



NEWSBUTLER

Maximize reader revenue from personalized, user-controlled news applications

Traditional publishers who seek to deliver fact-checked, quality journalism online face strong competition. Global tech giants have massive resources to build complex, personalized digital applications. These raise customer expectations of all digital news tools, as well as the expectation that the media will be available across all platforms, especially mobile.

To survive in this environment, traditional publishers need to present consumers with a convincing case for their direct revenue-based business models. And to maximize the willingness to pay, they need to provide a convenient and customizable, frictionless, functional experience that makes the most of new technological tools. They also need to make it easy for consumers to access their tools seamlessly across all platforms and devices, with easy payment options that nonetheless allow for different levels of access and use.

The NewsButler project aimed to research and develop a demonstrator incorporating an intelligent theme and article recommender and an editorial optimization engine. This engine would act like a 'digital butler' helping readers and editorial teams to serve every reader with a personal, user-controlled news experience, as well as assisting readers to intelligently explore new subjects. In addition, the project sought to explore new channels of news distribution and interaction, and it investigated new monetization models for quality content based on better aligning pricing with consumption and levels of engagement.

THE OUTCOMES

The project led to three key results.

1. Recommendation engine for readers and editorial teams

The project partners began by designing a personalized content recommender system aimed at readers. This engine suggests themes and articles, including articles both within and outside the user's subscribed themes. The article recommender combines content embeddings, popularity and recency with user profiles in a hybrid engine to optimize accuracy and diversity (to address the phenomenon of 'filter bubbles'). The theme recommender extends the widely used Bayesian Personalized Ranking recommendation framework to consider readers' content consumption.

The partners also designed a pipeline to recommend suitable themes to the editorial team. These themes are based on reading behavior and combine an interpretable bi-clustering algorithm with a post-processing step. This filters the most relevant bi-clusters and translates them into content themes.

2. Insights into subscription models

The project partners observed high adoption potential and willingness to pay in several use cases. The first was in users extending their subscription from one title to multiple titles (bundles). Secondly, there was high interest in family subscriptions, particularly among 'hard news' brands (Knack, Trends). Thirdly, there was relatively lower but still relevant interest for family subscriptions for lifestyle brands.

3. Results relating to new channels for news distribution

The project also aimed to identify how news can be delivered to users through various channels of their preference in a variety of ways. It explored ambient (omnichannel) solutions. This showed a clear interest among consumers to receive news which is bundled together and sent to them, either through conversation bots or via audio (voice-based) user interfaces.

NEXT STEPS

Further research is planned. In particular, ITEC is planning follow-up research related to other news recommendation challenges such as addressing multiple stakeholders. It will also explore translating the insights and solutions from the NewsButler project to other domains such as real estate, where there are problems of diversity and cold start.

Following the NewsButler project, the Roularta Media Group launched an entirely new digital strategy, including a new, innovative multi-brand personalized app called "Mijn Magazines". This offers new 'Family' subscription formulas combining print with digital access to all of Roularta's magazine brands for three user accounts per family. Longer-term, the Mijn Magazines platform will allow new kinds of bundles such as mini-bundles or theme-based bundles.

In addition, recent pilots have delivered promising results on the use of conversational interfaces for news distribution. Consequently, Roularta will further investigate the possibilities of interactive messaging channels which help stimulate engagement and increase purchase intentions.



WHAT IS AN IMEC.ICON PROJECT?

The imec.icon research program equals demand-driven, cooperative research. The driving force behind imec.icon projects are multidisciplinary teams of imec researchers, industry partners and/or social-profit organizations. Together, they lay the foundation of digital solutions which find their way into the product portfolios of the participating partners.

The NewsButler project was co-funded by imec, with project support from Agentschap Innoveren & Ondernemen

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is ondernemen

FACTS

NAME	NewsButler
OBJECTIVE	Maximize reader revenue from personalized, user-controlled news applications.
TECHNOLOGIES USED	Recommender systems, Bayesian Personalized Ranking, deep neural network embeddings, bi-clustering, diversification, Kubernetes, Elasticsearch, Tensorflow, Google Cloud, ambient computing, conversational UI, chat bots.
TYPE	imec.icon project
DURATION	01/09/2018 – 30/04/2021
PROJECT LEAD	Nick Dutry, Roularta Media Group
RESEARCH LEAD	Celine Vens, imec - ITEC - KU Leuven
BUDGET	1,335,641 euro
PROJECT PARTNERS	Roularta Media Group, ML6 – Skyhaus, Bothrs
RESEARCH GROUPS	SMIT, an imec research group at VUB, ITEC, an imec research group at KU Leuven

NewsButler project partners



Bothrs



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