

DIGITAL PRODUCT INNOVATION MODEL FOR NEWS PUBLISHERS

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Abstract In order to stay competitive in high-pressure environments such as the news media industry, an agile and adaptive approach to product management is needed. We present a model of digital product innovation which allows news publishers to quickly determine the priority of innovations, whether radical or incremental. Careful observation of key performance indicators (KPI) and company resources, resulted in the categorization of key parameters included in the model: innovation type (4), impacted areas/KPIs (14), resources required (6), investment cost (3), who requested the development of the new feature (9), urgency (3), time of realization (9), risk (3) and platforms affected (8). The model was successfully applied in the case of Telegraf.rs, one of Serbia's leading internet news portals.

Keywords::

product management, innovation model, digital product innovation, journalism, news media.

1 Introduction

Innovation, in a broad sense, involves developing new processes, new products, or bringing new organizational improvements for the industry. It can assume many forms but, in every form, it strives to reduce unit costs and/or helps to expand market demand (Sengputa, 2014). There are different perspectives through which we can categorize innovation. The literature recognizes disruptive innovation, radical innovation, and incremental innovation. Other categorizations define product innovation, service innovation, process innovation, or technological innovation. Research has shown that innovation plays an essential role in determining a company's success in the market and in gaining competitive advantage (Schilling, 2017). The extremely fast development of technology and short innovation cycles nowadays make innovation and innovation management a key topic for governments, entrepreneurs, and researchers worldwide. In the contemporary business environment, digital transformation is changing the way people live and work in many industries, and that is a kind of test for traditional business models (Marinkovic & Petkovic, 2020). Digital transformation strategies coming from a business-centric perspective (Matt, et al., 2015), focus on the transformation of products (services), processes, and organizational aspects owing to new technologies. Timing is a key factor and recognizing the right moment to create and release a new product, service or feature can determine the effectiveness of their adoption and their success rate (Narayanan, 2001). To facilitate and speed up innovation, in an increasingly competitive environment, companies should strive to develop new and improve existing innovation processes and frameworks (Schilling, 2017). A well-defined and structured approach to innovation allows a company to survive and thrive in the market (Cooper & Edgett, 2010), and is needed to effectively prioritize strategic goals and innovations (Jevtic, 2017). Innovation management can be viewed as a key organizational capability that can help organizations achieve more effective results, higher profits, and improve performance when cultivated and invested in (Lawson & Samson, 2001).

In order to stay competitive in high-pressure environments such as the news media industry (Barnhurst, 2005), an agile and adaptive approach to product management is needed. Quickly ranking and determining the priority of various innovations, whether radical or incremental, can allow a company to take advantage of arising opportunities and adapt to swiftly changing environments.

The news media industry is a highly competitive market. In Serbia, every year (since 2015), over 100 new online media have been registered for a total of 1,290 (SHARE Foundation, 2021). Being a high-pressure activity (Barnhurst, 2005), it is not uncommon to have a high volume of product innovation and feature optimization requests on a daily basis. Limited resources (whether human, technological, etc.) contribute to large task lists, commonly known as “backlogs”, with records of requested features/options/solutions for implementation. The product team needs a way to quickly and agilely rank them based on their importance and benefits which they could bring to the organization.

In collaboration with the product experts from *Telegraf.rs*, one of Serbia's leading internet news portals, we learned that existing product and innovation management solutions did not provide the needed tools for effective innovation management in the news industry. In this paper, we present a model of digital product innovation which allows news publishers to quickly determine the priority of innovations. The model was successfully applied in the case of *Telegraf.rs* and resulted in the effective ranking of innovations which was further validated by their most senior and experienced professionals.

2 Digital Product Innovation model

2.1 Methodology & Parameters

The digital product innovation model for news publishers in part references the Quantitative Strategic Planning Matrix (QSPM) model for the scoring of the parameters as it has proven to be an effective tool for the evaluation and selection of technology strategies (David et al., 2009; David, 1986; Nasab & Milani, 2012; Jevtic et al., 2016). Nonetheless, the focus of the model is to define the priorities and rank already selected product innovations once the strategic goals of an organization have been set in place.

Careful observation of key performance indicators (KPI), industry knowledge, professional experience of the product team and company resources, resulted in the categorization of primary parameters included in the model (table 1): innovation type (4), impacted areas/KPIs (14), resources required (6), investment cost (3), who

requested the development of the new feature (9), urgency (3), time of realization (9), risk (3) and platforms affected (8).

For each element of the parameters (table 1), the product management team established the matrix weights (figure 1, 2, 3) which in total equal to 1. The defined weights were successively used for all new feature requests to determine their priority (examples provided in figures 4-12). The weights were multiplied with ratings (given by the product team) to deliver a score for each element. The scores of each parameter are lastly summed up for a total score to determine the priority ranking (figure 13).

Table 1: Parameters list

Parameter	Elements
Innovation type	Incremental (have the know-how) Incremental (do not have the know-how) Radical (have the know-how) Radical (do not have the know-how)
Impacts (scale 1-5)	Process optimization Performance improvement User experience (UX) Increase in number of subscribers Speed up work of staff Increase video plays Increase number of users Page views Engagement time Revenue (sales) Revenue (advertising) Revenue (subscriptions) Page speed optimization Brand/image
Resources required	Dev/engineers Designers/UX/UI Analysts/Data/SEO Marketing Community/social media Sales
Investment cost	High Medium Low

Requested by	Director/CEO Other C-level executive Management level Editor in Chief Editors Journalists Development team External Other
Urgency	High Medium Low
Time of realization	Immediately Few days A week Few weeks A month Few months A year Multiyear Unspecified
Risk	High Medium Low
Platforms affected	Web site (desktop) Web site (mobile) Android app iOS app Other app Video platform CMS Other

3 The case of Telegraf.rs

Developed by the company Internet Group d.o.o., Telegraf.rs is one of Serbia's leading internet news portals (Similarweb, 2021; Gemius, 2021; Telegraf, 2021), ranked third by the number of page views on desktop and mobile web (Gemius, 2021). According to Telegraf's latest data (2021), it has 200M page views and 10M visitors per month on all platforms including its website and mobile applications. One hundred and thirty journalists, domestic and foreign correspondents, photographers and video professionals use a fully-customized Content Management System (CMS) 24/7 and produce around 300 news articles every day. Telegraf is one of the few portals in the country which is purely internet-based (without a print

edition) and is financed largely through commercial revenue sources (mainly advertising, PR and video production) which is why, to stay competitive, it has to constantly innovate to find new approaches to product prioritization.

In consultation with the company’s top management, the product team of Telegraf has determined the weights assigned to each element of the given parameters (figure 1). The total of weights for all elements (of the individual parameters) equals 1.

Innovation type	Weight	Rating	Score	Impacts (scale 0-4)	Weight	Rating	Score	Resources required	Weight	Rating	Score
Total	1		0	Total	1		0	Total	1		0
Incremental (have the know how)	0.5		0	Process optimization (speed up wc	0.1		0	Dev/engineers	0.3		0
Incremental (do not have the know how)	0.2		0	Performance improvement (page s	0.1		0	Designers/UX/UI	0.2		0
Radical (have the know how)	0.25		0	User experience (UX)	0.05		0	Analysts/Data/SEO	0.2		0
Radical (do not have the know how)	0.05		0	Increase in number of subscribers	0		0	Marketing	0.1		0
				Increase video plays	0.15		0	Community/social media	0.1		0
				Increase number of users	0.15		0	Sales	0.1		0
				Pageviews	0.15		0				
				Engagement time	0.05		0				
				Revenue (advertising sales/banner	0.2		0				
				Revenue (subscriptions)	0		0				
				Brand/image	0.05		0				

Figure 1: Parameter matrix example weights

Investment cost	Weight	Rating	Score	Requested by	Weight	Rating	Score	Urgency	Weight	Rating	Score
Total	1		0	Total	1		0	Total	1		0
High	0.1		0	Director/CEO	0.3		0	High	0.6		0
Medium	0.3		0	Other C-level executive	0.2		0	Medium	0.3		0
Low	0.6		0	Management level	0.1		0	Low	0.1		0
				Editor in Chief	0.2		0				
				Editors/Journalists	0.1		0				
				Development team	0.06		0				
				External	0.02		0				
				Other	0.02		0				

Figure 2: Parameter matrix example weights (continued)

Time of realization	Weight	Rating	Score	Risk	Weight	Rating	Score	Platforms affected	Weight	Rating	Score
Total	1		0	Total	1		0	Total	1		0
Immediately	0.35		0	High	0.1		0	Web site (desktop)	0.1		0
Few days	0.25		0	Medium	0.3		0	Web site (mobile)	0.25		0
A week	0.15		0	Low	0.6		0	Android app	0.1		0
Few weeks	0.1		0					iOS app	0.1		0
A month	0.08		0					Other app	0.05		0
Few months	0.03		0					Video platform	0.15		0
A year	0.02		0					CMS	0.2		0
Multiyear	0.01		0					Other	0.05		0
Unspecified	0.01		0								

Figure 3: Parameter matrix example weights (continued)

The team has chosen tasks from the existing backlog and applied them to the digital product innovation model. Due to confidentiality restrictions and to avoid the revelation of the company’s upcoming product innovations to the competition, in this paper we present a select three examples which include:

1. Automated related news placed below articles (figure 4, 5, 6),
2. New video platform (figure 7, 8, 9),
3. Automation of meta descriptions for SEO (figure 10, 11, 12).

3.1 Example 1: Automated related news

Automated related news could speed up the publishing process and, through advanced algorithms, present to users a more personalized selection of recommended news pertaining to the read article. In addition to increasing the number of page views, which are essential for the portal’s profitability through ads, related articles could add to the user experience of readers interested in learning more about a specific topic. It is an incremental innovation and the software engineering team already has the know-how on how to develop the functionality.

Innovation description	Innovation type	Weight	Rating	Score	Impacts (scale 0-4)	Weight	Rating	Score	Resources required	Weight	Rating	Score
Automated related news	Total	1			Total	1		1.95	Total	1		1.7
	Incremental (have the know how)	0.5	4	2	Process optimization (speed up w	0.1	2	0.2	Dev/engineers	0.3	4	1.2
	Incremental (do not have the know how)	0.2	0	0	Performance improvement (page s	0.1	1	0.1	Designers/UX/UI	0.2	1	0.2
	Radical (have the know how)	0.25	0	0	User experience (UX)	0.05	3	0.15	Analysts/Data/SEO	0.2	1	0.2
	Radical (do not have the know how)	0.05	0	0	Increase in number of subscribers	0	0	0	Marketing	0.1	0	0
					Increase video plays	0.15	1	0.15	Community/social media	0.1	0	0
					Increase number of users	0.15	0	0	Sales	0.1	1	0.1
					Pageviews	0.15	4	0.6				
					Engagement time	0.05	3	0.15				
					Revenue (advertising sales/banner	0.2	3	0.6				
					Revenue (subscriptions)	0	0	0				
					Brandimage	0.05	0	0				

Figure 4: Parameter matrix example 1 - Automated related news

Investment cost	Weight	Rating	Score	Requested by	Weight	Rating	Score	Urgency	Weight	Rating	Score
Total	1		2.4	Total	1		1.4	Total	1		1.8
High	0.1	0	0	Director/CEO	0.3	0	0	High	0.6	3	1.8
Medium	0.3	0	0	Other C-level executive	0.2	4	0.8	Medium	0.3	0	0
Low	0.6	4	2.4	Management level	0.1	1	0.1	Low	0.1	0	0
				Editor in Chief	0.2	2	0.4				
				Editors/Journalists	0.1	1	0.1				
				Development team	0.06	0	0				
				External	0.02	0	0				
				Other	0.02	0	0				

Figure 5: Parameter matrix example 1 (continued)

Time of realization	Weight Rating	Score	Risk	Weight Rating	Score	Platforms affected	Weight Rating	Score
Total	1	1.55	Total	1	2.4	Total	1	2.55
Immediately	0.35	0	High	0.1	0	Web site (desktop)	0.1	4
Few days	0.25	4	Medium	0.3	0	Web site (mobile)	0.25	4
A week	0.15	3	Low	0.6	4	Android app	0.1	4
Few weeks	0.1	1				iOS app	0.1	4
A month	0.08	0				Other app	0.05	3
Few months	0.03	0				Video platform	0.15	0
A year	0.02	0				CMS	0.2	1
Multiyear	0.01	0				Other	0.05	0
Unspecified	0.01	0						

Figure 6: Parameter matrix example 1 (continued)

3.2 Example 2: New video platform

As the company is increasingly investing more resources in the production of video content, a new video platform could better showcase its original video content (which includes live streams, video production in the studio, commercials, etc.).

Innovation description	Innovation type	Weight Rating	Score	Impacts (scale 0.4)	Weight Rating	Score	Resources required	Weight Rating	Score
New video platform	Total	1	1	Total	1	2.6	Total	1	2.8
	Incremental (have the know how)	0.5	0	Process optimization (speed up wc	0.1	0	Dev/engineers	0.3	4
	Incremental (do not have the know how)	0.2	0	Performance improvement (page s	0.1	3	Designers/UX/UI	0.2	4
	Radical (have the know how)	0.25	4	User experience (UX)	0.05	3	Analysts/Data/SEO	0.2	2
	Radical (do not have the know how)	0.05	0	Increase in number of subscribers	0	0	Marketing	0.1	1
				Increase video plays	0.15	4	Community/social media	0.1	1
				Increase number of users	0.15	2	Sales	0.1	2
				Pageviews	0.15	2			
				Engagement time	0.05	4			
				Revenue (advertising sales/banner	0.2	3			
				Revenue (subscriptions)	0	0			
				Brand/image	0.05	3			

Figure 7: Parameter matrix example 2 - New video platform

Investment cost	Weight Rating	Score	Requested by	Weight Rating	Score	Urgency	Weight Rating	Score
Total	1	1.2	Total	1	1.8	Total	1	1.2
High	0.1	0	Director/CEO	0.3	4	High	0.6	0
Medium	0.3	4	Other C-level executive	0.2	3	Medium	0.3	4
Low	0.6	0	Management level	0.1	0	Low	0.1	0
			Editor in Chief	0.2	0			
			Editors/Journalists	0.1	0			
			Development team	0.06	0			
			External	0.02	0			
			Other	0.02	0			

Figure 8: Parameter matrix example 2 (continued)

Time of realization	Weight	Rating	Score	Risk	Weight	Rating	Score	Platforms affected	Weight	Rating	Score
Total	1		0.3	Total	1		1.2	Total	1		3.05
Immediately	0.35	0	0	High	0.1	0	0	Web site (desktop)	0.1	3	0.3
Few days	0.25	0	0	Medium	0.3	4	1.2	Web site (mobile)	0.25	3	0.75
A week	0.15	0	0	Low	0.6	0	0	Android app	0.1	3	0.3
Few weeks	0.1	0	0					iOS app	0.1	3	0.3
A month	0.08	2	0.16					Other app	0.05	0	0
Few months	0.03	4	0.12					Video platform	0.15	4	0.6
A year	0.02	1	0.02					CMS	0.2	4	0.8
Multiyear	0.01	0	0					Other	0.05	0	0
Unspecified	0.01	0	0								

Figure 9: Parameter matrix example 2 (continued)

3.3 Example 3: Automation of meta descriptions

As successful ranking in organic search can benefit the portal in many ways including increased page views and new visitors, search engine optimization (SEO) has been a key area in which the team invests great resources and trains its staff. Automating meta descriptions could aid the journalist in optimizing the descriptions more quickly by automatically filling fields in the CMS with the most appropriate text.

Innovation description	Innovation type	Weight	Rating	Score	Impacts (scale 0-4)	Weight	Rating	Score	Resources required	Weight	Rating	Score
Automation of meta desc	Total	1		2	Total	1		1.46	Total	1		1.6
	Incremental (have the know how)	0.5	4	2	Process optimization (speed up wc	0.1	2	0.2	Dev/engineers	0.3	4	1.2
	Incremental (do not have the know how)	0.2	0	0	Performance improvement (page s	0.1	4	0.4	Designers/UX/UI	0.2	0	0
	Radical (have the know how)	0.25	0	0	User experience (UX)	0.05	3	0.15	Analysts/Data/SEO	0.2	2	0.4
	Radical (do not have the know how)	0.05	0	0	Increase in number of subscribers	0	0	0	Marketing	0.1	0	0
					Increase video plays	0.15	0	0	Community/social media	0.1	0	0
					Increase number of users	0.15	2	0.3	Sales	0.1	0	0
					Pageviews	0.15	2	0.3				
					Engagement time	0.05	0	0				
					Revenue (advertising sales/banner	0.2	0.5	0.1				
					Revenue (subscriptions)	0	0	0				
					Brand/image	0.05	0.2	0.01				

Figure 10: Parameter matrix example 3 - Automation of meta description for SEO

Resources required	Weight	Rating	Score	Investment cost	Weight	Rating	Score	Requested by	Weight	Rating	Score
Total	1		1.6	Total	1		2.4	Total	1		1.26
Dev/engineers	0.3	4	1.2	High	0.1	0	0	Director/CEO	0.3	0	0
Designers/UX/UI	0.2	0	0	Medium	0.3	0	0	Other C-level executive	0.2	0	0
Analysts/Data/SEO	0.2	2	0.4	Low	0.6	4	2.4	Management level	0.1	4	0.4
Marketing	0.1	0	0					Editor in Chief	0.2	4	0.8
Community/social media	0.1	0	0					Editors/Journalists	0.1	0	0
Sales	0.1	0	0					Development team	0.06	1	0.06
								External	0.02	0	0
								Other	0.02	0	0

Figure 11: Parameter matrix example 3 (continued)

Time of realization	Weight	Rating	Score	Risk	Weight	Rating	Score	Platforms affected	Weight	Rating	Score
Total	1	1.45	1.45	Total	1	2.4	2.4	Total	1	2.2	2.2
Immediately	0.35	0	0	High	0.1	0	0	Web site (desktop)	0.1	4	0.4
Few days	0.25	4	1	Medium	0.3	0	0	Web site (mobile)	0.25	4	1
A week	0.15	3	0.45	Low	0.6	4	2.4	Android app	0.1	0	0
Few weeks	0.1	0	0					iOS app	0.1	0	0
A month	0.08	0	0					Other app	0.05	0	0
Few months	0.03	0	0					Video platform	0.15	0	0
A year	0.02	0	0					CMS	0.2	4	0.8
Multiyear	0.01	0	0					Other	0.05	0	0
Unspecified	0.01	0	0								

Figure 12: Parameter matrix example 3 (continued)

3.4 Priority ranking

Once all the innovations were successfully run through the model and the scores for each calculated, the priority ranking (figure 13) presented the list with total scores for each.

Name of product innovation	Innovation Type	Impacts Score	Resources required Score	Investment cost Score	Requested by Score	Urgency Score	Time of realization Score	Risk Score	Platforms affected Score	Total Score
Automated related news section below article	2	1.95	1.7	2.4	1.4	1.8	1.55	2.4	2.55	17.75
New video platform	1	2.6	2.8	1.2	1.8	1.2	0.3	1.2	3.05	15.15
Automation of meta description for SEO	2	1.46	1.6	2.4	1.26	1.2	1.45	2.4	2.2	15.97

Figure 13: Priority ranking

The final decision on how to proceed with the realization of new product innovations was as follows:

1. Automated related news section below article (17.75)
2. Automation of meta descriptions for SEO (15.97)
3. New video platform (15.15)

4 Conclusion

The digital product innovation model for news publishers has provided Telegraf with a systematic approach and a framework for innovation which has proven to be beneficial in determining the priority ranking of new product innovations. The model has effectively been used even by more junior colleagues who were not experienced enough to be involved in the decision-making process prior to the introduction of the model.

Further research and application to other news publishing companies is needed to confirm the global efficacy for all media publishing companies in Serbia and internationally.

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