UTICAJ STRATEŠKOG OPREDELJENJA NA ODNOS IZMEĐU UPRAVLJANJA INOVACIONIM PORTFOLIOM I USPEHA

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Apstrakt

Savremeno poslovanje u prvi plan ističe značaj intelektualnog vlasništva i znanja kao ključnih faktora koji doprinose postizanju konkurentske prednosti. To iziskuje nove pristupe u menadžmentu i sve više se govori o upravljanju znanjem kao procesom koji će podići efikasnost poslovanja. U ekonomiji baziranoj na znanju, mnoge kompanije kreiraju, stiču i održavaju konkurentsku prednost na turbulentnom tržištu zahvaljujući inovacijama. Upravljanje portfoliom inovacionih projekata predstavlja moćan alat za ostvarivanje inovacione strategije i od izuzetne je važnosti da se postojeća znanja koriste u kompanijama i na osnovu njih stvaraju nova. U radu se testiraju saznanja iz referentnog istraživanja sprovedenog u Nemačkoj 2016. godine, koje analizira uticaj strateškog opredeljenje na vezu između upravljanja inovacionim portfoliom i poslovnog uspeha. Dobijena saznanja iz referentnog istraživanja testirana su kroz upitnik na koji su odgovor davale kompanije iz Republike Srbije da bi se videla njihova primena u poslovnim procesima i poslovnom uspehu.

Ključne reči: *menadžment znanja, strateško opredeljenje, inovacije, upravljanje inovacionim portfoliom.*

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Uvod

Strateški značaj inovacija u savremenom poslovanju, koje se ubrzano menja usled velikih tehnoloških promena, dovodi do neophodnosti upravljanja protokom znanja kroz organizaciju. Upravo se znanje iskristalisalo kao glavna

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determinanta inovativnosti i profitabilnosti jedne organizacije. Efikasno upravljanje portfoliom inovacionih projekata (eng. Innovation Project Portfolio Management-IPPM) treba da obezbedi ostvarivanje ciljeva iz inovacione i poslovne strategije. Donošenje strateških odluka u procesu IPPM kroz postupke ocenjivanja, selekcije i prioritetizacije inovacionih projekata za inovacioni portfolio predstavlja najkritičnije tačke u čitavom procesu čiji se rezultati odražavaju na celokupni poslovni uspeh organizacije. Sve ovo uzrokuje povećanu potrebu za podacima i informacijama i njihov neometan protok kroz čitavu organizaciju kako bi se obezbedila optimalna alokacija raspoloživih resursa i tako maksimizirala dobit.

Početak 21. veka dolazi do povećanog naučnog interesovanja za proces upravljanja inovacijama gde je težište upravo na upravljanju portfoliom inovacionih projekata. Proces IPPM nosi niz specifičnosti u odnosu na upravljanje portfoliom klasičnih projekata zbog same prirode inovacija, koje karakteriše ljudski faktor, pre svega kreativnost, i veliki stepen rizika, ali i dalje koristi niz metoda i alata koji se koriste prilikom upravljanja portfoliom klasičnih projekata (Li et al, 2020; Kock et al., 2020). Dosadašnja istraživanja u menadžmentu su istraživala efikasnost i rezultate primene portfolio metode ali su malobrojna teorijska istraživanja čiji je fokus na upravljanju portfoliom inovacionih projekata. Trenutno ne postoji i nije definisan optimalan miks metoda i tehnika koje se koriste prilikom donošenja odluka u procesu IPPM već se na osnovu dosadašnjih istraživanja samo uočavaju trendovi u IPPM. Teorijska pozadina metoda IPPM je još uvek velika nepoznanica i potrebna su nova istraživanja kako bi se definisala jasna veza između efikasnog upravljanja inovacionim portfoliom i poslovnog uspeha (Martinsuo & Gerald, 2020; Globocnik et al, 2020). Inovaciona strategija je postala bitan segment poslovne strategije i teško je naći organizaciju koja u doba četvrte industrijske revolucije nema strateško opredeljenje koje potencira inovativnost. Takvo strateško opredeljenje nosi u sebi veliki faktor rizika ali i mogućnosti kreiranja konkurentne prednosti i maksimizacije dobiti (Mićović & Miletić, 2019). Iako su ove dve činjenice opšte poznate u savremenom poslovanju jasna veza između njih nije definisana i potrebno je stvaranje nedostajućeg znanja koje bi se primenilo u organizacijama.

Cilj rada i korišćena metodologija

Cilj ovog rada je da testira znanje dobijeno iz jednog od retkih istraživanja na temu uticaja strateškog opredeljenja organizacije na vezu između procesa IPPM i poslovnog uspeha, koje su 2016. godine Kock i Gemunden izvršili u Nemačkoj i objavili rezultate istraživanja na *R&D Management* konferenciji u Kembridžu, Velika Britanija. Nacrtom istraživanja je predviđeno da se u Srbiji

na primeru kompanija iz registara Fonda za inovacionu delatnost sprovede istraživanje na osnovu istog upitnika koji su koristili autori istraživanja u Nemačkoj i analiziraju dobijeni rezultati na osnovu saznanja iz hipoteza do kojih su došli autori istraživanja u Nemačkoj. U rezultate istraživanja su ušli odgovori 130 kompanija koje su popunile upitnik koji je imao 14 pitanja, grupisanih u četiri oblasti: implementacija strategije (4 pitanja), balans portfolija (3 pitanja), prosečan uspeh završenih inovacionih projekata (4 pitanja) i sinergetska eksploatacija (3 pitanja). Pored 14 pitanja koja su korišćena za analizu uspeha inovacionog portfolija u upitniku je bilo i 5 pitanja koja treba da daju karakteristike uzorka kao što su: broj zaposlenih, visina prihoda u 2019. godini, iznos budžeta za inovacioni portfolio (u evrima), sektor delatnosti i pozicija (nivo) u kompaniji. Anketirani su svoje odgovore iskazivali u upitniku putem 7-stepene Likertove skale, koja se kretala u rasponu od 1-apsolutno se slažem do 7-apsolutno se ne slažem, kakva je korišćena i u referentnom istraživanju.

Iako je postojeća naučna praznina u istraživanju veza između efikasnog IPPM i poslovnog uspeha još uvek velika u celom svetu, ovo istraživanje ima za cilj da testira dosadašnja skromna saznanja na primeru kompanija iz Srbije, društva koje je još uvek daleko od četvrte industrijske revolucije ali pravi pionirske korake na polju inovacione delatnosti i jasno ističe svoju stratešku orijentaciju ka inovacijama i znanju u svojim strategijskim dokumentima. Dobijena saznanja iz istraživanja mogu pomoću u kreiranju metode IPPM koja bi jasno definisala vezu između efikasnog upravljanja inovacionim portfoliom i poslovnog uspeha, a istovremeno i omogućila opštedruštvenu dobit svim organizacijama koje su u rešavanju svojih problema jasno orijentisane na inovacije i kreativnost.

Teorijske osnove

Kraj drugog milenijuma i početak trećeg obeležen je savremenim trendovima u menadžmentu, a pre svega velikim tehnološkim promenama i globalizacijom, koji menjaju samu formu poslovanja kompanija. Krajem 20. veka osnovni resersi u ekonomiji više nisu kapital, prirodni resursi ni radna snaga već to postaje znanje (Drucker, 1994). Gubitak primata tradicionalnih faktora proizvodnje u korist ljudskog kapitala, intelektualne svojine i znanja uopšte, doveo je do promena i razvoja novih koncepata menadžmenta. Menadžment znanja (eng. Knowledge management) predstavlja interdisciplinarni pristup, koji u sebi uključuje pre svega biznis, ekonomiju, psihologiju, menadžment ljudskih resursa, menadžment informacionim sistemima i mođe druge naučne discipline, a u svom fokusu ima najvredniji resurs organizacije a to je znanje. Menadžment znanja najkraće rečeno ima

ulogu da osigura da ljudi imaju znanje koje im je potrebno, tamo gde im je potrebno i u trenutku kada im je potrebno, tj. pravo znanje, na pravom mestu i u pravo vreme(Djordjević-Boljanović, 2009).

Koncept menadžmenta znanja ima zadatak da obezbedi kolektivno znanje zaposlenih kako bi oni mogli ostvariti poslovne ciljeve organizacije. On mora da pored postojećeg znanja u organizaciji obezbedi i neophodno i dostupno znanje iz spoljašnjih izvora, koje bi se ugradilo u poslovne procese organizacije. To znanje mora biti dostupno svim zaposlenima u organizaciji, u dokumentima i bazama podataka, i promovisano kroz afirmativnu organizacionu kulturu kako bi se prenosilo i koristilo kroz čitavu organizaciju(Mihajlović i dr., 2020; Vukša i dr., 2020). Koncept menadžmenta znanja mora da obezbedi i analitičku dimenziju primene znanja u organizaciji i njegove pozitivne i negativne aspekte primene kako bi se nastavio proces stvaranja i primene novih, neophodnih znanja. U literaturi postoji veliki broj definicija menadžmenta znanja i u najširem pristupu tom konceptu većina autora ističe jedinstvo tri komponente: ljudi, procesa i tehnologije(Anđelić i Majstorović, 2016; Majstorović i dr, 2020). Ljudi predstavljaju najbitniju komponentu u konceptu menadžmenta znanja ali moraju biti podržani savremenim tehnologijama u jednom dinamičnom procesu koji iziskuje savremeno poslovanje. Taj dinamičan proces kroz koji organizacija upravlja znanjem, i prolazi kroz niz faza, formirajući pri tom životni ciklus menadžmenta znanja. Proces menadžmenta znanja obuhvata pet faza (Sydanmaanlakku, 2002):

- 1) Stvaranje znanja, faza koja se dešava u organizaciji kod zaposlenih i to pre svega kroz formu organizacionog učenja.
- 2) Osvajanje znanja, kritična faza u procesu menadžmenta znanja u kojoj je najteže obezbediti da zaposleni osvoje prećutno znanje, koje je skoncentrisano pre svega kod eksperata u organizaciji.
- 3) Čuvanje znanja, faza u kojoj se osvojena znanja strukturiraju, kako u formi dokumenata tako i u bazama podataka koje čine korporativnu memoriju, i konstantno ažuriraju, jer se savremeno poslovanje odvija na turbulentnom tržištu.
- 4) Podela znanja sa drugim, faza koja ima za cilj da se znanje lako deli kroz organizaciju svim zaposlenima, koristeći kako formalne tako i neformalne metode, tj. preko elektronskih mreža ali i raznim vidovima socijalnog komuniciranja.
- 5) Primena znanja, predstavlja fazu koja predstavlja suštinu uspešnog programa menadžmenta znanja. Znanje koje je organizacija stvorila, osvojila, sačuvala i podelila nema efekta ako se ne primeni na rešavanju

poslovnih problema i omogućiti ostvarenje poslovne strategije.

Primena koncepta menadžmenta znanja u organizaciji se odvija kao dinamičan i složen proces koji prolazi kroz više kritičnih tačaka u svom životnom ciklusu gde imamo jedinstvo tri glavne komponente: ljudi, procesa i tehnologija. Kako bi se postigli najbolji rezultati navode četiri glavne oblasti na koje bi trebalo dati akcenat pri uspostavljanju sistema menadžmenta znanja su: organizaciona kultura, procena znanja, obrada znanja i implementacija znanja(Award, Ghaziri, 2004).

Slika 1. Životni ciklus procesa menadžmenta znanja i organizacija

Izvor: Djordjević-Boljanović, 2009;

U situaciji kada tržišta postaju sve kompetitivnija sa rastućim trendom inovacija, gde većina poslova zavisi od znanja a proizvodi i usluge su sve kompleksniji, a sa druge strane radna snaga postaje sve malobrojnija i mobilnija, sa sve kraćim vremenom za usvajanje znanja, upravljanje znanjem postaje glavno oružje za pobjedu u toj neizvesnoj tržišnoj utakmici. Znanje postaje faktor koji deli kompanije na uspešne i neuspešne (Jovanović, 2009).

Upravljanje inovacionim portfoliom predstavlja profesionalni pristup inovacijama koji treba da dovede do optimizacije inovacija(Miletić, 2019).Menadžment portfolija inovacionih projekata (IPPM) je dinamičan proces donošenja odluka u kome se lista aktivnih projekata stalno ažurira i revidira(Cooper, Edgett i Kleinschmidt, 2002). U ovom dinamičnom procesu vrši se ocenjivanje, selekcija i prioritizacija novih projekata, dok postojeći projekti mogu biti ukinuti, stopirani, ubrzani ili im se pak smanjuje prioritet. Upravljanje inovacijama predstavlja veliki izazov za kompanije jer preuzimaju veliki rizik odabirom projekata za inovacioni portfolio i alokacijom resursa koji su ograničeni, a poslovno okruženje je pri tome turbulentno i veoma neizvesno. Upravljanje inovacionim portfoliom postaje ključna tema u upravljanju inovacijama(Meifort, 2015). IPPM ima za cilj optimalan i izbalansiran broj projekata u inovacionom portfoliju koji bi maksimizirali profit. Takav složen i dinamičan proces iziskuje usklađenost između

inovacione i poslovne strategije i njihovo sinergetsko dejstvo, jer se donose strateške odluke prilikom odabira inovacionih projekata za portfolio i njihovu prioritetizaciji . Strateški značaj portfolio menadžmenta u procesu IPPM je u sposobnosti evaluacije inovacionih projekata i selekcije budućih inovativnih „proizvoda pobednika“ (Stošić, 2013).

Kao osnovni ciljeve procesa IPPM identifikovani su: maksimiziranje dobiti, postizanje balansa portfolija, usaglašenost sa poslovnom strategijom i pravi broj projekata (Ulrich, 2014). Realizacija ovih ciljeva IPPM donosi optimizaciju inovacionog portfolija i izvrsnost u inovacijama. Uprkos svemu navedenom još uvek nemali broj kompanija ne pridaje adekvatan značaj procesu IPPM i ne primenjuje sistemski pristup u upravljanju inovacijama.

Slika 2. Proces IPPM

Pro

ces IPPM nosi niz specifičnosti u odnosu na upravljanje portfolijom klasičnih projekata, zbog same prirode inovacija, pa se ne sme kreirati strogo formalizovan okvir za upravljanje inovacionim portfoliom. Prevelika formalizacija procesa IPPM u znatnoj meri smanjuje fleksibilnost kompanija i mogućnost prilagođavanja promenama koje su pak česte kod inovacija. Sa druge strane, donošenje strateški bitnih odluka u procesu IPPM ne sme biti stihijsko i intuitivno. Proces IPPM iziskuje upotrebu miksa alata i tehnika koji bi pružili podršku u odlučivanju. Univerzalan miks alata i tehnika koji bio dao optimalne rezultate u procesu IPPM još uvek nije definisan, i u velikoj meri zavisi od specifičnosti poslovanja kompanija, koje se bitno razlikuju kako u strateškim ciljevima svog poslovanja, tako i u resursima kojima raspolažu. U kreiranje efikasnog okvira za process IPPM potrebno je uključiti i iskoristiti

postojeća znanja, ali i istovremeno njihovom primenom stvarati nova znanja kako bi se razvila metoda IPPM koja bi omogućila ostvarenje ciljeva i njihov pun efekat. Znanje koje je potrebno organizaciji predstavlja subjektivni faktor, tako da svaka organizacija, u zavisnosti od specifičnosti svog poslovanja, daje definiciju tog znanja koje je za nju relevantno. Zbog svega navedenog organizacije moraju kreirati okvir za uspešnu primenu menadžmenta znanja, koji će joj omogućiti stvaranje dodatne vrednosti i konkurentsku prednost na tržištu.

Ključne faktore koji utiču na uspešnost programa menadžmenta znanja su: korporativnu kulturu, menadžment ljudskih resursa, liderstvo, informacione tehnologije i kontrolu (Mertins, Heisig i Vorbeck, 2001).

Većina autora je saglasna oko prva četiri faktora, dok o kontroli kao faktoru koji ima uticaj na uspešnost programa menadžmenta znanja govori manji broj autora. Iako su informacione tehnologije, posebno značajne imajući u vidu drastične tehnološke napredke, veoma bitan faktor programa menadžmenta znanja, potrebno je posebnu pažnju obratiti na korporativnu kulturu, koja u svakoj organizaciji ima važnu ulogu u primeni bilo koje promene i inovacije. Zadatak korporativne kulture je da stvori takav „mentalni sklop“, tj. radnu atmosferu koja će prihvatiti program menadžmenta znanja, tj. kulturu orijentisanu ka stvaranju i deljenju znanja. Bez takve kulture ljudski resursi u organizaciji ne mogu iskoristiti pun efekat tehnološkog napretka i rastući značaj informacionih tehnologija. Informacione tehnologije imaju ulogu da obezbede infrastrukturu koja će podržati ključne aktivnosti čuvanja i distribucije znanja u programu menadžmenta znanja. Obezbeđujući skladištenje i čuvanje znanja koje je potrebno kompanijama za normalan rad one omogućavaju istovremeno i analizu mase podataka koje doprinose stvaranju i širenju novog znanja.

Rezultati rada sa diskusijom

Kao referentno istraživanje uzeto je istraživanje koje su 2016. godine Kock i Gemunden izvršili u Nemačkoj na temu uticaja strateškog opredeljenje organizacije na vezu između procesa IPPM i poslovnog uspeha. Rezultati istraživanja su objavljeni u radu na *R&D Management* konferenciji u Kembridžu, Velika Britanija (Kock, Gemunden, 2016). Autori istraživanja se već duži niz godina bave izučavanjem problematike IPPM i primećuju da ima svega nekoliko istraživanja koja proučavaju šta doprinosi uspehu IPPM i koje to organizacione poluge utiču na uspeh. Jedan od nedovoljno istraženih faktora je strateška orijentacija firme, iako sva dosadašnja istraživanja govore da je IPPM važno sredstvo za ostvarenje inovacione i poslovne strategije. Ovde

ukazuju da još uvek nema naučnih saznanja kako različite strateške orijentacije utiču na IPPM i njegove performanse, kao i celokupni poslovni uspeh. U svojoj studiji ističu koncept preduzetničke orijentacije (eng. EO-entrepreneurial orientation) kao posebno važan faktor strateške orijentacije, zbog svoje izuzetno naglašene inovativnosti i visokog preuzimanja rizika, i istražuju njegov uticaj na odnos između IPPM i poslovnog uspeha.

Slika 3. Okvir referentnog istraživanja

Izvor: Kock, Gemunden, 2016;

Autori ovde postavljaju istraživačko pitanje: kako se IPPM aktivnosti razlikuju u njihovim performansama u zavisnosti od preduzetničke orijentacije kompanija? i postavljaju sledeće hipoteze:

- Hipoteza 1: Veza između uspeha portfolija i uključenosti stejkholdera je jača kod kompanija koje imaju preduzetničku orijentaciju koja je visoko orijentisana ka inovativnosti i veoma sklona ka preuzimanju rizika.
- Hipoteza 2: Veza između uspeha portfolija i strateške jasnoće je jača kod kompanija koje imaju preduzetničku orijentaciju koja je visoko orijentisana ka inovativnosti i veoma sklona ka preuzimanju rizika.
- Hipoteza 3: Veza između uspeha portfolija i praćenja poslovnih slučajeva je jača kod kompanija koje imaju preduzetničku orijentaciju koja je visoko orijentisana ka inovativnosti i veoma sklona ka preuzimanju rizika.
- Hipoteza 4: Veza između uspeha portfolija i sposobnosti odziva je jača kod kompanija koje imaju preduzetničku orijentaciju koja je visoko

orijentisana ka inovativnosti i veoma sklona ka preuzimanju rizika.

Istraživanje je izvršena kroz upitnik koji je poslat 286 firmi u Nemačkoj, a u analizu je ušlo 257 kompanija koje su dale potpune odgovore odgovore koristeći 7-stepenu Likertovu skalu. Firme su pored podataka vezanih za merenje uspeha inovacionog portfolija dale i podatke vezana za: sector, broj zaposlenih, visinu prihoda i vrednost budzeta inovacionog portfolija. Sam uspeh inovacionog portfolija je meren kroz više dimenzija:

1. Implementacija strategije (4 pitanja):

- Inovacioni portfolio je dosledno usklađen sa projektovanom budućnošću kompanije.
- Korporativna strategija se idealno implementira kroz naš inovacioni portfolio.
- Alokacija resursa za inovacione projekte odražava naše strateške ciljeve.
- Primena strategije se smatra velikim uspehom u organizaciji.

2. Balans portfolija (3 pitanja):

- Postoji dobar balans u našem inovacionom portfoliju između starih i novih područja primene.
- Postoji dobar balans u našem inovacionom portfoliju između starih i novih tehnologija.
- Postoji dobar balans u našem inovacionom portfoliju u smislu projektnog rizika.

3. Prosečan uspeh završenih inovacionih projekata (4 pitanja):

- Naši inovacioni projekti postižu ciljane troškove definisane u projektu.
- Naši inovacioni projekti postižu planirane tržišne ciljeve.
- Naši inovacioni projekti postižu planirane ciljeve profitabilnosti.
- Naši inovacioni projekti postižu planirani period amortizacije.

4. Sinergetska eksploatacija (3 pitanja):

- Tokom realizacije inovacionih projekata sinergija razvoja između projekata rigorozno se iskorišćava.
- Nakon realizacije inovacionih projekata sinergija eksploatacije između projekata rigorozno se iskorišćava.
- Jedva da postoji udvostručen rad ili višak razvoja.

Rezultati do kojih su autori došli u svom istraživanju pokazuju da su menadžerske prakse koje se primenjuju u procesu IPPM (učesće stejkholdera, strateška jasnoća, praćenje poslovnih slučajeva i sposobnost odziva) direktno povezane sa uspehom inovacionog portfolija. To potvrđuje neka saznanja da je strateška orijentacija kompanije važna za poslovni uspeh, tj. inovativnost kao faktor preduzetničke orijentacije je direktno povezan sa uspehom inovacionog

portfolija, što se za faktor preuzimanja rizika ne može reći. Obe komponente preduzetničke orijentacije imaju pozitivne uticaje na tri od četiri slučajeve iz procesa IPPM, što nam donosi saznanje da povećavaju efikasnost struktuiranja portfolija i upravljačke procese u inovacionom portfoliju. Kod prakse praćenja poslovnih slučajeva uticaji su značajno negativni za nizak nivo inovativnosti i sklonosti ka preuzimanju rizika, dok kod visokog nivoa inovativnosti i spremnosti za preuzimanje rizika uticaji postaju značajno pozitivni. Zbog toga se faktor preduzetničke orijentacije, sklonosti ka preuzimanju rizika, ne sme zanemariti iako nema značajnijeg efekta. Interesantno je napomenuti da spremnost na preuzimanje rizika pozitivno utiče na stratešku jasnoću. Donošenje strateški bitnih odluka u procesu IPPM nosi veći rizik pa menadžeri moraju verovati u njihovu stratešku opravdanost.

Rezultati istraživanja potvrđuju postavljene hipoteze i da strateška orijentacija kompanija, u ovom slučaju preduzetnička orijentacija, ima uticaja u performansama procesa IPPM što se odražava na celokupan poslovni uspeh. Ovo je jedna od prvih studija, ako ne i prva, koja istražuje uticaj strateškog opredeljenja kao nepredviđenog faktora na performanse IPPM i poslovnog uspeha. Njena saznanja mogu pomoći kompanijama da bolje primene svoju strategiju i ostvare konkurentsku prednost. Iako je jedan od najvažnijih ciljeva procesa IPPM upravo usaglašavanje strategije ovo istraživanje pokazuje da za kompanije sa izrazitom preduzetničkom orijentacijom uticaj strateškog opredeljenja na poslovni uspeh ima rastući značaj, dok kod onih kompanija koje su ostale dosledne konzervativnoj strategiji, bez spremnosti na preuzimanje rizika i orijentacije ka inovativnosti, nema relevantan značaj.

Na osnovu referentnog istraživanja u prvoj polovini 2020. godine izvršeno je istraživanje u Srbiji koje je imalo za cilj da utvrdi kako strateška orijentacija kompanija utiče na performanse procesa IPPM i poslovni uspeh. U rezultate istraživanja su ušli odgovori 130 kompanija koje su popunile upitnik koji je imao 14 pitanja, grupisanih u četiri oblasti: implementacija strategije (4 pitanja), balans portfolija (3 pitanja), prosečan uspeh završenih inovacionih projekata (4 pitanja) i sinergetska eksploatacija (3 pitanja). Pored 14 pitanja koja su korišćena za analizu uspeha inovacionog portfolija u upitniku je bilo i 5 pitanja koja treba da daju karakteristike uzorka kao što su: broj zaposlenih, visina prihoda u 2019. godini, iznos budžeta za inovacioni portfolio (u evrima), sektor delatnosti i pozicija (nivo) u kompaniji. Anketirani su svoje odgovore iskazivali u upitniku putem 7-stepene Likertove skale, koja se kretala u rasponu od 1-apsolutno se slažem do 7-apsolutno se ne slažem, kakva je korišćena i u referentnom istraživanju. Istraživanje je sprovedeno u malim i srednjim preduzećima za razliku od referentnog istraživanje u Nemačkoj koje

je sprovedeno na srednjim i velikim kompanijama, što se vidi i iz same strukture uzorka kada se uporede broj zaposlenih, visina prihoda i iznos budžeta za inovacioni portfolio.

Tabela 1. Struktura uzorka

Broj zaposlenih		Sektor delatnosti	
1-10	15,4%	IT/Elektro industrija	53,8%
11-50	23,1%	Sektor energetike	23,1%
51-250	38,5%	Finansijski sektor	7,7%
250-	23,1%	Farmacija/hemijska industrija	7,7%
		drugo	7,7%
Visina prihoda u 2019. g. (EUR)		Pozicija (nivo) u kompaniji	
1-100.000	38,5%	Viši nivo	23,1%
100.000-2.500.000	23,1%	Srednji nivo	38,5%
2.500.000-10.000.000	15,4%	Početni nivo	38,5%
10.000.000-	23,1%		
Iznos budžeta za inovacioni portfolio (EUR)			
1-100.000	53,8%	1.000.000-5.000.000	15,4%
100.000-1.000.000	15,4%	5.000.000-	15,4%

U referentnom istraživanju uspeh inovacionog portfolija je meren kroz više dimenzija, koje su definisane na osnovu postojeće literature o procesu IPPM i podeljene na četiri oblasti: implementacija strategije, balans portfolija, prosečan uspeh završenih inovacionih projekata i sinergetska eksploatacija. Ta konstrukcija za istraživanje uspeha inovacionog portfolija je validirana putem CFA (eng. Confirmatory factor analysis) koja je potvrdila izabrani model merenja, što se vidi iz pokazatelja gde Cronbach'α (u daljem tekstu α) za stavku imlementacije strategije iznosi 0,88, za balans portfolija α= 0,86, za prosečan uspeh završenih inovacionih projekata α=0,82 i za sinergetsku eksploataciju α=0,77. Kod istraživanja izvršenog u Srbiji ovde nailazimo na odstupanja, pogotovo za stavke balans inovacionog portfolija, prosečan uspeh završenih inovacionih projekata i sinergetsku eksploataciju, dok je situacija sa stavkom implementacija strategije približna kao kod referentnog istraživanja.

Kako bi se testirala dobijena saznanja iz referentnog istraživanja korišćena je ista konstrukcija istraživanja i upitnik sa istim pitanjima ali je razlika u uzorku očigledna, gledajući celokupnu njegovu strukturu. Razlike u rezultatima, utvrđene prilikom validacije konstrukcije istraživanja, mogu se objasniti i sledećim činjenicama:

- Kod referentnog istraživanja 74% kompanija ima budzet inovacionog portfolija veći od 10.000.000 EUR a u istraživanju sprovedenom u Srbiji čak 85% kompanija ima budzet inovacionog portfolija manji od 5.000.000 EUR,
- Kod referentnog istraživanja 63% kompanija ima više od 500 zaposlenih a u istraživanju sprovedenom u Srbiji čak 77% kompanija ima manje od 250 zaposlenih,
- Kod referentnog istraživanja 76% kompanija ima prihod u protekloj godini veći od 100.000.000 EUR a u istraživanju sprovedenom u Srbiji čak 77% kompanija ima prihod u protekloj godini manji od 10.000.000 EUR,
- Struktura uzorka u zavisnosti od sektora delatnosti je takođe različita zbog različitosti privrede u Nemačkoj i Srbiji.

Kod stavke implementacije strategije rezultati pokazuju da je inovacioni portfolio dosledno usklađen sa projektovanom budućnošću kompanije kod 69% kompanija i da se korporativna strategija idealno implementira kroz inovacioni portfolio kod 62% kompanija. Alokacija resursa za inovacione projekte u 54% kompanija odražava strateške ciljeve a primena strategije se smatra velikim uspehom u organizaciji kod 54% kompanija.

Balans portfolija u inovacionom portfoliju između starih i novih područja primene je dobar kod 46% kompanija, a između starih i novih tehnologija je dobar odnos kod 46%. Po pitanju projektnog rizika postoji dobar balans u inovacionom portfoliju kod 54% kompanija.

Kod stavke prosečan uspeh završenih inovacionih projekata rezultati istraživanja pokazuju da inovacioni projekti postižu ciljne troškove definisane u projektu tek kod 39% kompanija, ali zato postižu planirane tržišne ciljeve kod 46% kompanija, planirane ciljeve profitabilnosti kod 62% kompanija i planirani period amortizacije kod 54% kompanija.

Analiza uticaja sinergetske eksploatacije na uspeh inovacionog portfolija pokazuje da tek kod 39% kompanija jedva da postoji udvostručen rad ili višak razvoja, kod 38% kompanija nakon realizacije inovacionih projekata sinergija eksploatacije između projekata rigorozno se iskorišćava, a kod 54% kompanija tokom realizacije inovacionih projekata sinergija razvoja između projekata rigorozno se iskorišćava.

Rezultati istraživanja sprovedenog u Srbiji pokazuju da kod menadžera i njihove prakse postoje saznanja da je strateška orijentacija kompanije važna za poslovni uspeh, i da faktori inovativnosti i rizika koje su autori referentnog istraživanja uzeli kao ključne za odrednicu preduzetnička orijentacija, imaju uticaj na uspeh inovacionog portfolija i celokupni poslovni uspeh. Ovo je jedno od prvih, ako ne i prvo istraživanje u Srbiji na temu uticaja strateške orijentacije na performanse procesa IPPM i uopšte na celokupan poslovni uspeh. Njegovi rezultati pokazuju da

i kompanije u Srbiji postaju svesne rastućeg značaja inovacija i znanja uopšte i potrebe za jednim sistemskim okvirom za primenu tih znanja. Istovremeno, njegovi rezultati ukazuje na trenutne nedostatke za uspešnu primenu trenutno postojećih znanja iz oblasti IPPM i neophodnost daljih istraživanja na ovu temu koja bi pratila globalne trendove iz upravljanja inovacijama. Ta nova istraživanja i saznanja su od ključne važnosti kako bi kompanije mogle bolje da primene svoju strategiju i ostvare konkurentsku prednost zahvaljujući inovacijama i znanju.

Zaključak

Uprkos činjenici da je usaglašavanje strategije jedan od glavnih ciljeva procesa IPPM, kojim se teži ka usaglašenosti inovacionog portfolija sa poslovnom strategijom, kako bi odluke o alokaciji ograničenih resursa i dodeljivanju strateških prioriteta bile strateški usklađene, nije bilo istraživanja koje bi analiziralo uticaj strateškog opredeljenja kompanija, kao nepredviđenog faktora, na performanse IPPM i celokupni poslovni uspeh. Dosadašnja istraživanja su ukazivala da još uvek značajan broj kompanija relativno zanemaruje značaj IPPM kao složenog i dinamičnog procesa koji treba da dovede do optimizacije inovacionog portfolija i izvrsnosti u inovacijama. Autori referentnog istraživanja ističu značaj strateškog opredeljenja kompanija, tj. preduzetničke orijentacije, koju karakterišu inovativnost i spremnost na preuzimanje rizika, za proces IPPM i njegove performanse koje se odražavaju na celokupan poslovni uspeh. Rezultati njihovog istraživanja dokazuju postavljene hipoteze i ukazuju da je preduzetnička orijentacija sa naglašenom inovativnošću i sklonosti ka preuzimanju rizika u procesu IPPM direktno povezana sa uspehom inovacionog portfolija.

Ova saznanja doprinose razvoju metodologije procesa IPPM i stvaranju jednog efikasnog okvira za sistematski pristup ovom složenom i dinamičnom procesu. Postojanje takvog okvira i metode procesa IPPM je neophodno kako bi se IPPM usaglasio sa specifičnostima svake kompanije i njenim poslovanjem. Iako metod IPPM i okvir za njegovu efikasnu primenu nisu još jasno definisani, dobijena saznanja mogu pomoći kompanijama da bolje primene svoju strategiju i ostvare konkurentsku prednost. Rezultati njihovog istraživanja upravo ukazuju da su efekti strateškog opredeljenja na poslovni uspeh relevantniji kod kompanija koje su inovativno orijentisane nego kod onih koje su zadržale tradicionalnu, konzervativniju, orijentaciju.

Rezultati istraživanja u Srbiji pokazuju da je većina kompanija svesna značaja implementacije strategije i da moraju imati strateško opredeljenje koje je orijentisano ka inovacijama i spremno na preuzimanje rizika. Istovremeno i ukazuju da je još uvek velik broj kompanija koja ne uviđaju značaj strateške orijentacije, te je stoga potrebno kreirati okvir za primenu znanja do kojih su došli autori

referentnog istraživanja u Nemačkoj a ona nisu uopšte ili u neophodnoj meri ugrađena u menadžerske prakse u Srbiji. Upravo tu je ključna uloga programa menadžmenta znanja, koji treba da omogući stvaranja neophodnih znanja, uz pomoć dostupnih novijih istraživanja vezanih za proces IPPM, i njihovu ugradnju u postojeća znanja domaćih kompanija, obezbeđenje njihovog čuvanja i nesmetanog deljenja kako bi se efikasno primenila. Za uspešno sprovođenje takvog programa menadžmenta ključno je da se na osnovu dosadašnjih istraživanja vezanih za proces IPPM jasno definiše metodologija i okvir za njegovu efikasnu primenu. Ovo iziskuje još novih istraživanja, kako teorijskih tako i empirijskih, koja bi popunila trenutnu naučnu prazninu u ovoj oblasti.

U trenutku kada u savremenom poslovanju znanje predstavlja eliminacioni faktor na tržištu, kompanije koje ne poseduju potrebna znanja ili nisu još uvek shvatile njegov značaj, rizikuju da budu poražene u savremenom turbulentnom poslovanju. Sa druge strane, kompanije koje su se izrazito strateški orijentisale ka inovacijama i spremne su da preuzmu neophodan rizik, imaju potrebu za sve većim protokom znanja kako bi jedan složen i dinamičan proces kao što je IPPM dao pun efekat. Menadžment znanja omogućava zadovoljenje naraslih potreba organizacija za znanjem i njegov višestruko povećan protok koji pak podržavaju tehnološke promene. Još uvek nedovoljna naučna saznanja vezana za proces IPPM ne smeju biti ograničavajuću faktor za primenu programa menadžmenta znanja već upravo suprotno, podsticaj za razvoj efikasnog okvira za menadžment znanja koji bi omogućio stvaranje neophodnog znanja i njegovu efikasnu primenu. Kreiranje okvira za efikasnu primenu programa menadžmenta znanja predstavlja dugoročni cilj ka kome teže organizacije koje imaju jedan sistematski pristup upravljanju inovacijama, dok je je kratkoročni uspeh inovacionog portfolija moguć i bez jednog sistemskog pristupa znanju, i na duže staze je teško održiv i nosi neuporedivo više neizvesnosti i ne može se smatrati ispravnim strateškim opredeljenjem.

Literatura

1. Anđelić D. i A. Majstorović. 2016. Modeli knjigovodstva u računovodstvenom sistemu. *Akcionarstvo* 22, (1): 5-20
2. Award, E. M., H.M. Ghaziri. 2004. *Knowledge Management*, Pearson Education International, Prentice Hall.
3. Cooper, R., S. Edgett, E. Kleinschmidt. 2002. *Portfolio Management for New Product Development Result of an Industry Practices Study*. R&D management (Industrial Research Institute), vol 31.
4. Djordjević-Boljanović, J. 2009. *Menadžment znanja*. Data status, Beograd,
5. Drucker, P. 1994. *Post-capitalist society*, HarperCollins Publishers,.
6. Globocnik D., R. Faullant, Z. Parastuty. 2020. *Bridging strategic planning and business model management – A formal control framework to manage*

- business model portfolios and dynamics. *European Management Journal* 38, (2): 231-243
7. Jovanović, P. 2009. Savremeni menadžment. Visoka škola za projektni menadžment, Beograd.
 8. Kock, A., H. Gemunden, 2016. How strategic orientation moderates the relationship between Innovation Portfolio Management and success. *R&D Management Conference 2016*, Cambridge, UK.
 9. Kock A., B. Schulz, J. Kopmann, H.G. Gemünden. 2020. Project portfolio management information systems' positive influence on performance – the importance of process maturity. *International Journal of Project Management* 38, (4): 229-241
 10. Li S., X. Zhang, H. Xu, S. Fang, E. Garces, T. Daim. 2020. Measuring strategic technological strength: Patent Portfolio Model. *Technological Forecasting and Social Change* 157, 120119
 11. Lichtenthaler E.H. 2014. Innovation portfolio management: an understudied driver of innovation success. *Performance* 5: 111
 12. Majstorović A., S. Tasić, I P. Jovičević. 2020. Usmerenja za modeliranje sistema interne budžetske revizije. *Akcionarstvo* 26, (1): 49-63
 13. Martinsuo M., J. Geraldi. 2020. Management of project portfolios: Relationships of project portfolios with their contexts. *International Journal of Project Management* 38, (7): 441-453
 14. Mertins, K., P. Heising, J. Vorbeck. 2001. *Knowledge Management, Best practice in Europe*, Springer.
 15. Meifort, A. 2015. Innovation portfolio management: A synthesis and research agenda. *Creativity and Innovation Management* 25, (2): 1-15
 16. Mićović S., i J. Miletić. 2019. Poslovni subjekt kao osnova održivosti razvoja. *Održivi razvoj* 1, (1): 43-51.
 17. Miletić, A. 2019. Komparativna analiza pristupa IPPM. 12. Skup privrednika i naučnika SPIN 2019, Centar za operacioni menadžment, FON, Beograd.
 18. Miletić A., P. Belokapić, i B. Nešić. 2020. Specifičnosti upravljanja portfolijom inovacionih projekata. *Oditor* 6, (2): 91-107.
 19. Mihajlović M., S. Nikolić, i S. Tasić. 2020. Održivost ekonomskog modela savremene privrede. *Održivi razvoj* 2, (2): 7-13.
 20. Stošić, B. 2013. *Menadžment inovacija-inovacioni projekti, modeli i metodi*. Beograd, Fakultet organizacionih nauka.
 21. Sydanmaanlakka, P. 2002. *An Intelligent Organization: Performance, Competence and Knowledge Management*. Capstone, Oksford.
 22. Vukša S., D. Anđelić, i I. Milojević. 2020. Analiza kao osnova održivosti poslovanja. *Održivi razvoj* 2, (1): 53-72.

INFLUENCE OF STRATEGIC ORIENTATION TO THE RELATION BETWEEN INNOVATION PORTFOLIO MANAGEMENT AND SUCCESS

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Review article

Abstract

Modern businesses emphasize the significance of intellectual property and knowledge as key factors that contribute to achieving competitive advantage. This requires new approaches in management and there is more talk about knowledge management as a process that will raise business efficiency. In a knowledge-based economy, many companies create, acquire and maintain a competitive advantage in a turbulent market with the help of innovation. Innovation Project Portfolio Management is a powerful tool for achieving innovation strategy and it is extremely important that existing knowledge is used in companies and new ones are created based on them. The paper tests the findings of a reference survey conducted in Germany in 2016, which analyzes the impact of strategic orientation on the relationship between innovation portfolio management and business success. The obtained knowledge from the reference research was tested through a questionnaire answered by companies from the Republic of Serbia in order to see their application in business processes and business success.

Keywords: *knowledge management, strategic orientation, innovation, innovation portfolio management.*

Introduction

Strategic influence of innovations in modern businesses which are rapidly changing due to major technological changes, leading to the necessity of managing the flow of knowledge through an organization. It's knowledge that has been found as the main determinant of innovation and profitability of an

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organization. Efficient Innovation Project Portfolio Management (IPPM) should secure achieving goals from innovation and businesses strategies. Making strategic decisions in the process of IPPM through procedures of grading, selection and prioritization of innovation projects for innovation portfolio, represents the most critical point in the entire process, the results of which are reflected in the overall business success of an organization. All of this causes an increased need for data and information, as well as their unobstructed flow through an entire organization in order to secure optimal allocation of available resources and thus maximize profit.

At the beginning of the 21st century, there is an increased scientific interest for the process of managing innovations with the focus on Innovation portfolio project management. The IPPM process carries a number of specifics in relation to classic project portfolio management due to the very nature of innovations which are characterized by the human factor, above all creativity, high risk factor, but still use a range of methods and tools when managing classic project portfolios (Li et al, 2020; Kock et al., 2020). Previous research in management has researched efficiency and results of applying portfolio methods, but there is few theoretical research whose focus is on Innovation portfolio project management. At this time there is no optimal mix of methods and techniques defined for making decisions in the IPPM process, but based on previous research the trends in IPPM are only observed. Theoretical background of the IPPM method is still a great unknown and new research is necessary in order to define a clear connection between efficient innovation portfolio management and business success (Martinsuo & Geraldi, 2020; Globocnik et al, 2020). Innovation strategy has become a significant segment of business strategy and it's difficult to find an organization which doesn't have a strategic commitment that emphasizes innovation in the era of the fourth industrial revolution. Such strategic commitment carries a high risk factor, as well as the possibility of creating competitive advantage and maximizing gain (Mićović & Miletić, 2019). Even though these two facts are generally known, a clear connection between them hasn't been defined in modern businesses and it's necessary to create missing knowledge which would be applied in organizations.

The aim of the paper and used methodology

The aim of this paper is to test knowledge obtained from one of the few studies on the impact of an organization's strategic commitment on the relationship between IPPM and business success, which was performed by Kock and Gemünded in 2016 in Germany, who published their results on the *R&D Management* conference in Cambridge, Great Britain. The draft of the research envisages that based on the

example of companies from the Serbia's Innovation fund register, a research be conducted based on the same questionnaire that the authors of the research used in Germany and analyze obtained results based on knowledge from the hypotheses which were obtained by the authors of the research in Germany. Research results contained responses of 130 companies that completed a questionnaire of 14 questions grouped in four areas: strategy implementation (4 questions), portfolio balance (3 questions), average success of completed innovation projects (4 questions) and synergistic exploitation (3 questions). Other than the 14 questions used for analyzing innovation portfolio success, the questionnaire contained 5 questions that were supposed to give characteristics of the sample, such as: number of employees, amount of income in 2019, budget amount for innovation portfolio (in euros), sector of activity and position (level) of the company. Respondents expressed their results in a questionnaire using a 7-point Likert scale, which moved through a range of 1 – I completely agree, to 7 – I completely disagree, the same used in reference research.

Even though the existing scientific void between efficient IPPM and business success is still vast worldwide, this research has a goal to test current modest findings on the example of companies from Serbia, a society which is still far from the fourth industrial revolution, but makes pioneering steps on the field of innovation activity and clearly asserts its strategic orientation towards innovations and knowledge in own strategic documents. Obtained findings from the research can help in creating the IPPM method which would clearly define the connection between efficient investment portfolio management and business success, and at the same time enable social gain for all organizations oriented towards innovation and creativity in solving their problems.

Theoretical foundations

The end of the second millennium and the beginning of the third were marked by modern trends in management, above all large technological changes and globalization that change the very form of doing business. At the end of the 20th century, basic resource in the economy is no longer capital, natural resources or work-force, but knowledge (Drucker, 1994). Loss of primacy of traditional production factors in favor of human capital, intellectual property and knowledge in general led to changes and development of new management concepts. Knowledge management represents an interdisciplinary approach which includes above all, business, economy, psychology, management of human resources, management of information systems and many other scientific disciplines, and in its focus has the most valuable resource of an organization, which is knowledge. In short, knowledge management has a role to secure that people have the necessary

knowledge, where it's necessary, when it's necessary, i.e. the right knowledge, at the right place and in the right time (Djordjevic-Boljanovic, 2009).

Concept of knowledge management has a task to ensure collective knowledge of employees in order to enable them to achieve organization's business goals. In addition to the existing knowledge in the organization, it must provide the necessary and available knowledge from external sources which would be implemented in organization's business processes. This knowledge must be available to all employees in an organization, in documents and databases, and promoted through affirmative organizational culture in order to be transmitted and used through the entire organization (Mihajlović i dr., 2020; Vukša i dr., 2020). Concept of knowledge management must secure an analytical dimension of applying knowledge in an organization and its positive and negative aspects of application, in order to continue to process of creating and applying new, necessary knowledge. In literature there is a large number of definitions of knowledge management and in the broadest approach to that concept the majority of authors point out the unity of three components: people, processes and technology (Anđelić i Majstorović, 2016; Majstorović i dr, 2020). People represent the most important component in the concept of knowledge management, but they must be supported with modern technologies in a dynamic process that a modern business requires. This dynamic process, through which an organization manages knowledge, and which passes through a number of phases, while forming the life cycle of knowledge management. Process of knowledge management encompasses 5 phases (Sydanmaanlakku, 2002):

- 1) Creating knowledge, phase that takes place in an organization with employees, primarily through form of organizational learning.
- 2) Acquiring knowledge, critical phase in the process of knowledge management, where it's most difficult to ensure that employees acquire tacit knowledge, which is above all concentrated at experts in an organization.
- 3) Storing knowledge, phase where acquired knowledge is structured in the form of documents and databases which make the corporate memory, and are constantly updates, because modern business occurs on a turbulent market.
- 4) Sharing knowledge with others, a phase which has a goal to share knowledge easily though an organization with all employees, thus using formal and informal methods, i.e. through electronic grids, but also through various forms of social communication.
- 5) Application of knowledge, a phase that represents the essence of successful program of knowledge management. Knowledge that an organization created, acquired, stored and shared doesn't have effect unless it's applied in solving business problems and enables achieving business strategies.

Application of the concept of knowledge management in an organization takes place as a dynamic and complex process that goes through multiple critical points in its life cycle, where we have the unity of three main components: people, processes and technologies. In order to achieve the best results, four main areas that should be emphasized when establishing the system of knowledge management are: organizational culture, knowledge assessment, knowledge processing and knowledge implementation (Award, Ghaziri, 2004).

Picture 1. Life cycle of the knowledge and organization management process

Source: Djordjević-Boljanović, 2009;

In a situation when markets are becoming increasingly competitive with a growing trend of innovation, where the majority of business depends on knowledge, on one hand products and services are increasingly complex, but on the other the work force is becoming smaller and more mobile, with less time to acquire knowledge, knowledge management is becoming the main weapon for victory in the uncertain market race. Knowledge became a factor that divides companies in successful and unsuccessful ones (Jovanovic, 2009). Innovation portfolio management represents a professional approach to innovations that should lead to optimization of innovations (Miletic, 2019). Innovation project portfolio management (IPPM) is a dynamic decision-making process where the list of active projects is constantly updated and revised (Cooper, Edgett and Kleinschmidt, 2002). Within this dynamic process grading, selection and prioritization of new projects is performed while existing projects can be canceled, stopped, sped-up or have their priority reduced. Innovation management represents a big challenge for companies because they take over a huge risk by choosing projects for innovation portfolio and allocation of limited resources, while the business surrounding is turbulent and very uncertain. Investment portfolio management became a key topic in innovation management (Meifort, 2015). IPPM has the goal of choosing an optimal and balanced number of projects in an innovation portfolio in order to maximize profits. Such complex and dynamic process requires compatibility between innovation and business strategies and their synergistic effect, because strategic decisions are made when choosing and prioritizing innovation projects for the portfolio. Strategic significance of

portfolio management in the IPPM process is in the ability of evaluating innovation projects and selecting future innovative “winner products” (Stošić, 2013).

Basic goals of the IPPM process are: maximizing gain, achieving portfolio balance, compliance with the business strategy and right number of projects (Ulrich, 2014). Implementation of these IPPM goals brings optimization of innovation portfolios and excellence in innovations. Despite the aforementioned, still a large number of companies doesn’t give adequate importance to the IPPM process, or apply systematic approach in managing innovations.

Picture 2. IPPM process

IPPM process carries a number of specificities in relation to classic project portfolio management due to the very nature of innovations, so a strictly formalized frame for managing innovation portfolio must not be created. Over formalizing the IPPM process significantly reduces flexibility of companies and the possibility of adjusting to changes that are common with innovations. On the other hand, making strategically significant decisions the IPPM process can’t be spontaneous and intuitive. The IPPM process requires the use of a mix of tools and techniques which would provide support in decision making. Universal mix of tools and techniques which would give optimal results in the IPPM process still isn’t defined and largely depends on the specificity of a company’s business, which significantly differs in strategic goals of its business, as well resources at its disposal. In creating an efficient framework for the IPPM process, it’s necessary to include and use existing knowledge, but at the same time apply it to create new knowledge in order to develop an IPPM method that would enable achieving goals and their full effect. Knowledge necessary for an organization represents a subjective factor, so every organization depending on the specificity of its business, gives definition of that knowledge, which is relevant for it. Because of everything mentioned,

organizations must create a framework for successful application of knowledge management, which will enable creation of additional value and competitive advantage on the market.

Key factors that influence success of knowledge management program are: corporative culture, management of human resources, leadership, information technologies and control (Mertins, Heisig and Vorbeck, 2001).

Most authors agree on the first four factors, while a small number of authors takes into account control as a factor that has influence on the success of knowledge management program. Even though information technologies are a very important factor of knowledge management program, having in mind drastic technological advancement, it's especially important to pay attention to corporate culture which has a significant role in every organization when applying any changes and innovations. The task of corporate culture is to create a "mindset" i.e. working atmosphere that will accept knowledge management program, i.e. culture oriented to creating and sharing knowledge. Without such culture, human resources in an organization can't utilize the full effect of technological progress and growing significance of information technologies. Information technologies have a role to secure an infrastructure which would support key activities of storing and distributing knowledge in the knowledge management process. Securing storage of knowledge necessary for companies to work, they enable simultaneous analysis of mass data that contributes to creating and spreading new knowledge.

Paper results with discussion

A research conducted by Kock and Gemunden in 2016 in Germany on the subject of the influence of strategic commitment of an organization on the connection between the IPPM process and business success was taken as reference research. Research results were published in the paper on a *R&D Management* conference in Cambridge, Great Britain (Kock, Gemunden, 2016). Authors of the research have studied the IPPM issue for many years and observed that there are only few researches that contribute to the success of IPPM and which organizational levers influence successfully. One of the insufficiently researched factors is strategic orientation of a company, even though all previous research states that IPPM is an important asset for achieving innovations and business strategies. They point here that there are still no scientific findings on how different strategic orientation influences IPPM and its performance, as well overall business success. In this study they point out the Entrepreneurial Orientation (EO) concept as an especially important factor of strategic orientation, due to its extremely emphasized innovation and high risk-taking, and research its influence on the relationship between IPPM and business success.

Picture 3. Framework of reference research

Source: Kock, Gemunden, 2016;

Authors asked a research question here: how do the IPPM activities differ in their performances depending on entrepreneurial orientation of companies? And set the following hypotheses:

- Hypothesis 1: Relationship between portfolio success and the involvement of stakeholders is stronger in companies that have entrepreneurial orientation which is highly oriented towards innovation and very prone to taking risks.
- Hypothesis 2: Relationship between portfolio success and strategic clarity is stronger in companies that have entrepreneurial orientation that is highly oriented towards innovation and very prone to taking risks.
- Hypothesis 3: Relationship between portfolio success and tracking business cases is stronger in companies that have entrepreneurial orientation that is highly oriented to innovation and very prone to taking risks.
- Hypothesis 4: Relationship between portfolio success and response capabilities is stronger in companies that have entrepreneurial orientation that is highly oriented to innovation and very prone to taking risks.

Research was performed through a questionnaire which was sent to 286 companies in Germany and the analysis was performed for 257 companies which gave complete responses using the 7-point Likert scale. Other than data tied to measuring success of innovation portfolio, companies gave the data related to: sector, number of employees, amount of income and value of the innovation portfolio budget. The very success of innovation portfolio is measured through multiple dimensions:

1. Strategy implementation (4 questions):

- Innovation portfolio is consistently aligned with projected future of the company.
- Corporate strategy is ideally implemented through our innovation portfolio.
- Allocation of resources for innovation project reflects our strategic goals.
- Application of strategy is considered a major success in an organization.

2. Portfolio balance (3 questions):

- There is a good balance in our innovation portfolio between old and new areas of application.
- There is a good balance in our innovation portfolio between old and new technologies.
- There is a good balance in our innovation portfolio in terms of project risk.

3. Average success of completed innovation projects (4 questions):

- Our innovation projects achieve target costs defined in the project.
- Our innovation projects achieve planned market goals.
- Our innovation projects achieve planned profitability goals.
- Our innovation project achieved planned amortization period.

4. Synergetic exploitation (3 questions):

- During the implementation of innovation projects, synergy of development between projects is rigorously exploited.
- After realization of innovation project, synergy of exploitation between projects is rigorously exploited.
- There is hardly any duplication of work or excess of development.

Results obtained by the authors in their research point that managerial practices applied in the IPPM process (stakeholder participation, strategic clarity, tracking business cases and responsiveness) are directly tied to investment portfolio success. This confirms certain findings that strategic orientation of a company is important for business success, i.e. innovation as a factor of entrepreneurial orientation is directly tied to innovation portfolio success, which can't be said for the factor of risk taking. Both components of entrepreneurial orientation have positive influence on three out of four IPPM processes, which brings us the knowledge that they increase efficiency of structuring portfolios and management processes in innovation portfolio. In practice of monitoring business cases, influences are significantly negative for low level of innovation and inclination to taking risk, while in high level of innovation and inclination to take risks, influences become significantly positive. That is why the factor of entrepreneurial orientation and propensity to take risks can't be disregarded even though there is no significant effect. It's interesting to mention that readiness to take risks positively influences strategic clarity. Bringing strategically important decisions in the IPPM process carries a bigger risk so managers must believe in its strategic justification.

Research results confirm the set hypotheses and that strategic orientation of companies, in this case entrepreneurial orientation, has an influence on performance of the IPPM process which reflects the overall business success. This is among the first studies that researches the influence of strategic commitment as an unforeseen factor on IPPM performances and business success. Its findings can help companies to better prepare their strategies and achieve competitive advantage. Even though one of the most significant goals of the IPPM process is strategy alignment, this research points out that for companies with strong entrepreneurial orientation, the influence of strategic commitment on a business success has a growing significance, while it doesn't have a relevant significance in companies that stayed consistent to conservative strategy without readiness to take risks and orientation to innovation.

Based on reference research, a research was conducted in Serbia for the first half of 2020, with a goal to determine how strategic orientation of a company influences the performances of IPPM process and business success. Research results included the answers of 130 companies that filled out a questionnaire that consisted of 14 questions grouped in four areas: strategy implementation (4 questions), portfolio balance (3 questions), average success of completed innovation projects (4 questions) and synergistic exploitation (3 questions). Other than 14 questions used for analyzing success of innovation portfolios, the questionnaire also had 5 questions that should give the characteristics of the sample, such as: number of employees, amount of income in 2019, budget amount for innovation portfolios (in euros), sector of activity and position (level) of a company. Respondents expressed their answers in a questionnaire using a 7-point Likert scale, which ranged from 1-I absolutely agree to 7-I absolutely disagree, such as used in reference research. Research was conducted in small and medium companies, unlike reference research in Germany which was conducted on medium and large companies, which can be seen from the very structure of the sample when comparing the number of employees, amount of revenue and budget amount for innovation portfolio.

Table 1. Sample structure

Number of employees		Sector of activity	
1-10	15.4%	IT/Electrical industry	53.8%
11-50	23.1%	Energy sector	23.1%
51-250	38.5%	Financial sector	7.7%
250-	23.1%	Pharmacy/chemical industry	7.7%
		Other	7.7%
Amount of income in 2019 (EUR)		Position (level) of a company	
1-100,000	38.5%	Higher level	23,1%
100,000-2,500,000	23.1%	Medium level	38,5%

2,500,000-10,000,000	15.4%	Initial level	38,5%
10,000,000-	23.1%		
Budget amount for innovation portfolio (EUR)			
1-100,000	53.8%	1,000,000-5,000,000	15.4%
100,000-1,000,000	15.4%	5,000,000-	15.4%

The success of innovation portfolio in reference research was measured through multiple dimensions which are defined based on existing literature on the IPPM process and divided into four areas: strategy implementation, portfolio balance, average success of completed innovation projects and synergistic exploitation. This construction for researching the success innovation portfolio is validated through Confirmatory factor analysis (CFA) which confirmed the chosen measuring model, as can be seen from the indicator where Cronbach's α (in further text α) for the implementation item amounts to 0.88, for the portfolio balance $\alpha=0.86$, for the average success of completed innovation projects $\alpha=0.82$ and synergistic exploitation $\alpha=0.77$. There are deviations to the research executed in Serbia, especially for balance of innovation portfolio, average success of completed innovation projects and synergistic exploitation, while the situation for strategy implementation item is approximate as for the reference research.

In order to test the obtained knowledge from the reference research, the same research construction and questionnaire with the same questions were used, but the difference in the sample is obvious, observing its entire structure. Differences in results, determined when validating the research construction, can be explained with the following facts:

- In the reference research, 74% of companies had an innovation portfolio budget larger than 10,000,000 EUR, while in the research conducted in Serbia 85% of companies had an innovation portfolio budget less than 5,000,000 EUR,
- In the reference research, 63% of companies have over 500 employees, while in the research conducted in Serbia 77% of companies have less than 250 employees,
- In the reference research, 76% of companies had revenue in the previous year larger than 100,000,000 EUR, while in the research conducted in Serbia 77% of companies had revenue in the previous year smaller than 10,000,000 EUR,
- Structure of the sample depending on the sector of activity is also different due to the difference in economy of Germany and Serbia.

In the strategy implementation item, results point that the innovation portfolio is consistently aligned with projected future of the company at 69% of companies and that the corporate strategy is ideally implemented through innovation portfolio in 62% of companies. Allocation of resources for innovation projects in 54% of

companies reflects strategic goals, and the application of strategy is considered a large success in an organization in 54% of companies.

Portfolio balance in innovation portfolio between old and new areas of application is good in 46% of companies, while the relationship is good between old and new technologies in 46% of companies. In terms of project risk there is a good balance in innovation portfolio in 54% of companies.

For average success of completed innovation projects, research results point that innovation projects achieve targeted costs defined in the project in only 39% of companies, but achieve planned market goals in 46% of companies, planned aims of profitability in 62% of companies and planned amortization period in 54% of companies.

Analysis of the influence of synergistic exploitation on the success of innovation portfolio points that only in 39% of companies there is barely doubled labor or excess development, while in 38% of companies after implementation of innovation projects, synergy of exploitation between projects is rigorously exploited, while in 54% of companies during implementation of innovation projects, synergy of development between projects is rigorously exploited.

Results of research conducted in Serbia show that for managers and their businesses there are findings that strategic orientation of a company is important for business success, while innovation and risk factors, that the authors of the reference took as key for determinant of entrepreneurial orientation, have an influence on success of innovation portfolios and entire business success. This is among the first researches in Serbia on the subject of influence of strategic orientation on the performance of IPPM process and the entire business success in general. Its results point that companies in Serbia are becoming aware of the growing influence of innovation and knowledge in general and the need for one systemic framework for applying that knowledge. At the same time its results point to current shortcomings for successful application of currently existing knowledge in the area of IPPM and the necessity of further research on this subject which would follow global trends in innovation management. Those new researches and findings are of key importance so the companies could better apply their strategy and achieve competitive advantage thanks to innovation and knowledge.

Conclusion

Despite the fact that harmonization of strategy is one of the key goals of the IPPM process through which it strives for compliance of innovation portfolios with the business strategy in order for decisions of allocating limited resources and strategic priorities be strategically adjusted, there was no research to analyze the influence of

the strategic commitment of companies, as the unforeseen factor on the performance of IPPM and the business success as a whole. Previous research pointed that there are still many companies that relatively disregard the significance of IPPM as a complex and dynamic process that should lead to optimization of innovation portfolios and excellence in innovation. Authors of the reference research point out the significance of strategic commitment of companies, i.e. entrepreneurial orientation that characterizes innovation and readiness to take risks, for the IPPM process and its performances that reflect the entire business success. Results of their research prove the set hypotheses and indicate that entrepreneurial orientation with emphasized innovation and inclination to taking risk in the IPPM process are directly tied to the success of innovation portfolio.

These findings contribute to the development of the IPPM process methodology and creation of an efficient framework for systematic approach to this complex and dynamic process. The existence of such framework and the IPPM process method is necessary in order for the IPPM to be harmonized with specificities of every company and their business. Even though the IPPM method and the framework for its efficient use aren't clearly defined, the obtained findings can help companies to prepare their strategies better and achieve competitive advantage. Their research results indicate that the effects of strategic commitment on business success are more relevant in companies that are innovation oriented than those that maintained traditional, conservative orientation.

Research results in Serbia point that a majority of companies are aware of the significance of implementing a strategy and that they must have strategic commitment oriented at innovation and ready to take risk. At the same time they point out that there is a large number of companies that don't realize the significance of strategic orientation, therefore it's necessary to create a framework for applying knowledge obtained by the authors of reference research in Germany, which isn't sufficiently or at all implemented in managerial practices in Serbia. This is where the role of knowledge management program is key, which needs to enable achieving necessary knowledge, with the help of available newer research tied to the IPPM process and its incorporation in existing knowledge of domestic companies, securing their storage and uninterrupted sharing in order to be efficiently applied. In order to successfully conduct such management program, it's key to clearly define the methodology and framework for its efficient application based on previous research tied to the IPPM process. This requires more theoretical and empirical research in order to fill in the current scientific void in this area.

At the moment when knowledge represents an eliminating factor on the modern market, companies that don't own adequate knowledge or haven't yet realized its importance, risk being defeated in contemporary turbulent business world. On the

other hand, companies that have distinctive strategic orientation to innovation and are ready to take the necessary risk, have the need for an ever increasing flow of knowledge in order for the complex and dynamic process such as the IPPM, to give full effect. Knowledge management enables the satisfaction of growing needs of organizations for knowledge and its multiplied flow is supported by technological changes. Insufficient scientific findings for the IPPM process must not be a limiting factor for applying the knowledge management program, but in fact the opposite, an incentive to develop an efficient framework for knowledge management which would enable creating necessary knowledge and its efficient application. Creating the framework for efficient application of the knowledge management program represents a long-term goal to which organizations which have one systematic approach to managing innovations strive, while short-term success of innovation portfolio is possible even without one systemic approach to knowledge and in the long-term it's difficult to maintain and carries incomparably more uncertainties and can't be considered a correct strategic commitment.

Literature

1. Anđelić D. i A. Majstorović. 2016. Modeli knjigovodstva u računovodstvenom sistemu. *Akcionarstvo* 22, (1): 5-20
2. Award, E. M., Ghaziri, H.M. 2004. *Knowledge Management*, Pearson Education International, Prentice Hall.
3. Cooper, R., Edgett, S., Kleinschmidt, E. 2002. Portfolio Management for New Product Development Result of an Industry Practices Study. R&D management (Industrial Research Institute) 31.
4. Djordjević-Boljanović, J. 2009. Menadzment znanja. Data status, Beograd, 2009.
5. Drucker, P. 1994. Post-capitalist society, HarperCollins Publishers,.
6. Globocnik D., R. Faullant, Z. Parastuty. 2020. Bridging strategic planning and business model management – A formal control framework to manage business model portfolios and dynamics. *European Management Journal* 38, (2): 231-243
7. Jovanović, P. 2009. Savremeni menadzment. Visoka škola za projektni menadzment, Beograd.
8. Kock, A., H. Gemunden. 2016. How strategic orientation moderates the relationship between Innovation Portfolio Management and success. R&D Management Conference 2016, Cambridge, UK.
9. Kock A., B. Schulz, J. Kopmann, H.G. Gemünden. 2020. Project portfolio management information systems' positive influence on performance – the importance of process maturity. *International Journal of Project Management* 38, (4): 229-241

10. Li S., X. Zhang, H. Xu, S. Fang, E. Garces, T. Daim. 2020. Measuring strategic technological strength: Patent Portfolio Model. *Technological Forecasting and Social Change* 157, 120119
11. Lichtenthaler E.H. 2014. Innovation portfolio management: an understudied driver of innovation success. *Performance* 5: 111
12. Majstorović A., S. Tasić, I P. Jovičević. 2020. Usmerenja za modeliranje sistema interne budžetske revizije. *Akcionarstvo* 26, (1): 49-63
13. Martinsuo M., J. Geraldi. 2020. Management of project portfolios: Relationships of project portfolios with their contexts. *International Journal of Project Management* 38, (7): 441-453
14. Mertins, K., P. Heising, J. Vorbeck. 2001. *Knowledge Management, Best practice in Europe*, Springer.
15. Meifort, A. 2015. Innovation portfolio management: A synthesis and research agenda. *Creativity and Innovation Management* 25, (2): 1-15
16. Mićović S., i J. Miletić. 2019. Poslovni subjekt kao osnova održivosti razvoja. *Održivi razvoj* 1, (1): 43-51.
17. Miletić, A. 2019. Komparativna analiza pristupa IPPM. 12. Skup privrednika i naučnika SPIN 2019, Centar za operacioni menadžment, FON, Beograd.
18. Miletić A., P. Belokapić, i B. Nešić. 2020. Specifičnosti upravljanja portfolijom inovacionih projekata. *Oditor* 6, (2): 91-107.
19. Mihajlović M., S. Nikolić, i S. Tasić. 2020. Održivost ekonomskog modela savremene privrede. *Održivi razvoj* 2, (2): 7-13.
20. Stošić, B. 2013. *Menadžment inovacija-inovacioni projekti, modeli i metodi*. Beograd, Fakultet organizacionih nauka.
21. Sydanmaanlakka, P. 2002. *An Intelligent Organization: Performance, Competence and Knowledge Management*. Capstone, Oksford.
22. Vukša S., D. Anđelić, i I. Milojević. 2020. Analiza kao osnova održivosti poslovanja. *Održivi razvoj* 2, (1): 53-72.

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