

From Zero to One: A new perspective on the fuzzy front end of innovation and the Stage-Gate® model

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ABSTRACT

The Stage-Gate® model has historically provided a systematic framework for New Product Development (NPD). However, the evolving landscape of innovation necessitates continuous enhancement. This paper redefines the model's foundational structure by advocating for the recognition of the Discovery Phase as Stage 1, emphasizing its essential role in aligning initial ideation with strategic goals, streamlining processes, and enhancing NPD efforts. Using a mixed-methods approach, including a systematic literature review, synthesis of illustrative examples and secondary data and case study analysis, the research demonstrates that formalizing the Discovery Phase improves early-stage decision-making, enhances alignment between front-end exploration and downstream execution and mitigates risks by supporting more informed project development. Synthesised sectoral examples show that incorporating the Discovery Phase improves feasibility, reduces risk, and boosts efficiency. For example, simulation planning early in innovation process increased manufacturing throughput by 52 %, while early IP checks lowered infringement risk. The proposed revision boosts the Stage-Gate® model's adaptability and integration with modern methodologies such as AI, Agile, Lean Startup, Design Thinking and TRIZ. The findings highlight how this change promotes a comprehensive approach to NPD. The implications extend to practical applications and future research, offering organizations a flexible framework that meets modern market and technological demands.

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Od nič do ena: nov pogled na nejasno začetno fazo inovacij in model Stage-Gate®

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POVZETEK

Model Stage-Gate® je skozi čas predstavljal uveljavljen sistematični pristop k razvoju novih izdelkov (NPD). Kljub temu pa dinamično inovacijsko okolje zahteva njegovo stalno nadgrajevanje in prilagajanje sodobnim zahtevam. Članek na novo opredeljuje temeljno strukturo modela s predlogom, da se faza odkrivanja prepozna kot prva faza, saj ima ključno vlogo pri usklajevanju začetnega snovanja idej s strateškimi cilji ter pri poenotenju in večji učinkovitosti razvojnega procesa novih izdelkov. Z uporabo kombiniranega raziskovalnega pristopa, ki vključuje sistematični pregled literature, sintezo reprezentativnih primerov in sekundarnih podatkov ter analizo študij primerov, raziskava dokazuje, da formalizacija faze odkrivanja izboljša zgodnje odločanje, poveča usklajenost med začetnim raziskovanjem in kasnejšo izvedbo ter zmanjšuje tveganja z omogočanjem bolj informiranega razvoja projektov. Analiza primerov iz različnih industrijskih sektorjev kaže, da vključitev faze odkrivanja povečuje izvedljivost, zmanjšuje tveganje in izboljšuje učinkovitost. Na primer, načrtovanje s pomočjo simulacij v zgodnji fazi inovacijskega procesa je prispevalo k povečanju proizvodne zmogljivosti za 52 %, medtem ko so zgodnji pregledi intelektualne lastnine zmanjšali tveganje kršitev. Predlagana redefinicija povečuje prilagodljivost modela Stage-Gate® in njegovo povezovanje s sodobnimi pristopi, kot so umetna inteligenca, Agile, Lean Startup, Design Thinking in TRIZ. Ugotovitve poudarjajo, da ta sprememba spodbuja celovit pristop k razvoju novih izdelkov. Rezultati raziskave imajo tako praktične kot raziskovalne implikacije, saj organizacijam ponujajo prilagodljiv pristop, ki se odziva na sodobne tržne in tehnološke zahteve.

PODATKI O ČLANKU

Ključne besede:

Model Stage-Gate®;
Nejasna začetna faza inovacij (FFEI);
Razvoj novih izdelkov (NPD);
Vodenje inovacij;
Faza odkrivanja;
Pristop Agile;
TRIZ;
Design Thinking;
Veliki jezikovni model (LLM);
Trajnost

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