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**FROM VISION TO IDEA:
THE COGNITIVE PROCESS OF
VISION-DRIVEN IDEA DEVELOPMENT**

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FROM VISION TO IDEA: THE COGNITIVE PROCESS OF VISION-DRIVEN IDEA DEVELOPMENT

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1. Introduction

The approaches to idea generation that attract attention today include visioning (O'Connor & Veryzer 2001) or backcasting (Nishimura 2010):

imagining a vision or a future context and identifying or generating the strategic insights, technical benefits, or product ideas that can bring the vision to life.

-> These approaches are considered worthy of exploration because their application may link advanced technologies to future market opportunities (O'Connor & Veryzer 2001) or allow the firm to focus on a specific market target (Reid & Brentani 2014)

1. Introduction

This study views visioning or backcasting as an application of imagination described as creative cognition (Finke et al. 1992), examining how these approaches bring about ideas and how they can be managed.

2. Literature Review: Imagining The Future

2-1. Imagination-based idea generation

O'Connor & Veryzer (2001):

Visioning: imagination underlying successful tech-based innovations that comes from how a problem is approached technically.

It is an ability to identify compelling benefits of that technology and characterize those in terms of a future market.

Visioning is driven by: ruminator, champion, & implementer. Ruminator spends time thinking about the future and is able to connect disparate pieces of information, looking far beyond their present businesses.

2. Literature Review: Imagining The Future

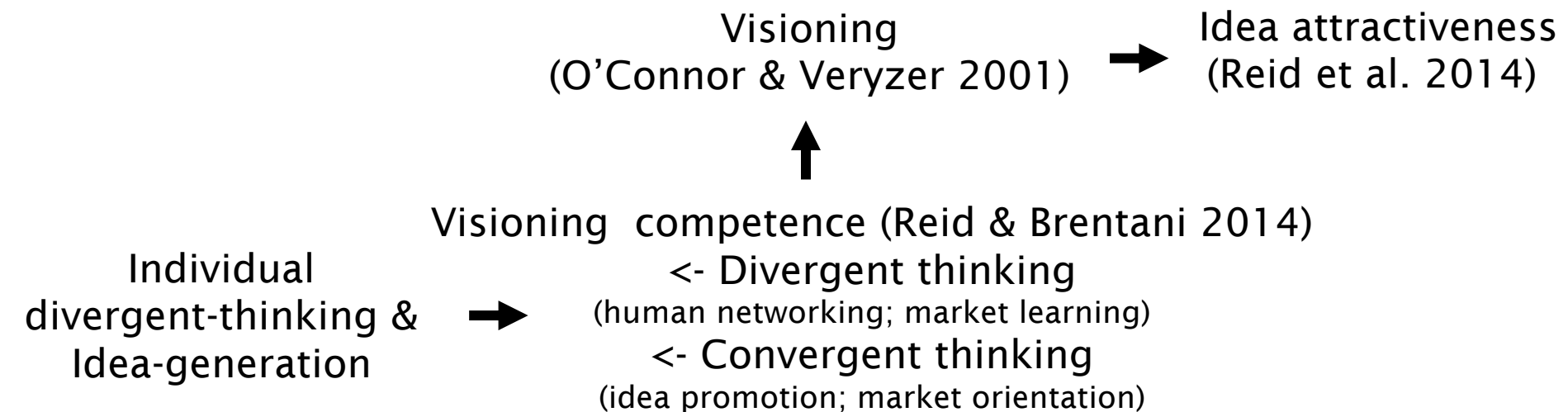
2-1. Imagination-based idea generation

Reid & Brentani (2014):

Visioning competence consists of divergent-thinking (human networking; market learning) & convergent thinking (idea promotion; market orientation), and the competence is driven by individual divergent-thinking behavior, idea generation behavior.

Reid et al. (2014):

Project performance created by visioning includes attractiveness of ideas to customers.



2. Literature Review: Imagining The Future

2-1. Imagination-based idea generation

So-called backcasting, which O'Connor & Veryzer (2001) depended on to depict the visioning concept, is a thought approach used for not only tech-enabled innovation but also general innovation.

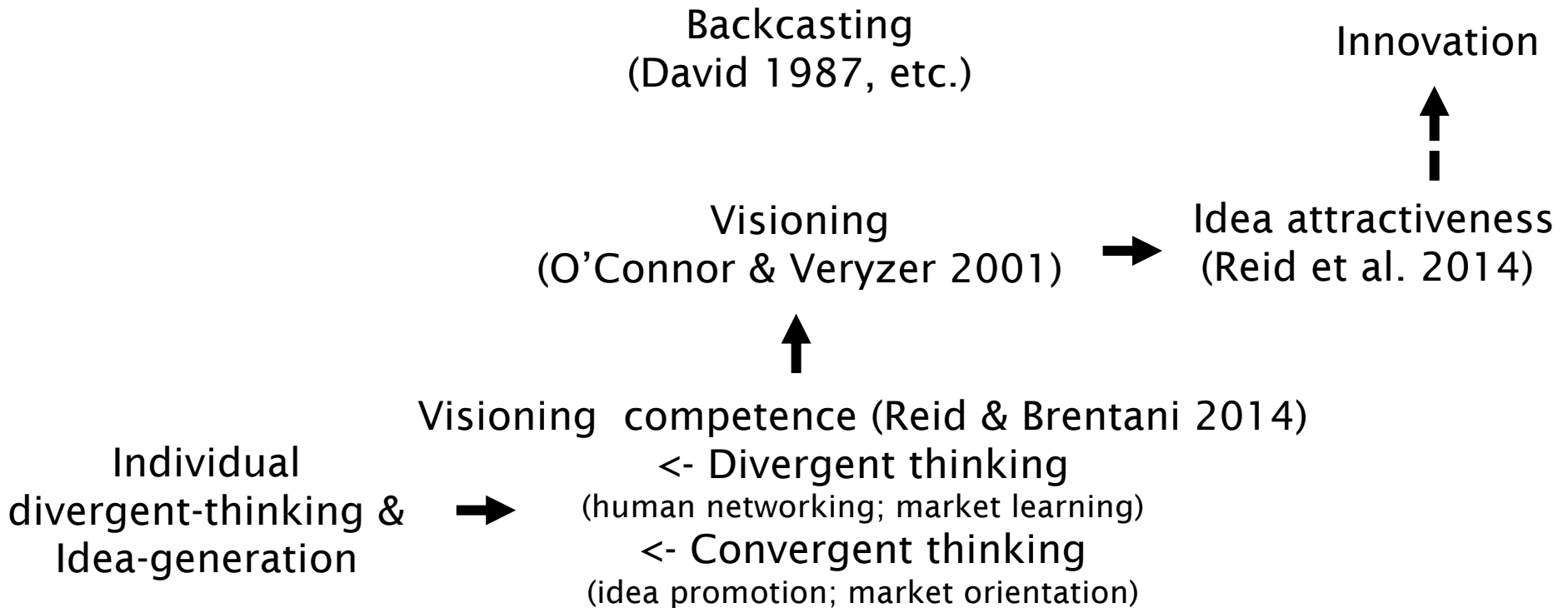
Davis (1987):

Backcasting is needed to grasp the reality of a firm's present context and their future context in x years and to think about what change is needed to transform the present to the future context.

Visioning and backcasting have the commonality of orienting toward the future context beyond the present and imagining them.

2. Literature Review: Imagining The Future

2-1. Imagination-based idea generation



2. Literature Review: Imagining The Future

2-2. The principle of imagination in creative cognition

Finke et al. (1992); Ward & Rebecca (2002):

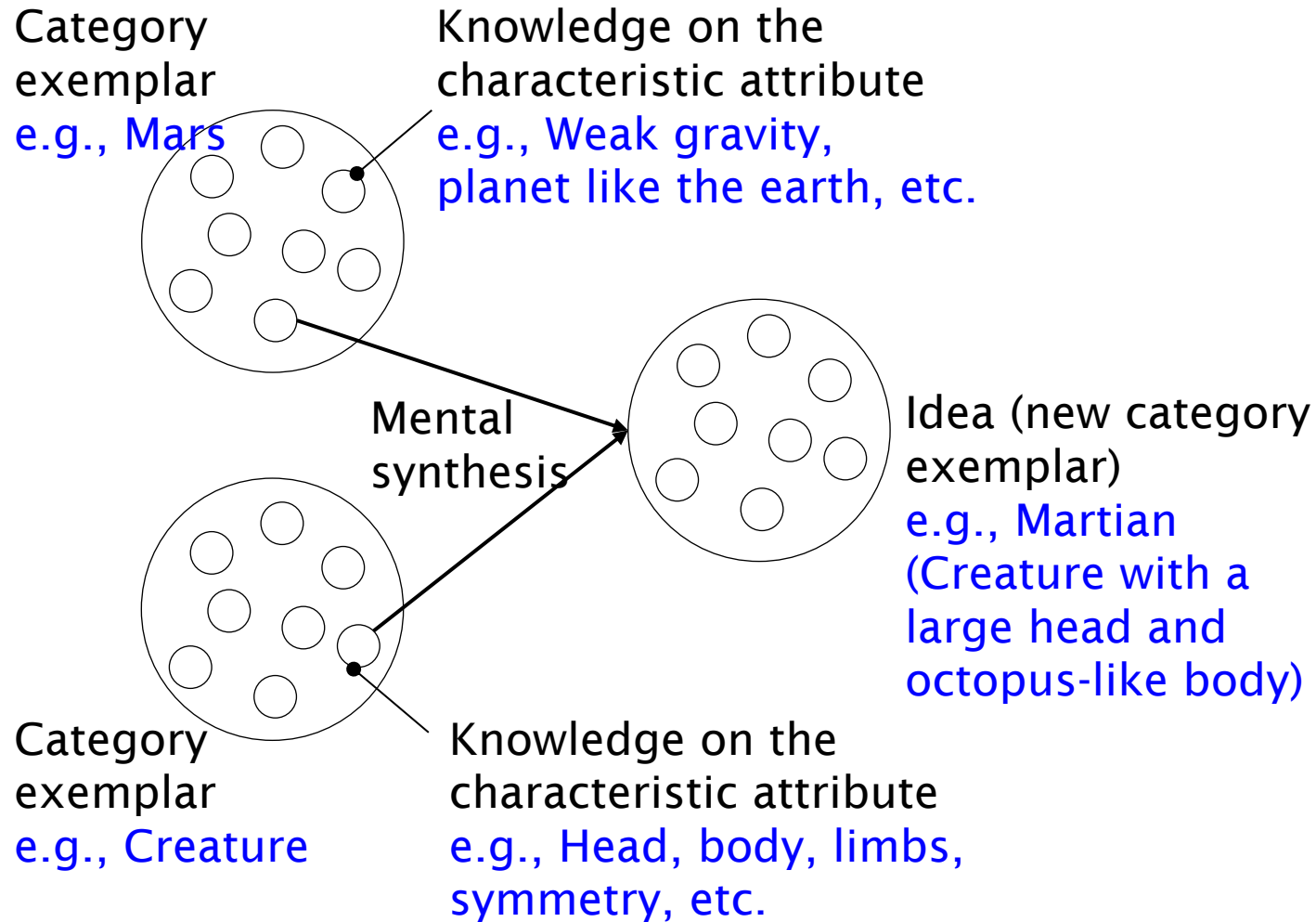
Imagination involves the generation of ideas that go beyond what is presently known, and are directed at some goal.

Imagination is influenced by one's existing knowledge framework; a new idea is the product of the restructuring of existing knowledge of characteristic attributes of category exemplars (e.g., a pigeon, a penguin, etc. belonging to the bird category).

An idea for a new category exemplar may be generated by retrieval of existing knowledge on two or more different known category exemplars and mental synthesis of their characteristic attributes (Finke et al. 1992).

2. Literature Review: Imagining The Future

2-2. The principle of imagination in creative cognition



Knowledge on the characteristic attribute of a category exemplar -> category knowledge, or CK

2. Literature Review: Imagining The Future

2-2. The principle of imagination in creative cognition

Finke et al. (1992); Ward & Rebecca (2002):

People tend to have a common knowledge structure for a category. They tend to use knowledge that is easier to retrieve, making the generated knowledge easier for others to retrieve, too.

That means that one's initial trial of imagination toward a certain goal can be something similar to what others imagine, ending up with less creative resolution.

Therefore, Finke et al. (1992) suggested that one should make sure that the knowledge used for imagination is truly effective for idea generation.

3. Research Design

3-1. Research Question

/ What cognitive process works in visioning that contributes to innovative idea generation in a NPD project?

/ How is it different from the cognitive process in an NPD project where a visioning is not used?

/ How is a vision imagined and set?

/ How are ideas generated based on the set vision?

The vision-driven idea-generation approach is defined as an approach where a vision is imagined and set, and then ideas are generated against a problem based on the vision.

3. Research Design

3-2. Research methodology

Case studies dealing with projects where visioning was utilized were conducted.

3-3. Selection of research subjects

12 projects where visioning was used + 3 projects where visioning was not used. 11 managers (3 MDs, 2 EDs, 6 DDs) were interviewed (3 involved in both, 1 involved 2 visioning projects).

Industries included household care products, food products, beauty care, AV equipment, apparel, interior goods, industrial machinery, local products, banking, and food & beverage services.

The interviews were conducted from August 2015 to Dec 2017.

3. Research Design

3-4. Interview protocol

The semi-structured in-depth interview method.

Questions asked: project outlines, development processes, reasons for the use of visioning, project performance judgment

3-5. Project performance evaluation

Most projects reviewed were at the stage before or just after their market introduction, therefore a manager's judgment with respect to their project performance was noted.

The innovation typologies listed by Garcia & Calantone (2002) were used to assess the type of innovation as marked by project performance, i.e., whether project developed: market newness, technology newness, or newness to the firm.

4. Results & Discussion

4-1. The cognitive process of visioning

The cognitive process of visioning was such that (1) a vision (or a future context) on the project problem was imagined and set, and then (2) products as things to bring that vision to life were imagined.

The observed generation mode of visions and product ideas as vision constituents can be summarized as the mental synthesis of knowledge on the characteristic attributes of two or more category exemplars (i.e., category knowledge, or CK).

4. Results & Discussion

4-1. The cognitive process of visioning

The vision is drawn from mental synthesis between:

CK of insights from research on market/tech. development or CK on manager's beliefs x CK of present customers or contexts

Product ideas are drawn from mental synthesis between:

CK of the vision x CK of the project problem

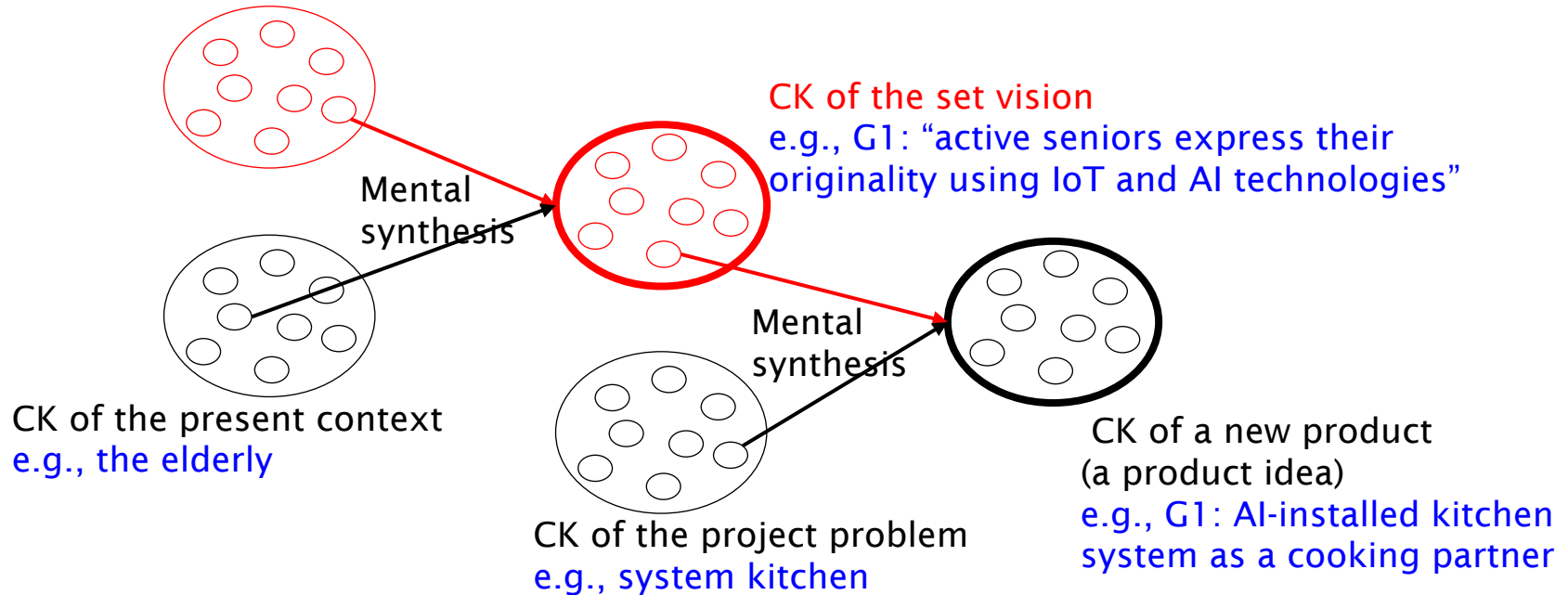
Reid & Brentani (2014): the visioning is a competence related to organization's divergent and convergent thinking. The findings support them from the view of a managers' cognitive processes.

4. Results & Discussion

4-1. The cognitive process of visioning

CK of insights from research on market and tech. development or manager's beliefs
e.g., IoT and AI technology

CK: category knowledge, or knowledge on the characteristic attribute of a category exemplar



- (1) The innovativeness of product ideas may depend on what **CK of the set vision** was chosen in imagining products.
- (2) The innovativeness of the vision may depend on what **CK of insights from research or the manager's beliefs** were chosen in imagining visions.

4. Results & Discussion

	Inter-viewee	Belonging	Project area	Process	Mental synthesis for vision imagination	Vision	Mental synthesis for product imagination	Product Idea	Innovation
A	CD 15yr	Large firm	A1: House-hold care	Visioning (i)(sc)	Natural Freshness +Daily life	Everyday life with freshness felt like morning after the rain	Morning dew +detergent	New functional detergent	MN/- /FN
	↑	↑	A2:House-hold care			—		New deodorizer	MN/- /FN
B	CD 25yr	Large firm	B: AV equipment	Visioning (i)(sc)	Earth value +Daily life	Life with the earth's beat felt	Nature sound +AV business	Forest sound live delivery service	-/- /FN
C	MD 22yr	Large firm	C: Food	Visioning (i)(st)	Family meal when one was small +Solo meal	Meal with family members together	Family meal+ Seasoning	Seasoning for family sushi party	MN/- /FN
D	CD 23yr	Large firm	D1: Food	Visioning (i)(sc)	Treat +Senior in the mall	Senior relaxed in the mall	Relaxed senior +cafe	Coffee stall in the mall	MN/- /FN
	↑	↑	D2: Food			—		New functional tea drink	-/- /FN
E	CD 15yr	Freelance	E: Beauty care	Visioning (b)(st)	Aristocratic beauty +Ordinary woman	Life like French princess in the 16th cent.	French princess +Hair care	Premium hair care brand line-up	-/- /FN
F	CD 25yr	Freelance	F1: Banking	Visioning (ib)(st)	Cafe +Daily life	Daily life with my favorite cafes	Cafe +Banking	New local banking service	MN/- /FN
	↑	↑	F2: Apparel	Visioning (b)(st)	Kids playing in a park +Kids going to school	Kids running around after school	Playing + School backpack	New functional backpack for kids	-/- /FN
G	CD 25yr	Freelance	G1: Interior	Visioning (i)(st)	AI +Senior today	Active senior mastering AI	Smart senior +system kitchen	AI embedded UD system kitchen	MN/TN /FN
	↑	↑	G2: Industrial			—		New industrial machine model	-/- /FN
H	MD 30yr	University	H: Local products	Visioning (ib)(sc)	Popular town +Town passed by	No. 1 favorite town to live	Global product +Local product	Globally popular local product	-/- /FN
I	ED 15yr	Consulting	I: IT	Visioning (i)(st)	Atami as the aged town model +Japan today	Japan in 30yrs as healthy aged society	Healthy senior +Sensing tech.	Mental and physical health forecast device	MN/TN /FN
J	MD 20yr	Mid-sized firm	J: F&B service	Visioning (b)(sc)	Old farming in hometown +Consumption today	Dietary & farming education in hometown	Organic bakery +Cooking class +Hometown	Locavore shopping mall in hometown	MN/- /FN
K	ED 25yr	Large firm	K:Food	Visioning (i)(sc)	Quality and healthy life+Life of today	A bit of luxury	Relaxing time +drink pkg	New pkg structure	-/TN /FN

Key: CD: Creative director; MD: Marketing director; ED: Engineering director
 MN: Market Newness; TN: Technology newness; FN: Newness to the firm

4. Results & Discussion

4-2. Vision typology

The visions can be classified by their content and style.

In terms of the content, visions can be classified as:

(i)..insight-driven type, (ib)..mixed type, or (b)..belief type, depending on the extent the visions are imagined relying on insights from research on market and tech. development, or a manager's beliefs.

In terms of the style, visions can be classified as:

(sc)..static scene type, (st)..dynamic story type, depending on the extent the visions are imagined in terms of time-frame.

4. Results & Discussion

4-2. The relationship between the types of visions and the types of innovations

Visions that were insight-driven type (i) led to newness for both the markets and technologies, as well as the firms.
Visions that were belief type (b) led to newness for the firms.

No clear relation between the vision styles and the innovation types was found.

	Visioning-driven project		Project without visioning
	(sc) Scene type	(st) Story type	
(i) Insight-driven type	A1 (MN/-/FN) D1 (MN/-/FN) K (-/TN/FN)	C (MN/-/FN) G1 (MN/TN/FN) I (MN/TN/FN)	A2 (MN/-/FN) D2 (-/-/FN) G2 (-/-/FN)
(ib) Mixed type	H (-/-/FN)	F1 (MN/-/FN)	
(b) Belief-driven type	B (-/-/FN) J (-/-/FN)	E (-/-/FN) F2 (MN/-/FN)	

5. Findings

This research attempted to clarify the cognitive process used in visioning that contributes to innovative idea generation in a NPD project.

The findings are:

(1)..The cognitive process of visioning consists of two steps of imagination, i.e., imagining visions and imagining products as vision constituents.

(2)..The innovativeness of any product ideas generated is assumed to depend on the category knowledge of the visions used in mental synthesis for imagining the products, and the category knowledge of insights from research on market and technology development or manager's beliefs used for mental synthesis for imagination of the visions.

5. Findings

(3)..Visions may be classified into the insight-driven type, the belief-driven type, or mixed, depending on the vision content, and the scene type or the story type, depending on the vision style.

(4)..The insight-driven type of visions might lead to generation of ideas new both to markets and/or technologies as well as the firms, while the belief-driven type of visions might lead to generation of ideas that are new to the firms.

5. Implications

- (1)..Make sure to use divergent thinking in both imagining visions and products, i.e., generation of product ideas.
- (2)..Examine whether category knowledge of visions used in imagining products is appropriate, as well as whether category knowledge of the insights from research or the manager's beliefs is appropriate.
- (3)..Use market and technology research insights in imagining a vision.

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