

Integrated Content Marketing

[Extended Abstract]

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ABSTRACT

idio is a technology startup that works with major brands in both the UK and the US to drive Customer Centricity through Content Marketing. idio's full-stack platform fuses Natural Language Processing, Data Mining, Web Analytics and Recommendation Engines at scale.

Categories and Subject Descriptors

H.3.5 [On-line Information Services]: Web-based Services

Keywords

Personalization, Natural Language Processing, Content Marketing

1. INTRODUCTION

idio are a content marketing technology startup based in London, UK. The core technology is a platform called Integrated Content Marketing (ICM) which provides greater customer understanding through personalized delivery of semantically tagged content through a variety of channels. idio work with a number of major brands in both the UK and USA to help build long-term customer value and brand loyalty.

2. INTEGRATED CONTENT MARKETING

idio's platform fuses a number of technology components: an advanced content aggregation engine that utilises Natural Language Processing techniques to derive semantic meaning from unstructured text; a powerful cross-channel analytics suite capable of identifying and understanding individuals across both brand touch-points and social platforms; and a real-time user modeling and recommendation suite capable of personalizing the customer experience on all channels.

The platform focuses itself on the pure Content Marketing challenges and then provides integrations with various third-party systems to realise content delivery across web, email and social channels. The platform also integrates with the organisation's Customer Relationship Database, and pushes all customer knowledge to this system so that it can be utilised at all points across the organisation.

2.1 Content Ingestion

idio believe the power behind good content strategy lies in breadth and volume of content, and this is facilitated through idio's content aggregation engine. The system is capable of ingesting content of various types from numerous sources, from RSS feeds through Video channels to Social streams. The textual components of this content are passed through Natural Language Processing technologies - some in-house and some third party. These perform Named Entity Recognition, the results of which are disambiguated using against Freebase, a linked-data service. This allows us to build up a feature profile for each item of content:

$$F_c = \{\langle f, w \rangle, \dots\}$$

Where w represents the weight of the feature f against content item c . This weight is measured against a corpus of content and gives a measure of relevance.

ICM's management interface gives brand managers and agencies control over the content sources, ingestion process, moderation and content presentation. It allows the user to semantically define content segmentation rules, which not only facilitate realisation of the content strategy but also act as filters for irrelevant content.

2.2 Analytics

idio's analytics suite is capable of gathering implicit interaction data from each customer across all their interaction channels. As the customer interacts with content, the semantic profiles of the content are used to build a semantic profile of the user. These interactions are logged through a combination of Javascript-based web analytics techniques, click tracking and pixel tracking depending upon the channel.

To further augment this, and to partially solve the cold start problem, idio have a social data mining platform that can, at scale, identify users across social networks and apply similar Natural Language Processing techniques to build the user profile from their explicit public profile information.

By studying the feature profiles of content items the user has interacted with and also by analysing their social activity using the same NLP techniques, we can build a feature profile for each user:

$$F_u = \{\langle f, w \rangle, \dots\}$$

Where w represents the weight of the feature f against the user u . This weight represents the degree to which the user has shown an interest in that particular feature, and

is computed by taking various factors into account, such as how the user interacted with the content (passively or actively) and when it was that the interactions took place.

ICM's management interface presents the user with a "single customer view", which describes the user both semantically and demographically, pulling together data from the organisation's CRM database and idio's customer analytics suite. This data can then be fed into campaign management tools to facilitate segmentation.

2.3 Personalization

The drive towards Customer Centricity in the world of marketing is powered by experiences tailored for the individual. idio achieve this by personalizing all content streams for each individual on all channels. With Guinness, idio power a personalised email campaign which consistently has the highest open and click-through rates across all of Diageo's email campaigns, achieving a 345% increase in open rates and 861% increase in click through.

The personalization engine takes advantage of both the content analytics and the customer analytics suites to power a Hybrid Recommendation System that fuses two styles of recommendation.

- **Journey analysis.** Using the data from the analytics suite, entire user journeys can be identified and clustered. The current user's journey can then be compared against these clusters to provide a collaborative-style content ranking.
- **Content-based Recommendation.** Using the feature profiles for users and content items, the system performs traditional content-based recommendation. Due to the wide range of domains that the system is deployed under, the similarity measurement algorithms are designed to be plug-and-play, so that simple per-client configuration can tailor the recommendation system.

The engine is architected for scale, and is capable of making content decisions in real-time. The architecture ensures that the user profile is always up-to-date, and allows the engine to use short-term and long-term user profiles to improve recommendation quality.

idio's personalization engine has been honed across many deployments and media types. It began life as a personalized music magazine, and has evolved to handle other media and domains, including applications around business-related newswire, recipes and healthy living, and lifestyle content. Most recently, it was employed and extended in a TSB-funded project which integrated content from Film, Music and Editorial domains in collaboration with The Guardian, The BFI and Decibel.

2.4 Next-Best-Content

The next generation of ICM will include a technology called Next-Best-Content, which takes its lead from Next-Best-Action, a Predictive Analytics technology that transformed the CRM world in the 90's. Next-Best-Content will build upon idio's customer understanding platform with Adaptive Modeling techniques, allowing the platform to understand the user's journey in terms of their goals, knowledge and context to predict not just what the best item of content is for that user, but also how, on what channel and when

that content should be presented. This technology is in Research & Development phase, set to launch Q1 2013. The project has been part-funded by the Technology Strategy Board in the UK.

2.5 Architecture

The platform is entirely cloud-based and takes advantages of scalable distributed architectures to ensure each component is as fault-tolerant, available and real-time as possible. A blend of technologies is used throughout the stack, with NoSQL & SQL databases working in harmony alongside services written in various languages utilising different serving methodologies. For user modeling, a hybrid real-time and batch processing system ensures that user models are always up to date with the user's latest interactions, and allows the personalization engine to perform recommendations against both a short-term and a long-term user profile.

The outward facing platform interface is primarily a RESTful API, which enables integration with an organisation's incumbent systems.

3. INSTALLATIONS

idio currently have many live projects utilising the platform. The most successful of these include:

- **Guinness 1759** [?]: This project with Diageo provides a media property for the Guinness brand displaying content around Sport & Lifestyle. Personalized email campaigns are sent weekly, and the system also integrates to deliver content on Twitter and Facebook.
- **Slim.Fast** [?]: This project worked with Unilever to promote the Slim.Fast 1.2.3 plan, and features content around Healthy Living & Weightloss. The site also integrates with a monthly email campaign. In the first 3 months after launch, Slim.Fast received more signups than they had done in the 3 years previous.
- **The Media Briefing** [?]: This project aggregates content around the B2B Media world. It publishes around 200 articles per day, and powers multiple weekly email campaigns.

4. REFERENCES

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