
Affordable or premium innovation? The influence of individual and contextual factors on innovators' engagement in different innovation types

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Abstract: Affordable innovations target customers with a low willingness or ability to pay. While researchers and practitioners increasingly recognise the importance of affordable innovation to society, we know little about the conditions under which individual innovators engage in affordable innovation rather than its counterpart: premium innovation. In our qualitative study of 55 innovators, we first uncover the individual and contextual factors that determine innovators' commitment to affordable and premium innovations. We also identify common combinations of factors that lead to different types of affordable and premium innovators. Finally, we highlight the conditions under which innovators move from affordable to premium innovations and from premium to affordable innovations. These results contribute to the innovation literature by showing that a conceptual distinction between affordable and premium innovations is necessary to understand individual innovative commitment and by explaining why innovators often choose premium innovations over socially relevant affordable innovations.

Keywords: affordable innovation; premium innovation; low-end innovation; BoP innovation; frugal innovation; individual factors; contextual factors; qualitative research.

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1 Introduction

Researchers and practitioners are increasingly recognising the importance of affordable innovations to society. Affordable innovations are new products or services targeted at customers with little willingness or ability to pay (Reinhardt et al., 2018; Ernst et al., 2015; Schaarschmidt et al., 2022). In contrast to the simple resell of premium innovations, affordable innovations are tailored to the specific needs of customers at the lower end of the market (Ernst et al., 2015). Furthermore, affordable innovations are not synonymous with low-tech and can be complex products, despite focusing on core functions to reduce costs (Lim and Fujimoto, 2019). For example, the association ‘OneDollarGlasses’ sells an eyeglass bending machine to people in developing countries that enables them to produce and sell eyeglasses at a material cost of just one dollar. In this way, people in developing countries can make a living from selling the glasses and at the same time help poor people to regain their sight at very low prices (EinDollarBrille e.V., 2021). Another example of an affordable innovation is General Electric’s VScan, a portable medical ultrasound machine that costs only one-twentieth the cost of conventional alternatives (The Economic Times, 2011).

Beyond specific examples, numerous studies in the context of the bottom of the pyramid (BoP) and emerging markets emphasise the societal and economic potential of innovations targeting low-income customers (e.g., Schuster and Holtbrügge, 2014; Berger and Nakata, 2013; Sinha et al., 2020). On the one hand, affordable innovation can reduce the number of people that are disenfranchised from the benefits of innovation and solve societal challenges such as affordable housing and health care (Reinhardt et al., 2018). On the other hand, there are huge untapped markets with low-income customers in both developed and emerging economies that can be served with affordable innovations (Prahalad, 2005; Nakata and Weidner, 2012). However, to fully realise the societal and economic potential of affordable innovations, we need to understand how they emerge and how to foster their development.

While the societal importance of affordable innovation is hardly disputed, we know little about the conditions under which individual innovators engage in affordable innovation. First, existing research shows that managers seem to prefer premium innovations (Reinhardt et al., 2017), so we need to understand the conditions under which individual innovators engage in socially relevant affordable innovations. Second, the sparse innovation literature related to affordable innovations typically focuses on organisational-level capabilities (e.g., Reinhardt et al., 2018; Schuster and Holtbrügge, 2014) and on the later stages of the innovation process (e.g., Nakata and Weidner, 2012), while neglecting the role of individual innovators in the development of affordable innovation. However, we know from the innovation literature in general that it is often individuals who drive (or hinder) innovation and make it successful (Baer, 2012; Salter et al., 2015; Mayr et al., 2021; Bouncken et al., 2020); a fact that makes a particular focus on the individual innovator highly relevant. Understanding the factors that drive individuals’ engagement in affordable (premium) innovation is important because it can help explain preferences for one type of innovation over the other and reduce imbalances between affordable and premium innovation activities in general.

Therefore, we pose the following research question: *under what conditions do innovators engage in affordable (vs. premium) innovation?* To answer this research question, we conducted a qualitative study with 55 affordable and premium innovators at

different stages of the innovation process and in different organisational contexts. We identify a theoretical framework consisting of individual and contextual factors that determine engagement in affordable or premium innovation. Our cross-case analysis also identifies common combinations of factors that lead to different types of affordable and premium innovators. Finally, we highlight the conditions under which innovators change direction from affordable to premium innovations and from premium to affordable innovations.

We make several theoretical contributions with our research. We contribute to the innovation literature by showing that innovators are attracted to different types of innovations because individual and contextual factors differ. This finding highlights the need for a separate conceptualisation of affordable and premium innovations in the innovation literature. Moreover, we contribute to the fuzzy front-end innovation literature by illuminating how affordable innovations emerge in the first place. By understanding the conditions under which affordable innovations become part of an organisational innovation process, we can explain why so many decisions are currently made in favour of premium rather than affordable innovations (van Orden et al., 2011).

2 Theory

2.1 Definition of affordable and premium innovations

Following previous work (Reinhardt et al., 2018; Schmidt and Druehl, 2008), we conceptualise affordable innovations as new products or services targeted at customers with low willingness or ability to pay, and premium innovations as new products or services targeted at customers with high willingness or ability to pay in a given market. Affordable innovation is thus an overarching concept that overlaps with related concepts such as low-end (disruptive) innovation (Reinhardt et al., 2018; Schmidt and Druehl, 2008), BoP innovation (Prahalad, 2012), affordable value innovation (Ernst et al., 2015), cost innovation (Williamson, 2010), good-enough innovation, frugal innovation, or resource-constrained innovation (Zeschky et al., 2014; Hossain, 2018).

We use the term ‘affordable innovation’ to emphasise the market perspective (i.e., innovations that are affordable to customers in a target market of a particular product category). Affordable innovations are typically not a simple cost reduction of existing alternatives with the same functionalities (e.g., cost innovation) or a reduction in the functionalities of existing alternatives (e.g., good-enough innovation, see Zeschky et al., 2014). Like frugal innovations, they are developed specifically for customers with lower willingness or ability to pay. However, affordable innovations are not limited to emerging markets (like BoP innovations or frugal innovations), but can also target lower-income customers in industrialised countries.

2.2 The trade-off decision between affordable and premium innovations

Affordable innovations can be beneficial for businesses and society. First, affordable innovations offer profit potential because they are priced below the average market price and thus appeal to a large number of customers with a low willingness or ability to pay (Reinhardt et al., 2018). For example, low-price cars such as Dacia’s target large groups of customers with low ability to pay. Second, affordable innovations are potentially

disruptive (Sood and Tellis, 2011). This means that instead of opting for premium line extensions, companies can try to turn non-consumers into consumers by offering new products that are cheaper than existing options (Christensen et al., 2015). Thus, firms can use affordable innovations to create new markets and generate growth. Third, affordable innovation benefits not only the company but also society. Developing products for target audiences not only drives business growth, but also serves the needs of disadvantaged populations by providing simple, affordable solutions to improve their daily lives (Prahalad, 2012), as demonstrated by the success of the affordable mobile payment service M-Pesa.

However, affordable innovations also have drawbacks. First, affordable innovations are typically characterised by lower profit margins than their premium counterparts. Therefore, companies need to sell large volumes of the product to be profitable, which can be particularly challenging for smaller businesses (Reinhardt et al., 2018). Second, in implementing affordable innovations, companies must overcome hurdles that are specific to affordable innovation. For example, it is difficult to understand customers' needs because of the mental distance between potential (low-income) customers and members of the new product development team (Reinhardt et al., 2018).

Previous research has shown that managers prefer premium innovations to affordable innovations (Reinhardt et al., 2017; Lettice and Thomond, 2008) and that new products are typically positioned at the high end of the market when they are introduced (van Orden et al., 2011). When companies expand their product portfolio, they often opt for a premium line extension, which means that new products are positioned at the higher end of the price scale (Desai, 2001). However, if companies stick to a pure premium strategy, they may miss out on profit and growth opportunities offered by markets with customers with low willingness to pay. Overall, affordable innovations can offer tremendous potential for companies, but innovators tend to stick with premium innovations. Therefore, we need to understand what conditions must exist for innovators to choose affordable innovations.

2.3 The role of individuals in the decision for affordable or premium innovation

The human element in innovation management is an essential part of the decision-making process (Brenton and Levin, 2012). While the innovation literature generally recognises the important role of individuals in the various stages of the innovation process (Sim et al., 2007; Mayr et al., 2021), we know little about the role of individual innovators in creating affordable innovations. Deciding what type of innovation to pursue is one of the first decisions in the innovation process and thus lays the foundation for subsequent stages of the innovation process. Therefore, understanding the conditions under which individuals engage in affordable innovation is a prerequisite for the subsequent stages of the innovation process.

Our literature review on affordable innovation and related concepts in relevant innovation management journals (see Table 1) shows that previous research on affordable innovation rarely focuses on the individual level of analysis. Moreover, previous research pays little attention to the early stages of the innovation process, which are the actual decision and motivation for affordable innovation. Finally, there is no systematic comparison between affordable and premium innovation. As a result, we have only a limited understanding of why and under what conditions individuals initially engage in

affordable innovations (relative to premium innovations) and under what conditions the direction of such engagement might change.

Table 1 Example articles of related research to affordable innovation in the context of innovation management

<i>Author(s), Year</i>	<i>Journal</i>	<i>Context</i>	<i>Study type</i>	<i>Topic and main results</i>	<i>Innovation process focus</i>
Lettice and Thomond (2008)	<i>IJTM</i>	(Low-end) disruptive innovation	Qualitative (case studies)	Managers use various cognitive strategies to reject disruptive innovation (e.g., rewarding incrementalism, focusing on historical perceptions of success, creating perception of success with high effort).	Resource allocation to disruptive innovation
Schmidt and Druehl (2008)	<i>JPIM</i>	(Low-end) disruptive innovation	Conceptual	Low-end encroachment = the new product initially displaces the old product at the low end of the old product market and then spreads upward. High-end encroachment = the new product displaces the old product first at the high end and then diffuses downward.	Diffusion on the market
Williamson (2010)	<i>LRP</i>	Cost innovation	Conceptual	Cost innovations include high technology at low cost and bring niche products to the mass market. Incumbents can respond to cost innovation by, for example, developing new business models or partnering with experienced cost innovators from emerging markets.	Strategies for cost innovations
Kachaner et al. (2011)	<i>S&L</i>	Low-cost business models	Conceptual	Low-cost business models have special features in terms of target segments (price-sensitive), offerings (simple and uniform), revenue model (price for basic core value), cost model (low costs along the value chain) and organisation (operational efficiency).	Organising for low-cost business models

Table 1 Example articles of related research to affordable innovation in the context of innovation management (continued)

<i>Author(s), Year</i>	<i>Journal</i>	<i>Context</i>	<i>Study type</i>	<i>Topic and main results</i>	<i>Innovation process focus</i>
Schanz et al. (2011)	<i>R&DM</i>	Low-cost high-tech innovation	Qualitative (case studies)	Low-cost high-tech innovations are low-cost, robust, easy-to-use high-tech innovations developed by Western multinational companies (MNC) for the Chinese market. The decision to have an integrated or separate business unit depends on factors such as local experience and intellectual property (IP) rights.	Organisational set-up of R&D
Van Orden et al. (2011)	<i>JPIM</i>	(Low-end) disruptive innovation	Qualitative (panel judgement)	Low-end encroachment products first sell at a low price and then encroach up-market. High-end encroachment products first sell at a high price and then encroach down-market. Most products exhibit high-end encroachment.	Diffusion on the market
Zeschky et al. (2011)	<i>RTM</i>	Frugal innovation	Qualitative (case studies)	Low-cost competitors and market expansion as motivations for introducing frugal innovations. The development of frugal innovations requires local organisational structures and resources to understand the needs of resource-constrained consumers.	Frugal innovation development
Nakata and Weidner (2012)	<i>JPIM</i>	New products at BoP	Conceptual	Consumer characteristics (poverty), new product characteristics (e.g., affordability, adaptability), social context (e.g., social capital, assimilation culture), and marketing environment (e.g., interpersonal advertising) influence new product adoption at the BoP.	Adoption by BoP consumers

Table 1 Example articles of related research to affordable innovation in the context of innovation management (continued)

<i>Author(s), Year</i>	<i>Journal</i>	<i>Context</i>	<i>Study type</i>	<i>Topic and main results</i>	<i>Innovation process focus</i>
Prahalad (2012)	<i>JPIM</i>	BoP innovation	Conceptual (case example)	The innovation process at the BoP must focus on aspects such as awareness, access, affordability, availability, functional and emotional appeal, global security standards, scalability, locality, and ecosystems.	Problem recognition to market introduction
Berger and Nakata (2013)	<i>JPIM</i>	BoP innovation	Qualitative (case studies)	Consider socio-human conditions (e.g., low literacy, lack of familiarity with technology), governmental-regulatory conditions (use and promotion of supportive government regulations), and market conditions (underdeveloped financial sector, low financial literacy) for successful implementation of financial services innovations at BoP.	Implementation at BoP
Cunha et al. (2014)	<i>JPIM</i>	Product innovation in resource-poor context	Conceptual	Bricolage, improvisation, and frugal innovation as promising research directions that encompass product innovation under conditions of scarcity.	Different phases (idea generation to outcomes)
Schuster and Holtbrügge (2014)	<i>JPIM</i>	Low-income markets/BoP	Quantitative	Constraining environmental conditions lead to corporate strategies such as internalising resources, building coalitions with non-traditional partners, and investing less in the local environment. These strategies, in turn, improve firm performance.	Strategies for BoP markets

Table 1 Example articles of related research to affordable innovation in the context of innovation management (continued)

<i>Author(s), Year</i>	<i>Journal</i>	<i>Context</i>	<i>Study type</i>	<i>Topic and main results</i>	<i>Innovation process focus</i>
Zeschky et al. (2014)	RTM	Cost, good-enough, frugal, and reverse innovation	Conceptual	Cost innovations = solutions that provide similar functionality to Western products at lower cost. Good-enough innovations = solutions that incorporate functionalities designed for a range of resource constraints. Frugal innovations = innovations developed for resource-constrained customers in emerging markets. Reverse innovations = conversion of resource-constrained innovations to Western markets. All require different technical and organisational capabilities.	Organising for resource-constrained innovations
Ernst et al. (2015)	JPIM	Affordable value innovation	Quantitative	Bricolage and local embeddedness are positively related to the level of affordable value innovation, while standardisation is negatively related to the level of affordable value innovation. A firm's ability to develop and introduce affordable value innovation is positively related to innovation performance.	Process outcomes
Von Zedtwitz et al. (2015)	JPIM	Reverse innovation	Conceptual	Different forms of reverse innovation: the idea for the product concept or technology originates in a developing country, the main location of the product development and R&D unit is in a developing country, and the product was designed for and is primarily aimed at the market of a developing country.	Different phases (concept ideation to market introduction)

Table 1 Example articles of related research to affordable innovation in the context of innovation management (continued)

<i>Author(s), Year</i>	<i>Journal</i>	<i>Context</i>	<i>Study type</i>	<i>Topic and main results</i>	<i>Innovation process focus</i>
Pisoni et al. (2018)	JoCP	Frugal innovation	Conceptual	Specific contextual factors such as scarce financial and human resources, innovation culture, weak infrastructure, and institutional failure enable frugal innovation. Success factors include the principles of architectural innovation, the innovation process of 'bricolage', leveraging existing resources, and developing strategic alliances.	Different phases
Reinhardt et al. (2018)	LRP	Low-end innovation	Conceptual/ Qualitative (case study)	Firm capabilities for low-end innovation include internal dimensions (e.g., low-end culture and commitment, scaling high volumes), interface dimensions (e.g., capturing remote customer needs, developing total solutions), and external dimensions (e.g., creating access, networking low-end support).	Organising for low-end innovation development
Sinha et al. (2020)	IJEV	BoP innovation	Qualitative (case study)	BoP companies grow via multiple growth modes (i.e., organic growth, hybrid growth). Companies can go through iterative growth cycles within growth modes and then transitions to new growth modes.	Scaling up of BoP ventures
Corsini et al. (2021)	R&DM	Frugal innovation	Qualitative (case studies)	During the COVID-19 crisis, makers came up with frugal innovations as even high income countries become resource constrained environments. Success depends on innovators' ability to replicate, adapt, and produce innovations locally.	Frugal innovation process

2.4 Individual and contextual factors influencing individuals innovation decisions

Prior research provides two explanations for why people become innovators: individual and contextual factors (Roach and Sauermann, 2015; Forbes, 2005). Innovators in this context are key individuals who have a significant impact on innovation development and take significant action at one or more stages of the innovation process, especially in the early stages. On the one hand, individual characteristics and motives such as creativity-related skills (Birdi et al., 2016), passion for invention (Kang et al., 2016), and intrinsic interests (Yuan and Woodman, 2010) explain why some individuals engage in innovation. On the other hand, contextual factors such as innovation constraints (Bettencourt et al., 2017), departmental support (Birdi et al., 2016), and an innovative climate (Kang et al., 2016; Bogers, 2018) promote or inhibit innovative behaviours.

Although research at the individual level has made considerable progress, it focuses on general innovation behaviour and cannot yet explain why some individuals innovate in specific types of innovations—i.e., affordable or premium innovation. However, we know from other areas of research, such as social entrepreneurship, that the individual and contextual factors driving individual decisions to engage in a particular type of entrepreneurship can differ substantially compared to general entrepreneurship (Hietschold et al., 2022). Thus, we have good reason to believe that engagement in affordable (vs. premium) innovation depends on unique combinations of individual and contextual factors.

With a combined individual and contextual approach, we follow other authors such as Roach and Sauermann (2015), Birdi et al. (2016), Bettencourt et al. (2017) and Bharadwaj and Menon (2000), as well as Hubner-Benz and Baum (2023), who find an interplay between the two approaches valuable in explaining individual decision making for innovation and entrepreneurship.

Figure 1 Interplay between individual and contextual factors

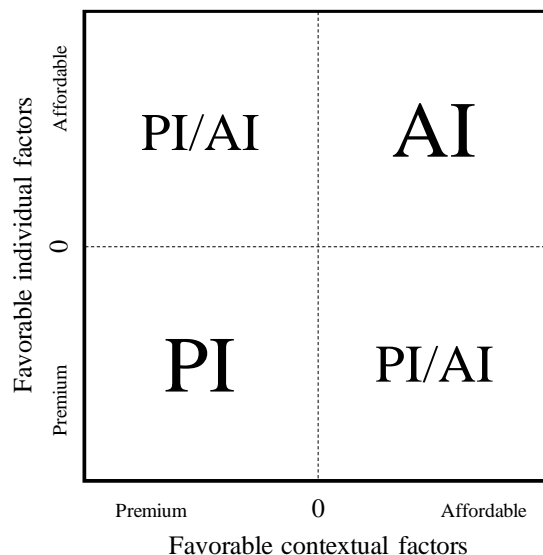


Figure 1 serves as a starting point for our empirical analysis and illustrates the conceptual interplay for engagement in affordable and premium innovation activities. Individuals exposed to favourable contextual factors for affordable innovation (right side of x-axis) and possessing favourable individual factors for affordable innovation (top of y-axis) are likely to engage in affordable innovation (AI, top right quadrant). Very strong individual (contextual) factors favouring affordable innovation may lead to engagement in affordable innovation even when contextual (individual) factors are less favourable to affordable innovation. The same is true for individual and contextual factors favouring premium innovations (PI, lower left quadrant).

3 Methodology

To shed light on our research question, we take a qualitative approach. Qualitative research allows us to examine in depth the individual and contextual factors that influence innovators' commitment to affordable or premium innovations and to uncover combinations of these factors. In this research, we use a sample of affordable and premium innovators to compare potentially different individual and contextual factors.

3.1 Data collection

We selected affordable and premium innovators at different stages of the innovation process (future innovators vs. actual innovators) and in different organisational settings (entrepreneurs vs. decision makers). In our study, future innovators have already chosen affordable or premium innovation but have not yet taken action and are therefore in earlier stages of the innovation process, while actual innovators have already taken action to implement the innovation. Furthermore, actual innovators can be divided into two groups: They can either implement the innovations by starting a new company (i.e., entrepreneurs) or implement the innovation within an already existing company (i.e., decision makers¹). We did not limit our sample to specific industries (we included innovators from different industries such as health, energy, food, or textiles) and looked for innovators in different countries. Previous literature has mostly examined affordable innovation in the context of developing countries. However, we would like to broaden this perspective and include affordable innovations in developed countries (we included innovators from developed countries such as Germany and Switzerland as well as from developing countries such as India and South Africa in our sample). In this way, we gain a comprehensive insight into the variety of individual and contextual factors that influence engagement in affordable and premium innovation.

We developed a semi-structured interview guide that included questions about the decision to work on the affordable or premium innovation idea, individual motivations for working with that type of innovation, and the conditions under which the innovator would switch to the other type of innovation (see Appendix 1).

We recruited respondents through several channels using a strategy of purposive sampling. First, we recruited future innovators by announcing an affordable and a premium innovation development workshop at a major German university². Second, we recruited entrepreneurs through a search on the Internet for relevant affordable and premium innovations, as well as through a call for participation in the study in co-working spaces (e.g., impact hubs) and through personal professional networks. Third,

we recruited decision makers, who are typically individuals in senior management positions (e.g., product managers) involved in developing and positioning affordable or premium innovations, through personal professional networks and by approaching appropriate companies and innovators after an online search. An innovation was classified as affordable or premium if it had a significantly lower (higher) average market price than other products in that product category. All interviews were recorded and took place either face-to-face, via video chat or telephone. We ended the data collection after 55 interviews because we could not gain any more new information and had reached theoretical saturation (Eisenhardt, 1989). Because it is a heterogeneous sample covering different types of innovators, industries, and countries, such a large sample allows us to capture a wide range of different individual and contextual factors that are critical to affordable and premium innovation engagement. All interviews were transcribed, resulting in 657 single-spaced pages of interview material. A full overview of our final sample (26 innovators engaged in affordable innovation, 29 innovators engaged in premium innovation) can be found in Table 2.

Table 2 Descriptive characteristics of the sample

<i>Name</i>	<i>Role</i>	<i>Industry</i>	<i>Country (headquarter)</i>	<i>Age</i>	<i>Gender</i>	<i>Type of innovator</i>
AI 01	Entrepreneur (CEO and co-founder)	Health	Switzerland	n/a	Male	Type 1
AI 02 ^b	Entrepreneur (CEO and co-founder)	Sanitary	Switzerland/ Peru	37	Female	Type 1, type 5
AI 03	Decision maker (treasurer and board member)	Optics	Switzerland	n/a	Male	Type 1
AI 04	Entrepreneur (CEO and founder)	Construction	South Africa	61	Male	Type 1
AI 05 ^a	Entrepreneur (CTO and co-founder)	Water purification	USA	38	Female	Type 3
AI 06 ^e	Entrepreneurs (co-founders)	Health	USA	24/23	Female/ Male	Type 3
AI 07	Entrepreneur (CEO and founder)	Automotive	India	36	Male	Type 5
AI 08	Entrepreneur (CEO and co-founder)	Energy	Rwanda	45	Male	Type 5
AI 09	Entrepreneur (COO and co-founder)	Agriculture	Switzerland	n/a	Female	Type 3
AI 10	Entrepreneur (sole proprietor)	Finance/ insurance	Switzerland	n/a	Male	Type 5
AI 11	Entrepreneur (CEO and founder)	Energy	Germany	43	Male	Type 1

Notes: ^aWork in the same firm.

^{b,c}Partners.

^dStudy program.

^eTwo co-founders gave the interview together.

AI – innovator engaging in affordable innovation; PI – innovator engaging in premium innovation.

Table 2 Descriptive characteristics of the sample (continued)

<i>Name</i>	<i>Role</i>	<i>Industry</i>	<i>Country (headquarter)</i>	<i>Age</i>	<i>Gender</i>	<i>Type of innovator</i>
AI 12	Entrepreneur (managing director and founder)	Health	Switzerland/ Uganda	n/a	Female	Indifferent
AI 13 ^a	Entrepreneur (CEO and co-founder)	Water purification	USA	n/a	Male	Type 1
AI 14 ^e	Entrepreneurs (co-founders)	Health	Switzerland	26/27	Male/ Male	Type 3
AI 15	Entrepreneur (CTO and founder)	Energy	India	25	Male	Type 1
AI 16	Entrepreneur (CEO and co-founder)	Health	India	n/a	Male	Type 1
AI 17	Decision maker (management consultant)	International development	South Africa	42	Male	Type 1
AI 18	Entrepreneur (co-founder)	SME ecosystem develop.	South Africa	45	Male	Type 5
AI 19	Future innovator (student)	Economics ^d	Germany	23	Male	Type 1
AI 20	Future innovator (student)	Economics ^d	Montenegro	23	Male	Type 1
AI 21	Future innovator (student)	General Management ^d	Germany	31	Male	Type 1
AI 22	Entrepreneur	Insurance	Germany	31	Male	Type 3
AI 23	Entrepreneur (CEO)	Electronics	Germany	52	Male	Type 3
AI 24	Decision maker (CEO)	Food	Germany	26	Female	Indifferent
AI 25	Decision maker (assistance to management)	Food	Germany	57	Female	Indifferent
AI 26	Decision maker (head of project and process mngt.)	Beverages	Germany	31	Female	Indifferent, type 4
PI 01 ^b	Entrepreneur (co-CEO and co-founder)	Food	Switzerland	35	Male	Type 3
PI 02	Decision maker (product manager)	Medical technology	Germany	31	Female	Indifferent
PI 03	Entrepreneur (CTO and co-founder)	Logistics	Switzerland	40	Male	Type 3
PI 04	Entrepreneur (CTO and co-founder)	Medical technology	Switzerland	47	Male	Type 3, indifferent

Notes: ^aWork in the same firm.^{b,c}Partners.^dStudy program.^eTwo co-founders gave the interview together.

AI – innovator engaging in affordable innovation; PI – innovator engaging in premium innovation.

Table 2 Descriptive characteristics of the sample (continued)

<i>Name</i>	<i>Role</i>	<i>Industry</i>	<i>Country (headquarter)</i>	<i>Age</i>	<i>Gender</i>	<i>Type of innovator</i>
PI 05	Decision maker (head of business development and finance)	Bio technology	Germany	38	Male	Type 3, type 5
PI 06	Entrepreneur (CEO and founder)	Health	Switzerland	25	Male	Type 2
PI 07	Future innovator (student)	Business administration ^d	Germany	22	Female	Type 2
PI 08	Future innovator (student)	Sports management ^d	Germany	23	Female	Indifferent
PI 09	Future innovator (student)	Sports management ^d	Germany	23	Male	Type 3
PI 10	Future innovator (student)	Business administration ^d	Germany	24	Female	Type 2
PI 11	Future innovator (student)	Economics ^d	Germany	21	Male	Type 2
PI 12	Future innovator (student)	Law ^d	Germany	21	Male	Type 2
PI 13	Future innovator (student)	Business administration ^d	Germany	27	Male	Type 2
PI 14	Future innovator (student)	Business informatics ^d	Germany	31	Female	Type 2
PI 15	Entrepreneur (CEO)	Measurement technology	Germany	59	Male	Type 2
PI 16	Decision maker (product developer)	Pharmaceuticals	Germany	26	Male	Type 2
PI 17	Decision maker (CEO)	Energy	Germany	60	Male	Type 2, type 4
PI 18	Entrepreneur (CEO)	Nursing	Germany	28	Male	Type 2
PI 19	Decision maker (area manager)	Fuel	Germany	57	Female	Indifferent
PI 20	Decision maker (sales manager)	Electronics	Germany	36	Male	Type 2, type 5
PI 21 ^c	Decision maker (CEO, creative manager)	Textiles	Germany	52	Male	Indifferent
PI 22 ^c	Decision maker (CEO, strategic manager)	Textiles	Germany	53	Male	Indifferent, type 4
PI 23	Decision maker (marketing manager)	Sports equipment	Germany	34	Male	Type 2, type 5

Notes: ^aWork in the same firm.

^{b,c}Partners.

^dStudy program.

^eTwo co-founders gave the interview together.

AI – innovator engaging in affordable innovation; PI – innovator engaging in premium innovation.

Table 2 Descriptive characteristics of the sample (continued)

<i>Name</i>	<i>Role</i>	<i>Industry</i>	<i>Country (headquarter)</i>	<i>Age</i>	<i>Gender</i>	<i>Type of innovator</i>
PI 24	Decision maker (senior project manager)	Household supply	Germany	36	Male	Type 2
PI 25	Decision maker (after sales manager)	Automotives	Germany	25	Male	Type 2
PI 26	Decision maker (property rights consultant)	Construction	Germany	26	Male	Type 2
PI 27	Decision maker (manager marketing and strategy)	Optics	Germany	42	Male	Type 2
PI 28	Decision maker (chief sales and marketing officer)	Stationery products	Switzerland	58	Male	Indifferent
PI 29	Decision maker (product manager)	Household supply	Germany	28	Female	Type 2

Notes: ^aWork in the same firm.

^{b,c}Partners.

^dStudy program.

^eTwo co-founders gave the interview together.

AI – innovator engaging in affordable innovation; PI – innovator engaging in premium innovation.

3.2 Data analysis

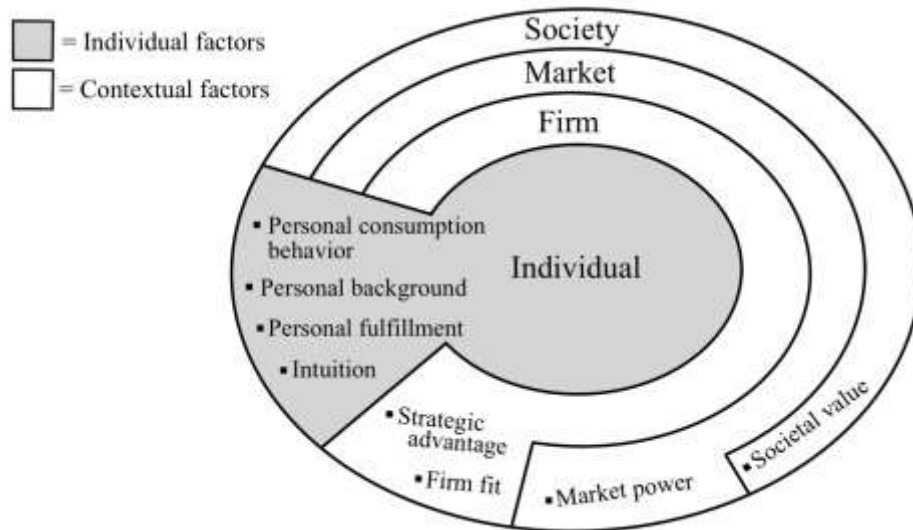
For data analysis, we followed the approach of Gioia et al. (2013). First, we coded all interviews inductively using the MAXQDA software programme to create a category system of individual and contextual factors that influence innovators' commitment to affordable and premium innovations. Specifically, the first and second authors each assigned first-order codes for half of the interviews. Then, the first and second authors went through the other author's coding and added to, refined, or revised the coding. The first and second authors discussed unclear passages of text and clarified different points of view in a discussion. We categorised the first-order codes into second-order themes and aggregated dimensions. For example, for the text passage "I am someone who likes to look for coupons and stuff like that on the internet before buying something" (affordable innovator, 19), we assigned the first-order code 'price sensitive consumption', which belongs to the second-order theme 'personal consumption behaviour' and the aggregate dimension 'individual factors'. Overall, we identified four second-order themes for the aggregate individual factors dimension, including 11 first-order codes, and four second-order themes for the aggregate contextual factors dimension, including 16 first-order codes.

Second, we sought to examine combinations of factors that characterise particular types of innovators. Therefore, we conducted a cross-case analysis. The first and second authors jointly created maps for each innovator that listed the one to three most critical individual and/or contextual factors that influenced each innovator's engagement. We then clustered the maps by common factors and described the combinations of factors as the different types of affordable and premium innovators.

4 Results

Individual factors are the personal motives, behaviours, and characteristics of innovators at the micro level. Contextual factors, on the other hand, are influences that do not emanate from the individuals themselves, but from the meso and macro levels, such as the company, the market or society, and affect the individual's commitment – here, innovators describe the perceived influencing contextual factors (see Figure 2).

Figure 2 Factors influencing innovators' engagement in affordable and premium innovation



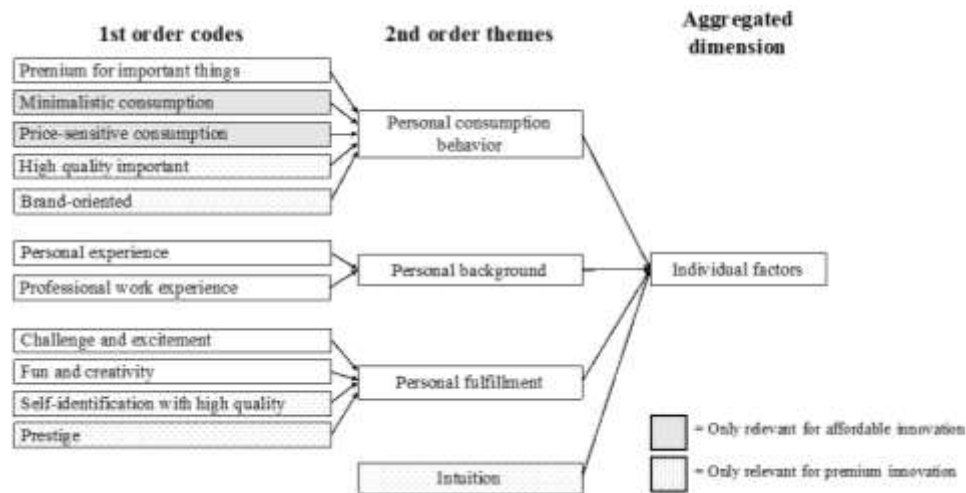
4.1 Individual factors influencing innovators' engagement

The 'individual factors' dimension includes four second-order themes (see Figure 3):

- 1 personal consumption behaviour
- 2 personal background
- 3 personal fulfilment
- 4 intuition.

Personal consumption behaviour refers to innovators' general consumption tendencies in terms of pricing products and services (i.e., as consumers, do they prefer to purchase affordable or premium products). Both affordable and premium innovators prefer premium for goods that are of great personal importance to them. However, some affordable innovators prefer to consume only the necessities and describe themselves as minimalist and price sensitive:

"I see myself [...] rather in the [low-priced] segment because I am someone who likes to look for coupons and stuff like that on the internet before buying something, and I try to get cash back while shopping online. That is why I see myself more in that area and feel drawn to it." (Affordable innovator 19)

Figure 3 Category system for individual factors

In contrast, some premium innovators state that they generally prefer high quality consumption and expensive brands and therefore also prefer premium innovations:

“I actually thought of myself as a customer. Like, what interests me personally, because I attach more importance to quality and I would be more interested in customers who value quality just as much because it is perhaps easier for me to put myself in their shoes.” (Premium innovator 07)

Another critical factor is the innovator’s *personal background*, which refers to the innovator’s past personal and professional experiences. The environment in which innovators grew up (e.g., frugal or affluent) and their personal life experiences direct their focus on issues and opportunities specific to those circumstances. One affordable innovator (affordable innovator 06) describes that her personal experience growing up in Vietnam influenced her preference for affordable innovation because she now wants to appeal to people who also live in developing countries. In contrast, a premium innovator explains how he grew up with a more expensive lifestyle and how his parents influenced his premium preference:

“I think [my premium preference] also has a lot to do with how I was raised. That my parents bought me expensive things from the beginning rather than cheap stuff. I think it has a lot to do with the fact that I was always guided in this direction.” (Premium innovator 13)

In addition, past work experience may create the necessary skills and knowledge to work in the price segment in question. For example, an affordable innovator has acquired profound knowledge of low-price markets through his professional background in the field:

“I’ll certainly go into the affordable market for the simple reason that [...] my entire career has been with impoverished people. I understand the DNA of poverty and I understand how people succeed in those environments pretty well.” (Affordable innovator 17)

Personal fulfilment refers to the personal aspirations innovators pursue through their innovation activities. For example, both affordable and premium innovators value

challenge and excitement. However, they have different views on what type of innovation meets these criteria, leading them to different outcomes in their decisions:

“What makes affordable innovations unique is that you still have to stick to quality and norms. [...] That’s what I [...] find very interesting about affordable innovation. I think [it’s] the biggest challenge, because in the end, you have to take care of margins and mass.” (Affordable innovator 26)

“I personally find new technologies exciting. That’s expensive. [...] But I find it more appealing to use the coolest engines, the coolest controls, the most powerful CPUs and cameras. This is what I find exciting.” (Premium innovator 06)

In addition, both innovators prefer the type of innovation that offers greater potential for fun and creativity in working on them. Again, they value affordable and premium innovations differently. A premium innovator sees more freedom in developing premium innovations:

“I think more time and energy go into [premium] products and that is why I think the fun factor is higher because you are not slimming down. You are not saying, ‘Okay, I will use this plastic screw because it is three cents cheaper’ but ‘I am making it out of metal because it makes sense and is durable’. [...] I think that the [premium] sector offers a lot more fun and personal fulfillment.” (Premium innovator 18)

Two other aspects of personal fulfilment emerged that are only relevant for the sample of premium innovators. Premium innovators identify with products that are high quality, and they believe that premium innovations, as opposed to affordable innovations, bring them prestige:

“The product you end up with is always more exciting in the premium segment because you enjoy the prestige, the reputation of the brand [...], which may result in social acceptance and admiration.” (Premium innovator 16)

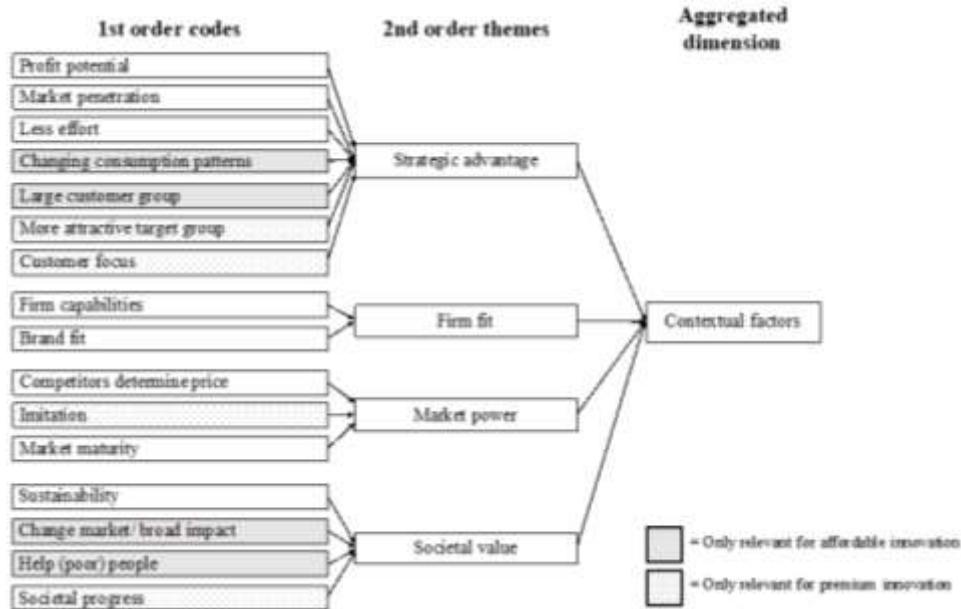
Finally, *intuition* refers to innovators’ preference for a type of innovation based on initial feelings and instincts without explicit reasoning. Again, this factor is relevant only for the sample of premium innovators. The intuitive decision for premium innovations could be attributed to a cognitive bias or learned conditioning that premium innovations are more successful (Reinhardt et al., 2017).

“At first glance, I would always give the high-priced advantage or let us say I have a preference, because I think: ‘Yeah ok well, that is the brand’. My gut feeling would simply be addressed.” (Premium innovator 27)

4.2 Contextual factors influencing innovators’ engagement

In addition to the individual factors, four second-order themes emerged from our coding process to form the ‘contextual factors’ dimension (see Figure 4):

- 1 strategic advantage
- 2 firm fit
- 3 market power
- 4 societal value.

Figure 4 Category system for contextual factors

Strategic advantage refers to innovators' preference for a type of innovation based on its benefits to the firm from a strategic perspective. Both affordable and premium innovators see the respective innovation type as more promising in terms of profit. Premium innovators, for example, see more profit in the high-end segment due to higher margins:

"I had a slight preference for [premium innovation] because I think that in the market where customers are above average, in terms of salary or willingness to pay, to put it bluntly, it's easy to make more money." (Premium innovator 11)

In addition to profit potential, the potential for market penetration, i.e., opening up new market segments, and the effort the innovation requires in implementation are two aspects that both innovators consider. For example, a premium innovator (premium innovator 17) states that his company brought products to the lower price segments in order to gain market share. In terms of effort, the following affordable innovator faced more institutional resistance in developed countries and therefore decided to serve the developing markets with lower price levels:

"This is one of the other reasons I love working in lower and middle-income countries. There is very little resistance to the uptake of new technology. [...] Whereas I find in lower-income countries, there are fewer legacy systems that you are fighting against. To change medical practice is a little bit easier than we would find here." (Affordable innovator 12)

A premium innovator working in biotechnology (premium innovator 05) had the opposite experience. He explains that although he considers countries such as China or India to be interesting target markets, he does not serve developing countries due to specific legal and transport restrictions.

Innovators also tend to choose the type of innovation that better fits changing consumption patterns. However, this factor became relevant only for the sample of

affordable innovators. The following affordable innovator recognised that consumer needs in the automotive segment have changed toward more affordable solutions:

“What we understood was [...] the kind of usage pattern is changing. People are now looking at shared mobility, and there is no longer this social status attached to which car you drive. The millennials do not want to put \$30,000, \$40,000 in a car. [...] They do not attach their social status to what car they own. They do not want to invest in a big asset like a car. That is major shift in buying pattern.” (Affordable innovator 07)

In addition, affordable innovators see the target group as much larger and therefore more demand at the lower end of the market. The following affordable innovator views the BoP market as particularly promising because of its size:

“[...] it is actually a huge market. If you look at how many people there are in these markets today... - out of 1.2 billion Indians, that is a good 800 million. [...] That means that half of the world’s population or more does not have access to high-end or even to mid-end or mid-term products, so I am still convinced that this is a big market.” (Affordable innovator 11)

In contrast, premium innovators see the target group in the premium segment as more attractive, for example, because of their smaller size and the opportunity to communicate with customers on a more personal level and receive more valuable feedback.

In addition, premium innovators engage strategically in the premium segment because they focus on a specific (niche) market with distinct customer needs:

“We focused on a niche. That is also our credo, our claim. [...] So, we do not just want to live our visions, but also the visions of our customers and high standards accordingly always mean high engineering performance [...]. If the customer wants something very good, which can only be done with very good technology and very good know-how, then it cannot have a low price.” (Premium innovator 27)

The *firm fit* factor refers to an innovator’s tendency to choose the type of innovation that better fits current enterprise characteristics. For example, a premium innovator (premium innovator 29) believes that his company is unable to develop affordable innovations because of its current direct sales channel. Since this approach is quite costly and time-consuming, affordable innovations do not enable the required profit margins.

In addition, the following premium innovator explains that positioning in a lower price segment would not fit the premium brand image:

“From my point of view, [adding affordable innovation] is not compatible. [...] We may be the most expensive, but we have the best quality. That also means, of course, that the materials, the products we use are all super expensive. [...] And then to have a brand that simultaneously stands for the highest quality and the cheapest product is relatively difficult. Because then, what does the customer get? [...] I think that’s when the customer becomes insecure.” (Premium innovator 03)

Innovators also consider market-related aspects when making their decision to engage. In this context, *market power* refers to the tendency of innovators to choose the type of innovation that different market participants would prefer. In this case, innovators are forced to follow the rules of the market and adapt to the behaviour of competitors. For example, in the case of the following affordable innovator, retailers as intermediaries dictate the price:

“A lot would break away [if we implemented premium products], and it would not be accepted by retail at all. [...] We then run the risk of it flopping, because retail might say: we can never sell it at that price. It is an interaction. The consumer indicates what he/she is willing to spend. The retail reacts and the supplier has to deliver what the market ultimately needs. There is no other way to survive in the area we are in.” (Affordable innovator 25)

In addition, premium innovators position their product in the premium segment to avoid being imitated by competitors and to stay in the market longer:

“The protection is to have unique selling points. The protection is to raise the threshold of replication so high that you will not be copied so easily. You are always being copied [...]. As soon as you are successful somewhere on the market, the imitators try to follow immediately because they smell money.” (Premium innovator 15)

The overall maturity of the market may also determine whether innovators pursue a premium or affordable pricing strategy. For example, a premium innovator states that the stage of the technology determines the decision to adopt an affordable or a premium innovation:

“Over the years, it has always shown that the introduction of new technologies is expensive at the beginning and then decreases until it is eventually available at a very reasonable price. [...] You usually try to get it back with high prices, assuming that you will lower the prices in the course of the product’s life anyway. And then this high-end product suddenly becomes a low-end product.” (Premium innovator 04)

Finally, *societal value* refers to the innovators’ preference for the type of innovation that creates social or environmental benefits. First, both innovators perceive higher environmental sustainability associated with affordable innovations or premium innovations:

“And that is a great ambition, that we are environmentally friendly, with low CO₂ emissions, particulate matter and so on, and that we are continually optimizing. That is only possible with premium products. And this serves a higher purpose, it has nothing to do with maximizing profits, but we all want to relieve the environment.” (Premium innovator 17)

However, we found that only for the sample of affordable innovators were changing entire markets (i.e., creating broad impact) and helping (poor) people critical factors for engaging in affordable innovation. For example, the following affordable innovator is attempting to ‘democratise’ the car market previously dominated by large companies with his affordable electric car innovation:

“The idea behind that was: we need to make something which has a big market, and we can make a big difference in the market. We identified that electric vehicles are a game changer for [the] automotive [industry]. Previously, it was maybe 20 or 30 players who governed the whole field. [...] in terms of mobility, we see that this is going to the democratization and no longer it’s only going to be the top 10 like Volvos and the BMWs and the Suzukis ruling the market.” (Affordable innovator 07)

Similarly, many affordable innovators are motivated primarily by the opportunity to help (poor) people who cannot afford premium innovations:

“Prostheses have a major impact on people’s lives. We were in Kenya at the beginning of the project and then often, if [people] have had an amputation, they have lost their job, could no longer generate income for themselves, but also for the families and so on. [...] as soon as the people are able to walk again, they can participate in society again, can work and so on. And that is what fascinated us so much, the prosthesis is a product that makes so much possible again and can therefore have an extremely large influence. [...] you address a lot more people because basically in prosthetics 20% [of the customers] can afford high-tech prostheses, 80% can afford no or low-tech prostheses.” (Affordable innovator 14)

Although premium innovators do not try to target poor people, they still expect societal progress to result from premium innovations. They often see breakthrough innovations emerging in the premium segment that can later be transferred to the lower price segment and eventually create value for the masses (e.g., premium innovator 12). Additional evidence citations for all first-order codes and construct definitions can be found in Appendix 2.

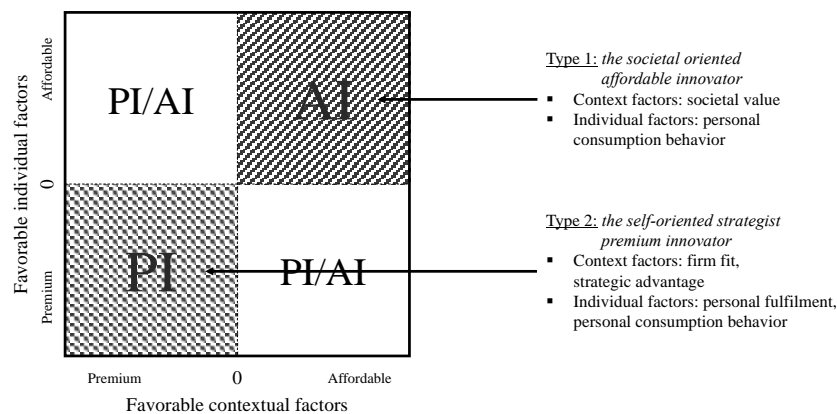
4.3 Different paths to affordable and premium innovation

In the first step of our analysis, we identified relevant individual and contextual factors that influence innovators’ commitment to affordable and premium innovation. However, further cross-case analysis revealed different types of affordable and premium innovators.

4.3.1 Path 1: preference first

Innovators on this path have an *inherent preference* for either affordable or premium innovations (Figure 5). Both individual and contextual factors influence preference, such that individual and contextual factors favouring affordable innovations drive engagement in affordable innovations (upper right quadrant), while individual and contextual factors favouring premium innovations drive engagement in premium innovations (lower left quadrant).

Figure 5 Path 1: preference first



Within this pathway, innovators belonging to type 1 – the *societal-oriented* – engage in *affordable innovation* primarily because they strive to create societal value (contextual

factor). This aspiration is often accompanied by personal consumption patterns of cheaper products (individual factors). In some cases, other contextual factors related to the company and the market reinforce the commitment. For example, affordable innovator 21 states that he feels it is unfair when hard-working people do not have access to innovations and that he therefore wants low-income people to benefit from innovations (societal value). His own consumer behaviour further influences this perception, as he is very price-sensitive because he could not afford much for a long time (personal consumption behaviour). Creating societal value is his primary drive, but he also believes that affordable innovations are promising due to large markets and high sales figures (strategic advantage).

Type 2 innovators – the *self-oriented strategists* – on the other hand opt for *premium innovations* because they generally see more personal fulfilment in this innovation segment and also like to consume premium products in their private lives (individual factors). Here, too, there is an interaction between individual factors and contextual factors such as strategic advantages and the fit of the firm. For example, premium innovator 16 states that he generally prefers premium innovations because he finds the end product more exciting. He also enjoys the prestige gain from working in the premium segment (personal fulfilment). In addition, he describes how the issue of firm fit prevents him from moving in a more affordable direction, as affordable innovations would not fit the image of the company he currently works for (firm fit).

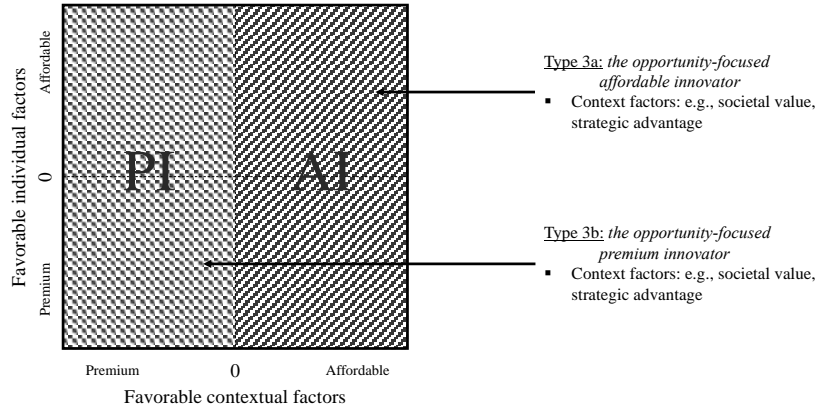
4.3.2 *Path 2: opportunity first*

Along this path, innovators first *see an opportunity* for innovation. This opportunity is either a specific technological idea to solve a particular problem or a very concrete concept of the impact the innovator wants to achieve. Sometimes this idea is already implemented in an existing product or technology for which the innovator is seeking a market application. Rather than having a general preference for a particular type of innovation, innovators who belong to type 3 – the *opportunity-focused* – select the type of innovation that better fits the opportunity, taking into account contextual factors at the firm, market, and societal levels. This pathway can thus lead to affordable or premium innovations depending on whether the contextual factors are more favourable to one or the other type of innovation. The left (right) side of Figure 6 shows that contextual factors that favour premium innovations (affordable innovations) determine the commitment to premium innovations (affordable innovations) – relatively independent of the type of individual factors.

For example, two partner innovators (affordable innovator 14) who manufacture affordable prosthetics for customers in developing countries explain how they initially saw an opportunity in using plastic waste as a raw material. Once that idea manifested, they looked for an application for plastic waste in a product. They found that making prosthetic limbs for disadvantaged people at the BoP was the most attractive option because most plastic waste is generated in developing countries and, more importantly, affordable prosthetic limbs improve the lives of many people (societal value). In addition, they recognised that there is a large and demanding customer base for prosthetics in developing countries that were once war zones (strategic advantage). Similarly, premium innovator 01 saw an opportunity to make an impact by reducing food waste. He decided to target the premium segment because he believed he could best spread the message of sustainability by targeting consumers where food waste is highest (societal value) and

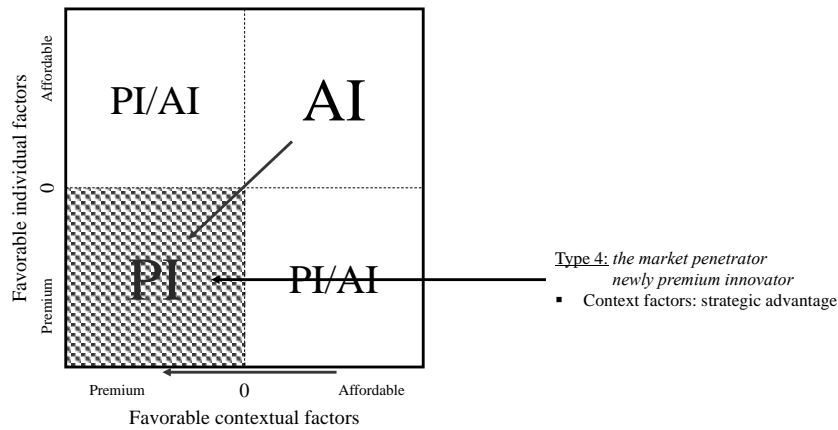
who believe in the concept and are therefore more likely to tolerate higher prices. He also saw greater profit potential due to higher margins in this segment (strategic advantage).

Figure 6 Path 2: opportunity first

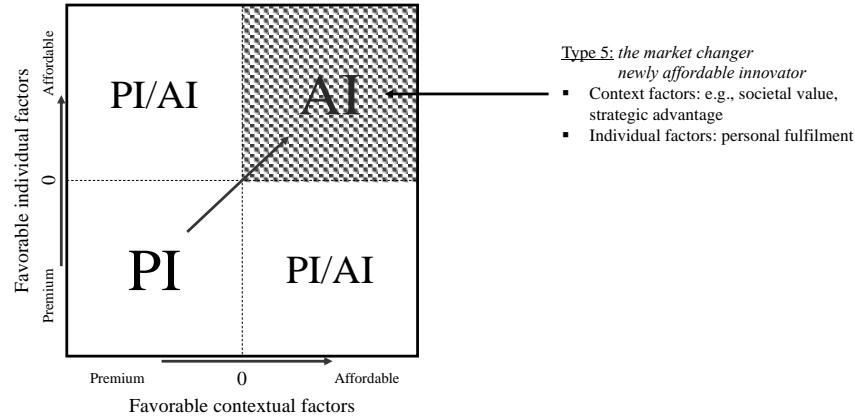


Change of strategic direction: the following two types of innovators have changed the innovation type. These innovators switch either from affordable to premium innovations (type 4 – the *market penetrator*) mainly due to strategic advantages (Figure 7) or from premium to affordable innovations (type 5 – the *market changer*) due to individual factors such as personal fulfilment and/or contextual factors such as societal value (Figure 8).

Figure 7 Path 3: change of strategic direction – from affordable to premium innovator



Premium innovator 17 started with affordable innovations because he believed that in his industry it made sense to introduce affordable innovations first in order to enter the market and gain market share. However, he says that in a second step, it is crucial to move from affordable to premium innovations in order to deliver high-quality products that the target market demands (strategic advantage).

Figure 8 Path 3: change of strategic direction – from premium to affordable innovator

Affordable innovator 10 began working in the premium segment after graduation. Over time, however, he realised he wanted to contribute to the world and got a job with a development organisation where he now designs credit innovations for developing countries (societal value). He also feels that his work is very innovative, that he has many opportunities, and that it is very exciting to develop affordable services for developing countries (personal fulfilment).

5 Discussion and implications

5.1 Theoretical implications

Our research makes several contributions to existing theories of innovation. First, we contribute to the innovation literature in general by drawing attention to a particular type of innovator that has not been on the radar of innovation researchers very often: Innovators who are committed to affordable innovation. We uncovered and found combinations of many individual and contextual factors that uniquely determine engagement in affordable and premium innovation. While previous research has only identified individual and contextual drivers of innovative behaviour in general (e.g., Birdi et al., 2016; Bammens, 2016), we show that these drivers are not identical for different types of innovation, such as affordable and premium innovation. Understanding these specific drivers now allows us to exploit the societal and economic potential of affordable innovations, as we now know the key levers to encourage individual engagement in this type of innovation. The fact that the individual and contextual factors influencing affordable and premium innovators differ between affordable and premium innovations also clearly demonstrates the need to conceptually distinguish affordable innovations from other types of innovations.

We also contribute to the innovation literature related to affordable innovation, as well as to the innovation literature on the fuzzy front end, by understanding the initial conditions under which affordable innovation emerges in the first place. Individuals' commitment to affordable or premium innovations is the critical decision that determines whether affordable innovations emerge at all, and thus is a prerequisite for all other stages of the innovation process and the successful organisation of these innovations.

Therefore, we follow previous literature examining the characteristics of key players in innovation processes (Vojak et al., 2012; Sim et al., 2007; O'Connor and McDermott, 2004) and examine the individual and contextual factors that drive innovators' commitment to affordable innovation. Previous research on the fuzzy front-end of the innovation process describes an important role of individuals acting as gatekeepers in initiating the innovation process (Reid and De Brentani, 2004). We go a step further and examine in detail the factors that lead individuals to engage in a particular type of innovation before the actual innovation process even begins. This helps us explain the disproportionate number of strategic decisions in favour of premium innovations (Lettice and Thomond, 2008; Reinhardt et al., 2017; van Orden et al., 2011) by uncovering the factors under which decisions are made in favour of premium or affordable innovations: Individual factors such as brand-oriented consumption or prestige and contextual factors such as a perceived more attractive target group or an intended protection against imitation might be very present among innovators and drive engagement in premium innovations.

5.2 Managerial implications

Our research shows the importance of individuals in creating and implementing different types of innovation (i.e., affordable and premium innovations). At the firm level, knowledge of the factors that influence the engagement of key individuals in the innovation process is critical, as biased decisions in favour of a particular type of innovation could prevent the firm from making gains and achieving the desired impact. In addition, companies can now better select key individuals that are appropriate for their specific innovation context. For example, companies seeking a high-value brand image can hire innovators whose personal interests match the premium innovation environment. In contrast, companies seeking to foster affordable innovation should select key innovators whose personal interests better match that environment.

At the societal level, fostering innovation for positive social change is an important task (George et al., 2012). While some of the solutions to society's grand challenges can be promoted through premium innovations, others require affordable innovations, especially because it is the low-income people who seek help. Policymakers now know the levers that encourage people to participate in affordable innovations and can take targeted actions to promote affordable innovations. For example, an award for successful affordable innovation could increase the perceived societal value of helping (poor) people, as well as the personal fulfilment of working on a creative and challenging task, which in turn encourages the innovator's commitment to affordable innovation.

6 Limitations and future research

While this study is an important first step in explaining why innovators choose affordable or premium innovations, our study is not without limitations. However, these limitations offer promising opportunities for future research. First, future research can take a more dynamic and process-oriented approach and examine how decisions change in favour of a particular type of innovation, for example, by using a longitudinal case study approach. Second, our qualitative approach does not allow us to assess the importance of various

individual and contextual factors. While our exploratory method is sufficient to shed light on the nature of the factors in general, future research could use a quantitative approach to examine the importance of each factor relative to the others. Here, methods such as experiments could be useful to measure actual decisions and control for other influencing factors. Thus, the present results provide a basis for further, more sophisticated theoretical and empirical investigations of innovators' commitment to affordable and premium innovation. We hope our study will stimulate further important research on affordable innovation that may have the potential for societal progress.

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Appendix 1

Interview guideline (example questions, adapted to the context of the interviewee):

General

- What do you associate with the terms affordable [low-end] innovation and premium [high-end] innovation? What characteristics do you associate with products that are priced above the average market price? What characteristics do you associate with products that are priced below the average market price?
- How would you classify your company/ your innovation in terms of affordable and premium? Please describe the market you are active in.

Engagement

- How did the decision to found the company/did the idea emerge?
- What motivated you to create the innovation/to found the company?
- Why do you prefer to work on affordable/premium products? Working on which type of product – affordable or premium – suits you better? Why does your company produce affordable [premium] products and not premium [affordable] ones? To what extent do you think that one of the two types of products could be more promising?
- Please describe to what extent the following aspects were decisive for the decision on the type of innovation: financial aspects, market attractiveness, competition, image, social expectations, resources, fun and creativity, challenge, recognition, personal consumer behaviour, personal background, previous experience, intuition, social benefit, sustainability, corporate culture³.

Path change

- Have you already worked on other innovation projects? Were they rather affordable or premium innovations? Why did the change occur?
- What conditions would have to be given so that you would decide to engage in innovations in a premium [affordable] market segment?

*Success factors*⁴

- Which organisational aspects do you consider to be particularly important when operating in affordable vs. premium market segments? How should the company be positioned differently in terms of firm culture, employees, networks and partnerships, production, marketing and distribution, and organisational structures and routines?
- Do you think that entrepreneurs/ innovators need different skills if they operate in affordable vs. premium market segments? What do you consider to be your personal strengths?

Appendix 2

Construct definitions and proof quotes

Construct	Definition	Proof quotes
		<i>Individual factors</i>
Personal consumption behaviour	<i>Innovators' general propensity to consume in terms of pricing products and services.</i>	
<ul style="list-style-type: none"> Premium for important things 	<p>The tendency of innovators to buy high-end goods that are of great importance to them personally.</p>	<p><i>Affordable:</i> "If I were to buy a long-term product, I would decide that the product is of better quality, so I would choose [the premium workshop]. But when it comes to small things, like food, I would say Aldi would be better, because is not important to me whether I would buy eggs from Edeka or Aldi." (Affordable innovator 20)</p> <p><i>Premium:</i> "There are things where I would go for [affordable] because I do not see the point of buying the high-end, it is just against all logic. But then there are things where it has to be really [premium] for me. Cars, shoes, coats, bags. But basic sweaters don't have to be [premium] for me." (Premium innovator 16)</p>
<ul style="list-style-type: none"> Minimalistic consumption* 	Innovators' lifestyle to only consume essentials.	<p><i>Affordable:</i> "[Industrial design] is how you learn to design for the masses and drive people to consume and I am not like that myself. Well, I have actually lived a very minimalist life for as long as I have lived. And I am still very reluctant to buy a lot." (Affordable innovator 02)</p>
<ul style="list-style-type: none"> Price-sensitive consumption* 	The tendency of innovators to consume price-consciously.	<p><i>Affordable:</i> "Then I thought about it, I am a Ryanair customer. I fly with this airline for holidays often and I am enthusiastic about this company. I thought it would suit me better, because neither me nor my parents have a Mercedes. [Premium innovation] was not that close to me." (Affordable innovator 20)</p>
<ul style="list-style-type: none"> High quality important† 	Tendency of innovators to buy mainly high quality products.	<p><i>Premium:</i> "I love going shopping in [expensive supermarkets] and I can never shop at [discounters]. It makes me so upset that everything is a mess [there] and it is scam, of course, but at [the expensive supermarket], all the fruit and vegetables are nicely lit, it looks nice [...] And it does not look so great at [the discounter], and then I do not want to buy it and I just do not do it." (Premium innovator 08)</p>
<ul style="list-style-type: none"> Brand-oriented† 	Tendency of innovators to buy popular, more expensive brands.	<p><i>Premium:</i> "I am someone who likes brands, in the sense of trusting a brand, because I am also someone who is not so keen on taking risks. And, of course, a brand always promises certain things. And therefore, the attraction of working on a big brand is always very strong. [...] I am more brand focused." (Premium innovator 27)</p>
Personal background	<i>Personal and professional experiences of innovators in the past that influence the decision for the type of innovation.</i>	
<ul style="list-style-type: none"> Personal experience 	The influence of the innovators' life experiences and the environment in which they grew up.	<p><i>Affordable:</i> "My parents are not poor, we had nice holidays, but they are not earning above average, they are just hard-working workers, and I come from a background and feel comfortable there. [...] Therefore, it would be nicer for me to work in the [affordable] project." (Affordable innovator 21)</p> <p><i>Premium:</i> "I have never been to a developing country. If you want to market something there, you have to acquire market knowledge. That means you should go there first, see what it is like. Maybe not to one, but to several [countries]. I cannot join this conversation right now." (Premium innovator 10)</p>

Notes: *Only relevant for affordable innovator sample.

†Only relevant for premium innovator sample.

Construct definitions and proof quotes (continued)

Construct	Definition	Proof quotes
<ul style="list-style-type: none"> Professional work experience 	The influence of the innovators' professional experience in the past.	<p><i>Affordable:</i> "After having done for almost 20 years in development corporations in several countries especially in Africa. Then that was another step and there was this opportunity to help." (Affordable innovator 01)</p> <p><i>Premium:</i> "I would, because I have worked mainly in this context so far, rather choose the [premium] ones, the companies with higher-priced products, because I simply come from that marketing context." (Premium innovator 29)</p>
Personal fulfilment <ul style="list-style-type: none"> Challenge and excitement 	<p><i>The personal aspirations innovators pursue through their innovation activities.</i></p> <p>Innovators' pursuit of excitement and challenge in their innovation activities.</p>	<p><i>Affordable:</i> "As soon as you add that affordability angle to it, it just changes the way in which you can actually develop a product and I find that very exciting." (Affordable innovator 08)</p> <p><i>Premium:</i> "Why I always want to work on high-end and take on complex challenges is because I am the type who is looking for the total challenge and [that is] my main motivation for all [innovation] activities I do. [...] If you want to sell a product for 500 Euro and you manage to get the person to really want it, even though it is expensive and even though there are basic products for 100 Euro on the market, then I find this challenge to convey this benefit to the customer much more exciting [...]." (Premium innovator 16)</p>
<ul style="list-style-type: none"> Fun and creativity 	Innovators' quest for fun and creativity in their innovation activities.	<p><i>Affordable:</i> "In the affordable market, you almost in a way have more freedom to come up with more creative solutions, more unconventional solutions because you do not have so much existing structure and you can really cut down all the things that you typically would do." (Affordable innovator 06)</p> <p><i>Premium:</i> "Because in the [premium area] where you have more possibilities, creativity comes more into its own. In the low price, you really have to consider, what is my maximum budget, what can I do maximum? There is a lot of creativity required, but more creativity to solve the problems here. In [premium] it is creativity in general." (Premium innovator 16)</p>
<ul style="list-style-type: none"> Self-identification with high quality[†] 	The tendency of innovators to identify with products that have high quality.	<p><i>Premium:</i> "[With premium innovation] you have a certain self-esteem that you are doing something decent, which then really helps the market or the product, because I believe that [affordable] production is usually really designed for mass, for pure efficiency and not perhaps for quality; yes, I mean, you identify yourself in a certain way with the product you are producing. And of course, I prefer to identify myself with a high-quality product than with one that is cheap and designed for the masses." (Premium innovator 23)</p>
<ul style="list-style-type: none"> Prestige[‡] 	Innovators' preference for a particular type of innovation is based on initial feelings and instincts without explicit deliberation.	<p><i>Premium:</i> "You end up with a really cool product, which is of high quality and meets high standards, which is also perceived by others. You can [...] be proud of the fact that you have developed it. [...] If nobody knows what kind of product you are developing, [...] I cannot tell much about it. And therefore, of course, it influences me more to say that I work for a product or a brand that is known, also for the quality it stands for, than to say that I am doing this for a no-name brand." (Premium innovator 29)</p>

Notes: [‡]Only relevant for affordable innovator sample.[†]Only relevant for premium innovator sample.

Construct definitions and proof quotes (continued)

Construct	Definition	Proof quotes
Intuition†	<i>Innovators' preference for one type of innovation is based on initial feelings and instincts without explicit reasoning.</i>	<i>Proof quotes</i>
		<i>Premium:</i> <p>"Yes, because it was a pretty quick decision. So relatively quickly. Simply gut feeling said customers in [the premium segment] are probably a little more pleasant." (Premium innovator 11)</p>
		<i>Contextual factors</i>
Strategic advantage	<i>Innovators' preference for an innovation type based on its benefits to the firm from a strategic perspective.</i>	
• Profit potential	The innovators' tendency to choose the innovation type that is more promising in terms of profit.	<i>Affordable:</i> <p>"I think that you can make more money with the masses [...]. Of course, the profit or yield per product will not be as high as with the [premium] product, but I think that if you produce for the masses, of course you have competition, you have competition everywhere, but for the masses there is the possibility that somebody will buy it." (Affordable innovator 21)</p> <p><i>Premium:</i> "I mean clearly that you can have higher margins in that segment. The key thing is that we intend to make something that is sustainable also financially." (Premium innovator 01)</p> <p><i>Affordable:</i> "You can push a product into the market by the price, I did that once, for two years, very successfully. [...] In order to enter a market, you have to strategically push affordable products for a short time to gain market share." (Premium innovator 17)</p> <p><i>Premium:</i> "We want to be the leading, we are already one of the leading lipodomics providers, but we want to become the leader and for that we need market penetration. [...] This will also open up new segments. That would also be in the area where we say, okay, with this we open up new segments that previously did not have the opportunity to conduct with the specific budget they had a large lipodomics study." (Premium innovator 05)</p> <p><i>Affordable:</i> "You are not going to go where it is going to take you several years to get your product certified. The life span of a startup may not be that long. You have to go where you can move forward. [...] I would probably be more interested to grow into [emerging markets] first rather than trying to wait for the slow regulatory environment to change in the EU and the US. [...] First of all, high-end markets are typically suspicious of Nano for honestly not really any good rationale. Nevertheless, that is the state of the current marketplace." (Affordable innovator 05)</p> <p><i>Premium:</i> "[I prefer premium], because you can allow yourself more mistakes at the beginning. [...] It would probably have been more difficult to start with the cheaper product. There you have so much development effort and you can afford fewer errors. Now the production costs can be relatively high, we do not have to carefully think about every cent you spend. But as soon as you make a cheaper product, the production is very important. It is difficult." (Premium innovator 06)</p>
• Market penetration	The tendency of innovators to choose the type of innovation that opens up new market segments.	
• Less effort	The tendency of innovators to choose the type of innovation that requires less effort to implement.	

Notes: †Only relevant for affordable innovator sample.

‡Only relevant for premium innovator sample.

Construct definitions and proof quotes (continued)

Construct	Definition	Proof quotes
<ul style="list-style-type: none"> Changing consumption patterns* 	The tendency of innovators to choose the type of innovation that better fits changing consumption patterns in the marketplace.	<p><i>Affordable:</i></p> <p>"I have the feeling that awareness currently changes extremely even for such affordable solutions. I think especially through the internet, through social media you become more aware of such ideas and solutions and you can exchange ideas." (Affordable innovator 14)</p>
<ul style="list-style-type: none"> Large customer group* 	Tendency of innovators to choose the innovation type with considerable target group size or the target group with stronger demand.	<p><i>Affordable:</i></p> <p>"The market size for the [affordable innovation] is, I would say, roughly three billion people around the world. Obviously, we are not going to address that market pretty soon. It takes a while to do that, but the addressable market size in developing countries for this lower income group is really large. [...] I think that there is an aspect of design in innovation that often just goes to the top, say 10%. [...] it is really leaving the rest of the middle income and the lower income as this untapped market that it seems like if somebody wants to go try to figure that out, there is a huge opportunity." (Affordable innovator 05)</p>
<ul style="list-style-type: none"> More attractive target group[†] 	The tendency of innovators to choose the type of innovation that appeals to the more attractive target group.	<p><i>Premium:</i></p> <p>"Because I think that if I want to make a product or develop something innovatively, I think that if you had a smaller customer base, you could stay in touch with the customers better and act much more on one level with the customers than if you had a large customer group. [...] you might also have a lot more opportunities to work with the customers to make possible adjustments or to meet the customer needs more than with the big product, so you might be able to intervene in the cycle much better." (Premium innovator 07)</p>
<ul style="list-style-type: none"> Customer focus[‡] 	The tendency of innovators to choose the type of innovation that better fits a previously selected (niche) customer promise.	<p><i>Premium:</i></p> <p>"We produce in Switzerland, we have a Swiss Made and that simply means that we have to deliver high quality in terms of our customers' expectations, which we do, and of course that also means that of all the parameters that are relevant to quality, because production in Switzerland is not only relevant to quality, but also to ecology, for example, because production in Switzerland means that we do things that others do not do because they cost money. [...] These are all cost factors that are important for us [...] in the sense that we want to comply with them. Because they are relevant for this Swiss Made." (Premium innovator 28)</p>
Firm fit	<i>The tendency of innovators to choose the type of innovation that better fits current company characteristics.</i>	
<ul style="list-style-type: none"> Firm capabilities 	The tendency of innovators to choose the type of innovation that better fits the company's resources and structures.	<p><i>Affordable:</i></p> <p>"[...] these cheap things fit into our company structure, we really do more quantity, also good quality, but we just go more over the mass of products to have machine utilization and it is worthwhile to make the cheaper products the mass products instead of individual products, which bring a lot of money, but would be difficult to integrate into the production processes as it is. Affordable innovator 24</p> <p><i>Premium:</i></p> <p>"I believe that we are in the premium segment because we put our focus on the direct sales channel and that is how our company is structured that you cater to the local desires of the customers in the markets. It is then very locally adapted to the customer. [...] Basically, this is mainly due to the sales channel that we have chosen, that is direct sales and because of direct sales it is that you have to invest a lot in it, that the sales people go to the customers and invest their time and try to sell the product." (Premium innovator 29)</p>

Notes: *Only relevant for affordable innovator sample.

[†]Only relevant for premium innovator sample.

Construct definitions and proof quotes (continued)

Construct	Definition	Proof quotes
<ul style="list-style-type: none"> Brand fit 	<p>The tendency of innovators to choose the type of innovation that better fits the company's current brand image.</p>	<p><i>Affordable:</i> "So, [firm name] is an Eastern brand [...] And in East Germany it was just another product segment. People just did not have the money." (Affordable innovator 26)</p> <p><i>Premium:</i> "If we were to suddenly start bringing low-priced products onto the market, it just does not fit the image. Then people would probably ask themselves, ok, why is it so cheap and that is why I would say, [premium] fits the image better than if we suddenly put very cheap [...] products on the market." (Premium innovator 26)</p>
Market power	<p><i>The tendency of innovators to choose the type of innovation that better fits the company's current brand image.</i></p>	<p><i>Affordable:</i> "Well, competition is always a very elementary factor, logically. I have made many decisions in my life for affordable pricing strategies, not because the product did not have to go somewhere else, but because the competition was just so strong, you had to position yourself 5 or 10 cents below the competition, because the customers notice that." (Premium innovator 22)</p> <p><i>Premium:</i> "Of course, you also look at how the competition is developing, what new features they bring, what new products they bring, which could pose a threat to you. Out of the competition there is of course a certain pressure, that you come up with an innovation or something new, with which you can still use your market advantage and say, ok, we as the brand bring this feature first, a lower-priced product does not think of that, or a lower-priced company. So, you try to bring the premium features, which low priced products do not have." (Premium innovator 29)</p>
<ul style="list-style-type: none"> Imitation[†] 	<p>Tendency of innovators to choose the type of innovation that lasts longer on the market and is harder for competitors to imitate.</p>	<p><i>Premium:</i> "Because it offers an innovative advantage and ultimately also appeals to customers in the long term. An affordable product, I would say, can be replaced very quickly and then also has a short half-life. This means that if you then go over time, you would certainly have to come up with an alternative affordable product in order to present something new again, otherwise you might be successful in the short and medium term, but in the long term there is no guarantee." (Premium innovator 20)</p>
<ul style="list-style-type: none"> Market maturity 	<p>The tendency of innovators to choose a type of innovation based on the current stage of development of the market.</p>	<p><i>Affordable:</i> "In the long term, when this hopefully becomes established, and people realise: 'Hey, okay, it does not just depend on the organic label, but what is in the soil is in my apple afterwards and I eat that and it is in my body.' [...] Then a certain value is probably attributed to the soil. And then the control of that quality will also become more valuable. But today, awareness is not high enough yet that you could say: 'Hey, today we can charge extremely high prices for it.' So that is probably a process that could take several years, maybe decades [...]. Several years will be needed before we can set relatively high prices." (Affordable innovator 09)</p> <p><i>Premium:</i> "I think that is the right step that you go from a higher-priced market to a lower-priced market. This is a win-win situation, because you have already made the technology, you should use it wherever you can. So, for climbing the stairs, we now have very intelligent algorithms that recognise the stairs, and make the transitions automatically. Once that is programmed, you could also transport boxes or grandma's bags to the top. You can just copy that." (Premium innovator 06)</p>

Notes: *Only relevant for affordable innovator sample.

†Only relevant for premium innovator sample.

Construct definitions and proof quotes (continued)

Construct	Definition	Proof quotes
Societal value	<i>Innovators' preference for the type of innovation that creates social or environmental benefits.</i>	
• Sustainability	Innovators' propensity to seek positive environmental impact.	<p><i>Affordable:</i> "The main problem is, we have industrial agriculture that is destroying our soil. [...] And there are some very dark predictions that say: 'Yes, at some point we are going to run out of food because all the soil is broken'. And already today not only the soil, but the insects die, and the water gets polluted, and so on. The main cause is agriculture. And our goal now is, firstly, to scientifically analyze the soils and thereby give the farmers information that to some extent they do not yet have today." (Affordable innovator 09)</p> <p><i>Premium:</i> "Actually, one threat that I see here of affordable innovation is actually the priority to sustainability given because if you would unleash cheap products that do the same, but in the end the footprint of this or this is not so hugely different. And that is one of the reasons why you see it cautiously. If you take Tata Nano car, driven by one man, that is a threat." (Premium innovator 01)</p> <p><i>Affordable:</i> "It is said that with these 150 million [people], it generates costs of an economic nature - I do not know the number now, there are billions. [...] Which in themselves make up the annual development costs that the affluent society generates. If you now imagine, if I now give each of these 150 million a pair of glasses, what does that mean? We would then be able to achieve more in the economy. Children learn better. People have a job they like to do, or lose it, because they suddenly cannot see anymore." (Affordable innovator 03)</p> <p><i>Affordable:</i> "And as I said, for me it is important that not only people with a higher income can use innovation, but also those who are hard-working but unfortunately do not have the luck to earn that much." (Affordable innovator 21)</p> <p><i>Premium:</i> "[The premium] is actually the high-priced stuff, that usually invents something new. And then they are copied and made cheaper. So, Dacia will not really bring innovation in automotive engineering, but Mercedes will. [...] For example, when [expensive supermarket] presents its own organic line and makes it acceptable to buy organic meat, even though it costs EUR 3 more, it is not bad, it helps people, it is good for animal welfare and agriculture. And with Aldi, who copies it, but manages to make it cheaper, it will of course help humanity even further, because more people can afford it, but I believe that [premium companies] always have the pioneering role in innovation, which helps people further, simply because they have more money at their disposal." (Premium innovator 12)</p>
• Change market and broad impact*	The tendency of innovators to change the current market and have a broad impact.	
• Help (poor) people*	The tendency of innovators to help (poor) people with their innovation activities.	
• Societal progress [†]	The tendency of innovators to promote societal progress with their innovation activities.	
Path-specific aspects		
• Preference first		<p><i>Affordable:</i> "[When you now have the decision to found again an enterprise, would you go for high-end or would you go for low-end?] Always low-end." (Affordable innovator 18)</p> <p><i>Premium:</i> "[In which company would you prefer to work in and why?] I would not work in a cheap product company." (Premium innovator 16)</p>

Notes: *Only relevant for affordable innovator sample.

[†]Only relevant for premium innovator sample.

Construct definitions and proof quotes (continued)

Construct	Definition	Proof quotes
<ul style="list-style-type: none"> Opportunity first 		<p><i>Affordable:</i> “For me, my focus is to be able to deliver and create impact for as many people as possible. I think the best way is to do low-end. If I can achieve it through high-end then I will go through the high-end. [...] Vietnam has a really low income so there is no way that a very high-end technology can work because people cannot afford it. It just depends on where you are.” (Affordable innovator 06)</p> <p><i>Premium:</i> “This is a Max Planck spin-off. I now have a technology and am looking for an area of application, then I have to look at what the technology offers and then decide. This can go in one direction as well as in the other direction or, as in our case, also in both directions.” (Premium innovator 05)</p>
<ul style="list-style-type: none"> From affordable to premium 		<p>“We spread our risk and bought a premium distribution company. [...] And since they are really big in premium sales, we are also really big now because they belong to the house.” (Affordable innovator 26)</p>
<ul style="list-style-type: none"> From premium to affordable 		<p>“For me, that was really exciting that I was on the cutting edge of developing the actual brain of electronic devices. I realised that I was just essentially a cog in a wheel. I was meaningless in terms of that the impact that I was seeing personally from the work that I was doing. [...] I just realised I just need something better bigger. I just need to feel the impact I did. [...] After that, I wanted to do something a little more impactful and then I thought some of my friends were in development. They were saying we should go volunteers somewhere abroad find yourself and so that set me on that journey of trying to figure out what I wanted to do that was much more impactful to consumers.” (Affordable innovator 08)</p>
<ul style="list-style-type: none"> Other factors when indifferent 		<p><i>Affordable:</i> “What makes the firm special, it is very down to earth, it is solid in its finances. So, I come from a business perspective and find solid, orderly positions important. They have flat hierarchies and then the product was actually irrelevant. So, whether I sell tobacco or alcohol, it could have been a tire company. So I did not go for high or low prices, but for the stability of the company.” (Affordable innovator 26)</p> <p><i>Premium:</i> “I would not care much about that; the level of innovation would be more important to me. You can also be very innovative with a very low-priced product. That can only cost a few cents and it is still extremely innovative. I don't really care. What is important is the level of innovation and that it is relevant in reality, that it solves a problem and I can help with that.” (Premium innovator 04)</p>

Notes: *Only relevant for affordable innovator sample.
 †Only relevant for premium innovator sample.

Notes

- 1 We refer to the actual innovators within an already existing company as decision makers, as they can hold different positions such as researchers, product managers or marketing managers. Decision maker is a general term used here to describe key people with significant influence on innovation development in companies.
- 2 We distributed posters on the university campus and promoted free innovation management workshops on social media. Students had to choose between affordable and premium innovation workshops. After they signed up, we told them the workshop will not happen and instead asked them to give us an interview about their decision. The students received €10 as compensation.
- 3 These questions have not been part of all interviews and are no primary part of the analysis concerning the engagement of the innovators because of the questions' direct nature. The aspects asked here were extracted from previous literature in the context of affordable innovation. We asked these questions after the more open questions.
- 4 No direct part of the analysis.