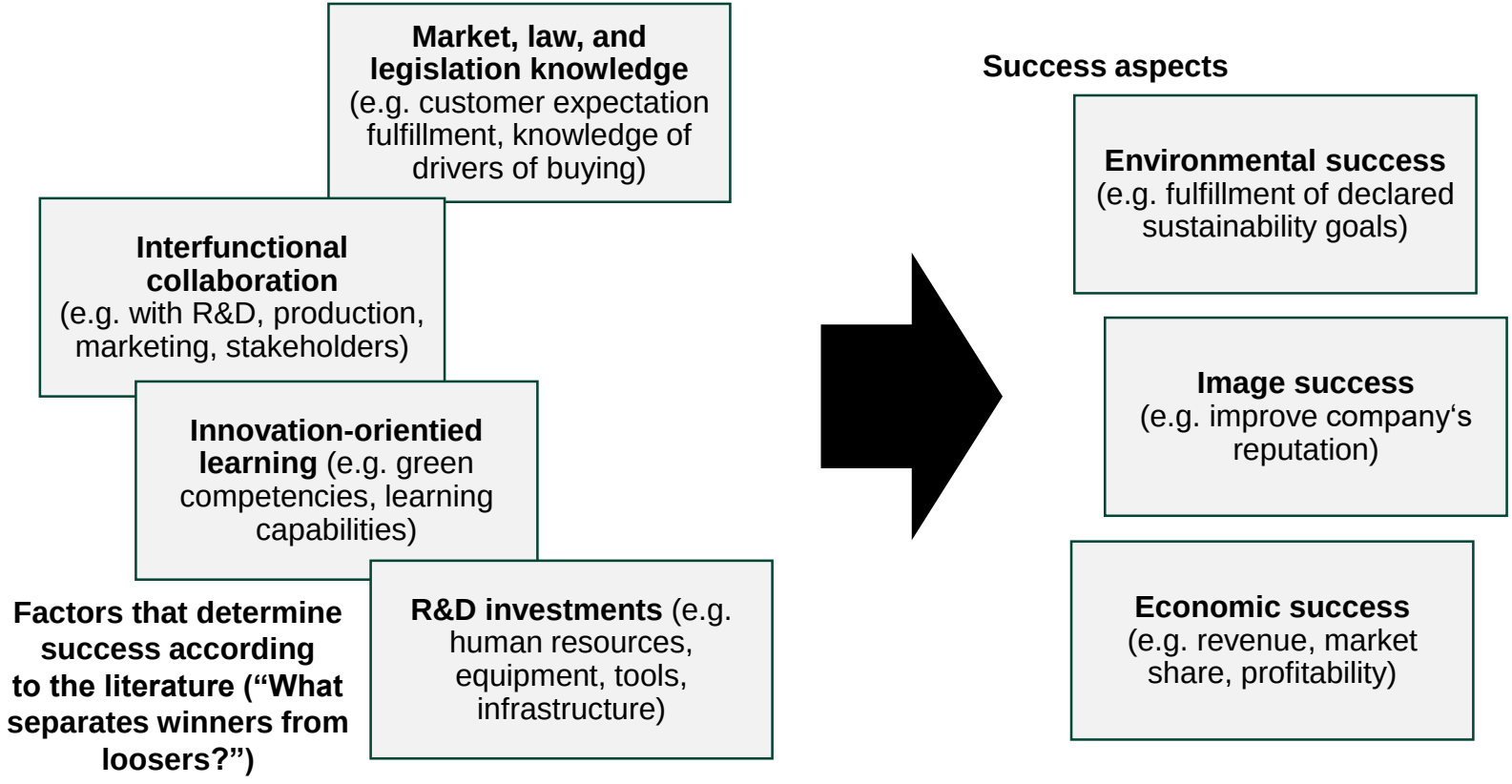

Source: Assumed success factors and relevant success aspects based on Medeiros et al. (2014)

2 SELECT SUCCESSFUL AND LESS SUCCESSFUL INNOVATIONS

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Examples (n=176 in total)

Shoes made from FLO-CERT and GOTS-NL certified organic cotton, natural rubber, vegetable-dyed leather and PET bottles, total sales doubled within one year (2016/17)

Skidoo Infinity jacket - the first fully recyclable jacket made of **ECONYL by Aquafil**: nylon that can be recycled, recreated, remoulded again and again

adidas Futurecraft Biofabric, made of synthetic spidersilk, being 100% biodegradable through a fully natural process, cooperation with AMsilk

Use of hemp as a resource-saving raw material in clothing production as well as recycling nylon and polyester from PET bottles and production waste, total sales tripled from 2008 to 2019

Launched in 2018: corn-based soles and organic cotton uppers (75% bio-based material), after the great success of the first white shoes (sold out in August 2018), other colors and versions were added

Ski clothing made from already recycled materials, closed loop process, 2018 ISPO Award Gold Winner

Examples

Examples

2 SELECT SUCCESSFUL AND LESS SUCCESSFUL INNOVATIONS (1/2)

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TextilWirtschaft

INTERSPORT

Global Change Award
AN INNOVATION CHALLENGE BY H&M FOUNDATION

ISPO award

RESOURCES

- **newspaper or magazine articles** (e.g. TextilWirtschaft), **experts**
- **websites and corporate communications** (fashion and sporting goods manufacturers and retailers)
- **award websites, published surveys and overviews** (e.g. www.textilbuendnis.de, French fashion pact)

SELECTION CRITERIA FOR SUCCESSFUL AND LESS SUCCESSFUL INNOVATIONS

- **sustainable textile product innovations (e.g. t-shirts, shoes, fabrics, jackets, underwear, lingerie …)**
- described in at least three comprehensive news magazine articles and corporate communications as **“substantial”, “break-throughs”, “frontrunning examples”, or in similar terms**

→ DATABASE

- **n=159 companies** (detailed description, company communications and reports)
- **n=176 sustainable textile innovations** (detailed description, sales figures, prizes, managers, …)
- **n=1,634 comprehensive newspaper or magazine articles** (e.g. Textilwirtschaft), (multiply) allocated to companies/innovations, 3 success aspects and 14 success factors (multiple allocations allowed)
- **validated by contacting experts (n=5) and responding product managers (n=29)**

2 SELECT SUCCESSFUL AND LESS SUCCESSFUL INNOVATIONS (2/2)

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Characteristics		Database % (n)	Responses % (n)
Company age and size categories (company level, n=159 in the database)	Start-up (corporate age < 8 years)	47.8% (76)	37.9% (11)
	Small and med.-sized e. (≥ 8 y., empl. <250, <50 mill. € ann. turnover)	27.7% (44)	37.9% (11)
	Large enterprise (≥ 8 years, empl. ≥ 250, > 50 mill. € ann. turnover)	16.4% (26)	13.8% (4)
	Very large enterprise (≥ 8 years, > 1 bill. € annual turnover)	18.2% (13)	10.3% (3)
Company's offer categories	Conventional as well as sustainable textiles	42.8% (68)	44.8% (13)
	Sustainable textiles only	57.2% (91)	55.2%(16)
Product categories (product level, n=176 in the database)	T-shirts	24.4% (43)	21.2% (7)
	Shoes	17.0% (30)	15.2% (5)
	Fabrics	17.6% (31)	12.1% (4)
	Jackets	10.8% (19)	12.1% (4)
	Underwear and lingerie	7.4% (12)	15.2% (5)
	Bags	6.8% (12)	12.1% (4)
	Trousers	6.3% (11)	6.1% (2)
	Stockings and socks	4.0% (7)	3.0% (1)
	Workwear	4.0% (7)	3.0% (1)
	Pullovers	1.7% (3)	0.0% (0)
(Main) sustainable offering category communicated	Organic materials	27.3% (48)	27.3% (9)
	Recycled materials	25.0% (44)	42.4% (14)
	Biosynthetic materials	23.9% (42)	18.2% (6)
	Low-waste production processes	19.9% (35)	6.1% (2)
	Fairtrade	4.0% (7)	6.1% (2)

3 EVALUATE AND COMPARE: QUESTIONNAIRE (1/4)

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New product performance (Kutschke et al., 2016; Langerak et al., 2004)

The sustainable textile innovation referred to earlier…

Economic aspects

1. … meets the set revenue goals.
2. … meets the set market share goals.
3. … meets the set profitability goals.
4. … reaches high customer acceptance.
5. … is very successful up to this point.

Image aspects

6. … helps to improve the company's reputation.

Environmental aspects

7. … meets the set sustainability goals.

Questionnaire for

- **Experts**: Evaluation of all 176 sustainable textile innovations, aggregated factor by factor and aspect by aspect based on the database information (n=5)
- **(Responsible product) managers**: Evaluation of „their" innovation w.r.t. all items (n=29)

Customer expectation fulfillment (Hennig-Thurau et al., 2002; Stock, 2010)

1. Our customers are very pleased with the sustainable textile innovation that this company delivers.
2. The sustainable textile innovation fulfills our customers' expectations to a great extent.
3. On an overall basis, our customers are satisfied with our company.
4. Customers do the right thing when deciding on the sustainable textile innovation of our firm.

Knowledge about factors that drive sustainable buying (Lin et al., 2013)

1. Our company has good knowledge about what drives customers to buy sustainable products.
2. Our company is well informed about the requirements customers have on sustainable products.
3. Our company knows about the benefits customers gain from sustainable products.
4. Our company knows how our customers' preferences are influenced by the trade-off between price and sustainable features.

Item list with possible answers ranging from 1 = "strongly disagree" to 7 = "strongly agree"

3 EVALUATE AND COMPARE: QUESTIONNAIRE (2/4)

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Knowledge about consumption patterns of reference persons (Welsch & Kühling, 2009)

1. We know who the reference persons (e.g., family, friends, VIPs, influencers) of our customers are.
2. We regularly assess the consumption patterns of our customers' reference persons.
3. We try to anticipate changes concerning the reference persons of our customers.
4. We involve the reference persons of our customers in market research.

Competitor monitoring (Fenton et al., 2019; Kronemeyer et al., 2020)

Regarding the sustainable textile innovation…

1. …our company monitors competitors relying on a tracking and reporting system.
2. …we continuously identify and develop benchmarks and apply them.
3. …we regularly analyze the strengths and weaknesses of our competitors in relation to our own sustainable offerings.
4. …our company monitors the patent activities of our competitors.

Compliance with laws and regulations (Delchet-Cochet et al., 2015; Fernando & Wah, 2017)

1. Our company follows environmental norms and standards very strictly.
2. Our company has defined its own objectives in terms of harmful environmental impact reduction in the product area.
3. Our company finds it easy to comply with environmental regulations.

Financial or information support from the government (Li & Atuahene-Gima, 2001)

The government or governmental organizations…

1. … implemented policies and programs that have been beneficial to our company's operations.
2. … provided needed technology information and technical support to our company.
3. … played a significant role in providing financial support for our company.
4. … commissioned the undertaking of studies on key aspects of sustainable technology and market developments.

Item list with possible answers ranging from 1 = “strongly disagree” to 7 = “strongly agree”

3 EVALUATE AND COMPARE: QUESTIONNAIRE (3/4)

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Internal/cross-functional cooperation (Fernando & Wah, 2017)

1. Our company has effective cross-departmental communication and coordination.
2. Decisions were made on a timely basis with adequate opportunity for discussion in our cross-functional teams.
3. In our company, there is an awareness of the collaboration among cross-functional teams rather than competitive thinking.
4. Our cross-functional team members are highly committed to producing a quality product.

External collaboration (Albino et al., 2012; Brito et al., 2008; Chen, 2008)

1. Our company has good and stable cooperation relationships with its strategic partners for sustainable textile innovation.
2. The cooperation with the actors of the supply chain is very effective.
3. The integration of NGOs into the project is high.
4. Our company sponsors environmental initiatives/events and collaborates with organizations devoted to env. preservation.

Learning culture (Jamali, 2006)

1. Cultural values of openness, experimentation, and improvisation are embraced within our company.
2. There is time for reflection, communication, and evaluation in our company.
3. There is tolerance for mistakes in our company.
4. Knowledge is embedded in the company and preserved even when leaders or employees change.

Green creativity (Chen & Chang, 2013)

The employees involved in the sustainable textile innovation …

1. …suggest new ways to achieve environmental goals.
2. …propose new green ideas to improve environmental performance.
3. …develop adequate plans for the implementation of new green ideas.
4. …would find out creative solutions to environmental problems.

Item list with possible answers ranging from 1 = “strongly disagree” to 7 = “strongly agree”

3 EVALUATE AND COMPARE: QUESTIONNAIRE (4/4)

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Green proactivity (Brettel & Cleven, 2011; Gonzalez-Benito, 2008)

1. Our company defines long-term environmental objectives and plans, which are formally documented.
2. Our company is very proactive in the development and deployment of new sustainable technologies.
3. Our company is very proactive in the construction of new sustainable solutions to serve customer needs.

Investment in qualified human resources (Kutschke et al., 2016; Ogbeibu et al., 2020; Pinto & Slevin, 1987; Winne & Sels, 2010)

In line with the sustainable textile innovation referred to earlier…

1. …our company has employed personnel with extensive experience in the field of sustainable textiles.
2. …our company invests in ecological training for employees, e.g., providing environmental information.
3. …our company invests in sustainable technology training for employees.
4. …our company employs great efforts in recruiting/selecting the right people with environmental competencies.

Investment in sustainable production technology (Fernando & Wah, 2017; Frondel et al., 2007)

1. Our company has applied changes in production processes that reduce pollution emissions and/or resource use.
2. Our company has invested in end-of-pipe technologies that reduce emissions or allow for resource recovery.
3. Our company continuously exploits the sustainable potential of technologies.
4. Our company invests extensively in research to develop sustainable technologies.

Investment in R&D infrastructure (Lanoie et al., 2011; Rammer et al., 2009)

1. The R&D budget for sustainability is at least 1/3 of the total R&D budget of our company.
2. Our company invests continuously in internal R&D.
3. Our company invests extensively in tools and methods to develop sustainable new products.
4. Our company invests extensively in technological equipment such as machines and laboratories.

Item list with possible answers ranging from 1 = “strongly disagree” to 7 = “strongly agree”

3 EVALUATE AND COMPARE: EVALUATION BY EXPERTS

BIOTEXFUTURE

Success aspects and success factors		# of products with allocated articles	# of allocated articles (mean)	Evaluation by experts[a] (mean (std.))
New product performance	Economic aspects	176 (100.0%)	635 (3.608)	4.858 (1.469)
	Image aspects	66 (37.5%)	219 (3.318)	3.863 (1.477)
	Environmental aspects	137 (77.8%)	542 (3.956)	4.540 (1.141)
Market, law, and legislation knowledge	Customer expectation fulfillment	170 (96.6%)	531 (3.124)	5.403 (0.778)
	Knowledge about factors that drive sustainable buying	48 (27.3%)	250 (5.208)	3.572 (1.871)
	Knowledge about consumption patterns of ref. persons	94 (53.4%)	156 (1.660)	2.830 (1.875)
	Competitor monitoring	91 (51.7%)	108 (1.187)	2.851 (1.813)
	Compliance with laws and regulations	39 (22.2%)	114 (2.923)	4.578 (0.997)
	Financial or information support from the government	22 (12.5%)	122 (5.545)	4.023 (1.122)
Interfunctional collaboration	Internal/cross-functional cooperation	28 (15.9%)	122 (4.357)	4.692 (1.089)
	External collaboration	74 (42.0%)	306 (4.135)	4.715 (1.023)
Innovation-oriented learning	Learning culture	49 (27.8%)	135 (2.755)	4.833 (0.997)
	Green creativity	140 (79.5%)	455 (3.250)	5.152 (0.834)
	Green proactivity	120 (68.2%)	301 (2.508)	5.317 (1.037)
R&D investments	Investment in qualified human resources	52 (29.5%)	292 (5.615)	4.674 (1.126)
	Investment in production technology	61 (34.7%)	216 (3.541)	4.650 (0.993)
	Investment in R&D infrastructure	137 (77.8%)	468 (3.416)	5.152 (0.846)

[a]: Mean construct values of the product innovations on a Likert scale ranging from 1 = “strongly disagree” to 7 = “strongly agree”, averaged across the five experts. [b]: Measured inter-rater reliability of the five experts per construct.

3 EVALUATE AND COMPARE: EVALUATION BY MANAGERS

BIOTEXFUTURE

Success aspects and success factors		(Orig.) No. of items	Evaluation by managers[a] (mean (std.))	Cronbach's Alpha
New product performance	Economic aspects	5	5.100 (1.078)	0.843
	Image aspects	1	6.125 (0.942)	-
	Environmental aspects	1	6.375 (0.833)	-
Market, law, and legislation knowledge	Customer expectation fulfillment	4	5.930 (0.763)	0.823
	Knowledge about factors that drive sustainable buying	4	5.539 (1.030)	0.873
	Knowledge about consumption patterns of ref. persons	4	4.602 (1.139)	0.784
	Competitor monitoring	4	3.914 (1.414)	0.799
	Compliance with laws and regulations	(4) 3	6.237 (0.716)	0.630
	Financial or information support from the government	4	3.161 (1.227)	0.796
Interfunctional collaboration	Internal/cross-functional cooperation	4	5.839 (0.882)	0.804
	External collaboration	4	5.392 (0.944)	0.700
Innovation-oriented learning	Learning culture	4	5.774 (0.914)	0.858
	Green creativity	4	5.871 (0.844)	0.887
	Green proactivity	(4) 3	5.793 (0.715)	0.520
R&D investments	Investment in qualified human resources	4	4.879 (0.942)	0.754
	Investment in production technology	4	5.147 (1.168)	0.714
	Investment in R&D infrastructure	4	4.595 (1.095)	0.739

[a]: Mean construct values of the product innovations on a Likert scale ranging from 1 = "strongly disagree" to 7 = "strongly agree", averaged across the 29 managers. [b]: Measured inter-rater reliability of the five experts per construct.

3 EVALUATE AND COMPARE: EXPERTS VS. MANAGERS

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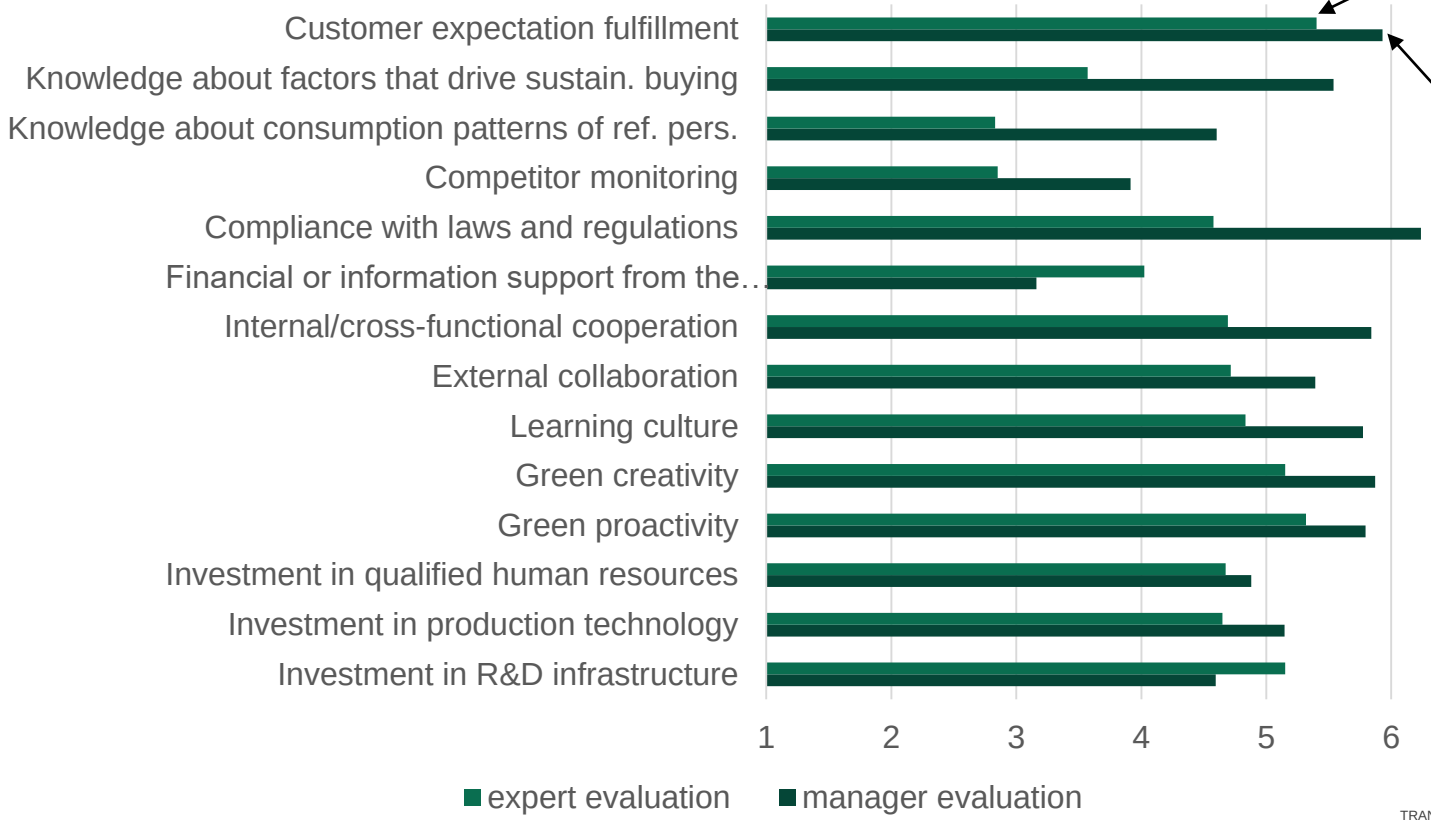
Evaluations by experts vs. managers (from 1=low to 7=high, averaged) of the row construct (success factor)



Customer expectation fulfillment evaluated by experts

Customer expectation fulfillment evaluated by managers

Results:
Product managers tend to overestimate success factors (see diagram) and performance (economic, image, environmental aspects) (see tables)

3 WHICH FACTORS DETERMINE THE SUCCESS: EXPERTS

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Success aspects and success factors		Economic aspects (above/below)	Image aspects (above/below)	Environm, aspects (above/below)
New product performance	Economic aspects	-	3.906/3.697	4.515/4.632
	Image aspects	5.049/4.746	-	4.523/4.550
	Environmental aspects	4.952/4.722	3.906/3.800	-
Market, law, and legislation knowledge	**Customer expectation fulfillment**	5.526/4.288**	3.815/3.903	4.699/4.404+
	Knowledge about factors that drive sustain. buying	5.013/4.600+	3.853/3.879	4.567/4.494
	Knowledge about consumption patterns of ref. pers.	5.096/4.545*	3.856/3.871	4.570/4.500
	Competitor monitoring	5.096/4.545*	3.856/3.871	4.570/4.500
	Compliance with laws and regulations	5.497/4.676**	4.097/3.796	4.574/4.530
	Financial or information support from the government	4.827/4.862	2.982/3.988**	4.800/4.503
Interfunctional collaboration	Internal/cross-functional cooperation	5.017/4.778	3.817/3.885	4.712/4.453
	External collaboration	5.051/4.739	3.943/3.813	4.836/4.358**
Innovation-oriented learning	**Learning culture**	5.553/4.605**	3.749/3.904	4.787/4.450+
	Green creativity	5.124/4.579*	3.840/3.886	5.031/4.026**
	Green proactivity	5.228/4.434**	4.306/3.354**	4.823/4.215**
R&D investments	**Investment in qualified human resources**	5.446/4.638**	3.875/3.858	4.742/4.464
	Investment in production technology	4.905/4.835	4.116/3.741	4.712/4.457
	Investment in R&D infrastructure	5.264/4.424**	3.842/3.885	5.022/4.024**

No significant relationships!

Significant effects on economic and on environmental aspects

[a]: Mean new product performance measures when the product innovations are separated according to the row construct (group with row construct values above average/group with row construct values below average); new product performance is measured ranging from 1 = “strongly disagree” to 7 = “strongly agree”. **: Significant with p<0.01, *: with p<0.05, +: with p<0.1.

3 WHICH FACTORS DETERMINE THE SUCCESS: EXPERTS

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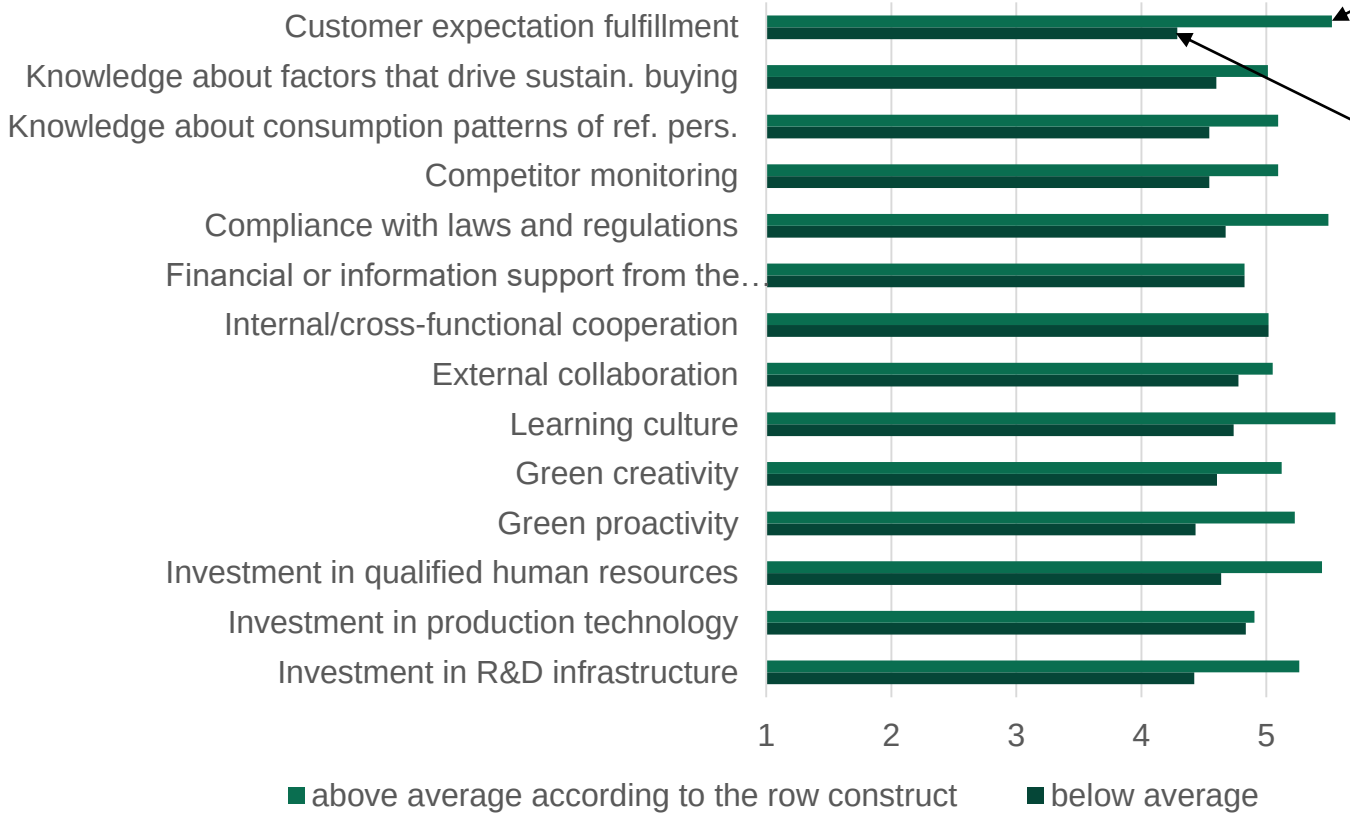
Performance (mean economic success aspects from 1 to 7) when product innovations are grouped according to success factor values



Performance (economic succ.) when customer expectation fulfillment is above average

Performance (economic succ.) when customer expectation fulfillment is below average

Results:
The most important success factor across all textile innovations is customer expec-tation fulfillment

3 WHICH FACTORS DETERMINE THE SUCCESS: MANAGERS

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Success aspects and success factors		Economic aspects (above/below)	Image aspects (above/below)	Environm, aspects (above/below)
New product performance	Economic aspects	-	6.476/5.455**	6.524/6.091
	Image aspects	5.662/4.716**	-	6.615/6.211
	Environmental aspects	5.333/4.800	6.389/5.786+	-
Market, law, and legislation knowledge	**Customer expectation fulfillment**	5.547/4.233**	6.421/5.583*	6.632/5.917*
	Knowledge about factors that drive sustainable buying	5.106/4.957	6.294/5.857	6.471/6.214
	Knowledge about consumption patterns of ref. persons	5.125/4.947	6.188/6.000	6.438/6.267
	Competitor monitoring	5.105/4.700	6.105/6.000	6.421/6.400
	Compliance with laws and regulations	5.282/4.631+	6.118/6.000	6.647/6.077+
	Financial or information support from the government	5.231/4.824	6.000/6.118	6.231/6.529
Interfunctional collaboration	Internal/cross-functional cooperation	5.212/4.800	6.000/6.231	6.647/6.154
	External collaboration	5.082/4.969	6.176/6.000	6.647/6.154
Innovation-oriented learning	Learning culture	5.318/4.662	6.176/6.000	6.471/6.385
	Green creativity	5.163/4.886	6.313/5.857	6.563/6.286
	Green proactivity	5.025/4.817	6.250/5.833	6.813/5.833**
R&D investments	Investment in qualified human resources	5.227/4.600	6.133/6.000	6.533/6.231
	Investment in production technology	5.100/4.771	5.857/6.286	6.571/6.214
	Investment in R&D infrastructure	5.086/4.786	6.000/6.143	6.500/6.286

Significant relationship between economic and image aspects!

Significant effects on environmental aspects

[a]: Mean new product performance measures when the product innovations are separated according to the row construct (group with row construct values above average/group with row construct values below average); new product performance is measured ranging from 1 = “strongly disagree” to 7 = “strongly agree”. **: Significant with p<0.01, *: with p<0.05, +: with p<0.1.

EXECUTIVE SUMMARY

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			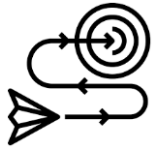	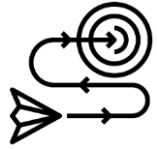	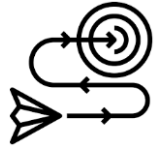
RESULTS	**Product managers tend to overestimate the new product success across all success aspects (economic, image, environmental)**	**Success aspects of sustainable product innovations (economic, image, environmental) up to now show overall low correlations**	**The most important success factor across all textile innovations is customer expectation fulfillment**	**Other but less important factors are the existence of a learning culture, qualified human resources, and investments in R&D**	**Green creativity and external collaboration (with NGOs) is correlated with environmental but not necessarily with economic success**
IMPLICATIONS	Be careful concerning inhouse evaluations and predictions of new product performance! External expert or customer evaluations in early development phases are helpful (concept tests).	Keep in mind that image or environmental success at the product or company level does not guarantee economic success up to now. There is a positive but very low correlation.	Customer expectations and satisfaction with the delivered product are of major importance for economic success. Technological and process factors have more of a complementary role.	Cultural values of openness, experimentation, and improvisation should be embraced by the company as well as any technological equipment needed such as machines and laboratories.	Again: Keep in mind that green activities at the moment often lack in producing revenues at the product level. Instead, customer fulfillment of expectations is of major importance.

Q & A

BACKUP: SUCCESS ASPECTS AND SUCCESS FACTORS (1/2)

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Market, law, and legislation knowledge		
1	Customer expectation fulfillment	Cai and Choi (2018)
2	Comply with laws and regulations	Bossle et al. (2016); Cai and Choi (2018); Fernando and Wah (2017); Melander (2020); Zhang et al. (2020)
3	Financial or information support from the government	Arranz et al. (2019); Cai and Choi (2018); Pacheco et al. (2017)
4	Knowledge about cultural variables that influence buyer behavior	
5	Knowledge about factors that drive sustainable buying	Claudy et al. (2016); Zhang et al. (2020)
6	Knowledge about consumption patterns of reference persons	
7	Competitor monitoring	Chai and Choi (2018); Claudy et al. (2016); Melander (2020)
Interfunctional collaboration		
8	Cultural predisposition towards collaboration	
9	R&D, marketing, and production integration (internal/cross-functional collaboration)	Dangelico et al. (2017); Fernando and Wah (2017)
10	Stakeholder integration (suppliers, universities, environment specialists, etc.) (external collaboration)	Arranz et al. (2019); Ben Arfi et al. (2018); Bossle et al. (2016); Claudy et al. (2016); Dangelico and Pontrandolfo (2015); Dangelico et al. (2017); Fernando and Wah (2017); Pacheco et al. (2017); Melander (2020)

Source: Updated literature review based on the typology of Medeiros et al. (2014)

BACKUP: SUCCESS ASPECTS AND SUCCESS FACTORS (2/2)

BIOTEXFUTURE

Innovation-oriented learning		
11	Elimination of cultural barriers	Melander (2020)
12a	Green competence development – Proactivity	Bossle et al. (2016); Korsakienė et al. (2020); Salim et al. (2019); Melander (2020)
12b	Green competences – Creativity	Melander (2020); Zhang et al. (2020)
12c	Green competences – Experimentation	Melander (2020)
13	Learning capability: development of critical reflective analysis capability	Dangelico et al. (2017), Huang and Li (2017); Marcon et al. (2017); Salim et al. (2019); Melander (2020)
R&D Investments		
14	Investment in cleaner technology (research)	Cai and Choi (2018), Fernando and Wah (2017)
15	Investment in/adoption of methods for sustainable product development	Claudy et al. (2016); Pacheco et al. (2017)
16	Investment in R&D infrastructure	Dangelico et al. (2017); Pacheco et al. (2017); Melander (2020)
17	Investment in qualified human resources	Bossle et al. (2016); Dangelico et al. (2017); Korsakienė et al. (2020); Pacheco et al. (2017); Melander (2020); Salim et al. (2019)

Source: Updated literature review based on the typology of Medeiros et al. (2014)