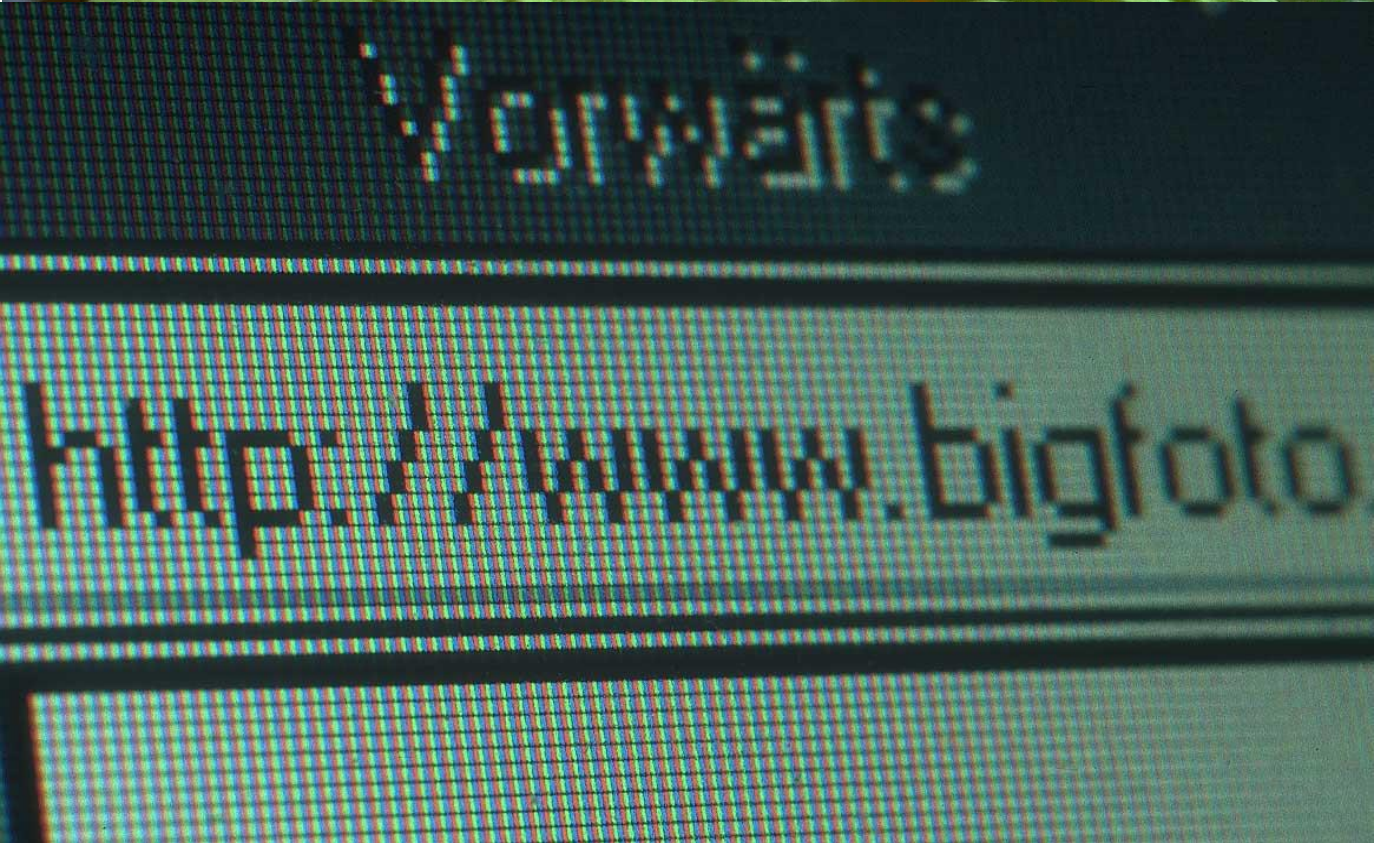


Browne & Mohan

Your Knowledge Partner



The new frontier: Virtual personal assistants (VPA)

Strategy & Marketing Group

Introduction

Have you ever wondered what it would be like to have someone like Reginald Jeeves from P.G. Wodehouse novels who is “personal gentleman’s gentleman” (valet) serving you. He would assist you in every chore, one who understand every idiosyncrasy of you (how much slat in your side dish, what side of your brows bread to toast, etc), a shadow who unobtrusively connects several dots (calls up your mother-in-law and thanks her for the wonderful (yak..) cake she sent yesterday or made reservations at the newly opened Greek restaurant with expansive interiors, Page 3 crowd and stale food).

While characters like Jeeves are becoming an extinct species amongst the service providers, servility is emerging in new avatar on internet. With information nuggets spread loosely around the world, Search engines emerged as the interface between the users and the web. Recall, earlier search engines were largely rule based (Yahoo, askit, etc) which appeared at the early stage of internet was basically to help match user requirements based on tags that matched. Soon the search evolved from rule based to concept based. Google, which was the first to debut the concept based search quickly, realized people may type heart disease and the data stored may be labelled as cardiac and hence the two data schemas are related. Each search outputs are often generic and based on the key words used by the user and the tags associated with the material stored on any site. Hence, there could always be what economists’ term “information asymmetry”. The search can throw up broad based results which may be relevant, but not exactly matching the requirements of the user. The key words used may be not exhaustive enough to locate and pick the data, or the creators of the contents could have themselves tagged inappropriately or inadequately. Hence, the retrieved information WebPages, Links, images, and Documents, may sometime suffice the user requirement, but will not satiate the demand.

The real challenge today is internet world has become information intensive, users have many diverse needs and importantly there is paucity of time. This is where personalization, where all user searches are tailor made according to one needs comes to play. Personalization requires an understanding of both implicit and explicit needs of the user, understand what would probably fit the requirement with a degree of certainty.

Personalization can be of two dimensional: context related and individual related. Context refers to the schema of current requirements, with what need or ask is information sought, when the information is sought, etc. For example, if one is searching for a restaurant to dine, location, ambience, brightness, quality, service, reviews, the surrounding and type of people go to the particular restaurant are all elements of context to what is being “searched for”. On the other hand, individual dimension refers to user’s goal, prior & tacit knowledge, past information seeking behavior, etc. Again in the context of searching for a restaurant, individual dimensions relate to how many times has the user looked at similar places, what type of ambience skewed his consumption, what location or recommendation has tilted his choice are indicators of whether the user would consumer a particular information and how predictably.

Most personalization algorithms therefore work on historical choices made (use belief functions or other AI frameworks to capture what the user chosen previously) and association (to predict the most likely information source or schema the user would consume). As with Jeeves, the more historical data and trends allow the programs to detect the latent need and predict right choice.

VPAs are programs based on artificial intelligence and other technologies help in search the web, text or reach out to a contact, get recommendations from experts or friends, avail coupons and discounts and complete a need. They help time constrained professionals to manage their voice-mails, emails, send request for meeting or schedule meetings and other tasks. VPAs access information residing on the internet, intranet or social networks of their user and other devices (handhelds, etc) or database. They manage the user's contact mail list; have historical data of who from these lists have been messaged to get particular information (Beth for Halloween costumes for your son and Brian for best Irish Pub in the city).

VPAs are aware of temporal and social context in which a task is initiated. They are enabled to offer conversational interface that is they can talk back whenever a sub-task is done or a task needs further approval. They reside in the personal devices of the user, have access to this data and learn to use the tasks overtime to uncover the "individual taste" of the user and serve him better. Fundamentally, VPAs can do things for you (tasks completion, say a search the best dress to my secretary..), get the right information what you seek (understands you trust your mom's recommendations of Pickles for the Hot Dogs much more than what Food magazines say), and get to know you better (learn you prefer to seek info about the club activities from your mom-in-law to make her feel important, while you always go with James your colleague). The values VPAs bring are: time savings, get tasks done, get actionable recommendations (both generic web based and personalized recommendations from your trusted friend) and maximize work-life balance.

VPAs have evolved from repetitive tasks oriented ones where learning is minimum (ex: Get Friday, hi Task, etc), specialized vertical focused ones (Rearden, Dothomes, Pageonce, etc to smart, history embedded programs like Siri, Glomantra, hunch, etc. While some of the VPAs have remained more as recommendatory engines (search and fetch most appropriate piece of information) some other are evolving into search and fulfilment (myBantu which completes the search, evaluation to task completion). With addressable market in US estimated to be \$1.54 billion and with the acquisition of Siri by Apple the VPA market has turned hot.

Initially, the focus of VPAs has been on broadband and internet markets. However, with mobile platforms growth surpassing desktop and other devices, most of the VPA's are making themselves available on mobile platform. The game changer in the mobile world happened with Apple acquisition of Siri and redeployment of it as a voice recognition assistant. This clever ploy by Apple is to ward off other platform vendors like Google gaining tractions through their voice search products and offer a cool feature to "no buttons" iPod generation. Siri's addition was the low risk feature Apple could introduce into the market as the product was robust. Moreover, by positioning it as a voice search feature Apple's strategy was to get high early adoption rates that could be later extended and monetized on VPA. While Siri has caught the early fancy of users, products like myBantu, Iris have the potential to emerge as the killer products on Android platforms.

VPAs are quickly integrating all communication media to provide all presence functionality. Mybantu works on Skype account. VPAs on mobile are just emerging. Siri on Iphone 4s, is good at search. Requests for restaurant location or flights between Boston and Chicago the results were good. However, if the user is looking for advanced search options, Siri is yet to evolve. When you want to gift baby stroller to one's niece under \$100 or Halloween costumes under \$5, myBantu does better. Siri is good at natural language processing (very close to Naturallyspeaking and other software on desktop) and its interactive dialogue is impressive. Siri search results are very impressive across the categories of dining, travel, stocks, music. Siri is yet to completely integrate the supply chain vendors to complete the transaction. As an infomediary, it fetches info on "quick grab near office" or "view dining places on map".

However, it can't get you the coupons for the recommended dining place or big bite at uncle Mac. On the movies front, Siri presents the exhaustive lists of movies, lets you book for tickets at favourite movie hall, got generic reviews from net. However, if you are endowed with an Aesop's wife and you do not wanted to risk your wife's ire, by taking her to movies when you could not vouch for source of the reviews.

That is where, myBantu fares better. Its product categories may not be very large, but in the categories it operates the customer request are all completed: from search to fulfilment. It could fetch the reviews about a diner or a movie from the sources one knows & trust (friends and colleagues) and if in doubt sends informs to the wife or her aunt for buy-in and approval.

The party to personalization has just begun. With HP plucking Autonomy and Oracle gobbling Endeca the signals are clear. The evolution of IT is moving from infrastructure to intelligence era. The giants who built their billion dollar business peddling infrastructure products servers, storage and software (DB, etc) have recognized the next phase of IT play would be in enabling organizations to intelligently seek out the nuggets of insights from mountains of data created. Coming days would witness enterprise search Czar's acquiring more taste to VPAs to enhance their revenues. While economic equality happens or not, all of us could end up having a valet on our mobile. That is a Jeeves for everyone. Karl Marx would be really happy with the servitude capitalization.

Conclusion

Personalization is emerging as ubiquitous feature on both web and hand-held platforms. Early success of Siri on iPhone 4s indicates the market is in nascent stage. Initial deployments are around user search support and later the companies would position the product to not just search, but evaluation, negotiation and task closure. With increasing personalization, markets may not fragment but self-selection of communities may occur. It is an exciting period of innovation, newer and multiple Apple's may blossom in future. The wait is exciting.

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