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General Article

TOWARDS A STRATEGIC TOOL FOR THE BUSINESS MODELING OF IDM STARTUPS - IMPLEMENTING THE ADVISOR FRAMEWORK

***Ravi S. Sharma**
Wee Kim Wee School of Communication & Information Nanyang Technological University Republic of Singapore
**Author for Correspondence*

ABSTRACT
This paper describes the ADVISOR online tool for Interactive Digital Media (IDM) Business modeling. The research objective was to develop an online business modeling tool for de-novo IDM firms based on the ADVISOR framework. The tool supports the business strategy of startups, incubators and new firms in the IDM marketplace such as content, applications and service providers. The core concept of the ADVISOR framework is that the value of a product or service offering in the digital marketplace is governed by the interaction among seven distinct components. The online tool that was implemented is based on the notions of value create and value capture described in the strategy literature. The field research suggests that it is useful to perform such a profile analysis on a yearly basis so as to benchmark and track the firm's performance. This enables entrepreneurs to think in terms of what can bring about new opportunities and what can return back to the firm goodwill and revenue from the market.

Key Words: **Digital Business Strategy, Online Business Modeling, Value Analysis, Empathic Design.**

INTRODUCTION
Interactive media is the integration of digital media including combinations of electronic text, graphics, moving images, and sound, into a structured digital computerized environment that allows people to interact with the data for appropriate purposes. The digital environment includes the Internet, telecommunications and interactive digital television. Worldwide revenue from new media channels such as Internet advertising, mobile music and online games are growing much faster than traditional media. Its revenue compound annual growth rate (CAGR) from 2006 to 2010 is 23 percent versus 6 percent for traditional revenue streams.
The Special Interest Group on Interactive Digital Enterprise (SIGIDE) is a National Research Foundation (NRF) funded initiative that has been investigating business modeling strategies for de-novo IDM firms (cf. http://sigideadvisor.zzl.org/). One such research effort has led to the formulation of what is known as the ADVISOR business modeling framework. This paper provides a narrative of how this framework has been implemented and tested. The framework is based on the VISOR framework developed by Professor Omar El Sawy (2008) of the Marshall School of Business and his co-workers. It was modified to suit the research objectives of SIGIDE. Table 1 defines each ADVISOR component more fully.

Table 1. Elements of the ADVISOR Framework and Assessment Criteria.

Elements	Measure	Description
Bench Marking	Current Performance	How is current performance with respect to revenue growth and return on capital
	Firm's ability	What is your Firm's ability to conserve its value by increasing its cash flows in the next year
	Degree of firm's Expectation	How are stakeholders and investors expectation about future performance
	Firm's majority	Is Firm's majority owners are uniquely positioned to create and capture value

Adoption by Customers	Opportunities for innovation	Are new products or services created ready for launch in the market?
	Customer dependency	The extent to which customers rely on the products or services
	Network effect	The phenomenon whereby a service becomes more valuable as more people use it
	Crossing the chasm	A critical mass of customers who support economies of scale and scope
Disruptive Innovation	Disruptiveness	The act of eliminating existing product or services through introduction of new products or services for further improvement of business
	Beneficiary of disruptive innovation	Product or services which provides beneficiary through disruptive innovation
	Source of disruptive innovation	Product or services act as source of disruptive innovation
Value Proposition	Uniqueness	Uniqueness of application one of a kind
	Complementary	Supplements other products or services in the market
	Criticality	Address 'must solve' problem of customer.
Interface	Ease of learning	Customer find products or services easy to learn
	Simplicity	Product or services is Simple to use by customer
	Interactivity	Effectively engaging users.
Service Platform	Multi-homing	Ability of IDM application to connect to various clients and platforms.
	Switching Cost	The negative costs that a consumer incurs as a result of changing suppliers, brands or products.
	Service Platform Strategy	Use of standard Vs proprietary platform standards
Organizing Model	Effectiveness and Efficiency	Effectiveness - Quality measure Efficiency - Productivity measure
	Relationship with customers	Goodwill customer has towards product or services
	Awareness of substitute/complementary products and services	Products or services that replaces or enhance
Revenue or Cost Sharing	Sources of revenue	Cash inflows from Customer or business partners
	Pricing strategies	Refers to different methods used to price their products or services
	Revenue exclusiveness	Share of revenue obtained

The definitions and theoretical linkages of each of seven components of the ADVISOR business framework are provided in Table 1. We postulate that the online tool for developing interactive digital media marketplace as a function of ADVISOR elements that can allocate the value created for the

customers and the value captured from the market. Value is created when it flows from the firm to the ecosystem whereas it is captured when it flows in the opposite direction. Like other business models (Zott and Amit 2010), stand-alone design parameters are not found in the ADVISOR elements as well as it allows the IDM firm to understand their place in its ecosystem with the respective the value created and captured. The ADVISOR elements serve as a resource view of a firm for intangible assets, skills and capabilities within a firm which align with its IDM eco-system especially in competition. This can influence ability and competitive advantage of the firm's value creating according to Barney 2001 cited by Wu et al., 2010. Fundamentally, a firm can understand what, when and how it could enter, grow and sustain its business with the help of the ADVISOR business framework and its strategy. While not a predictor of success, it nevertheless alerts a firm to "dangerous intersections" in the firm's growth path.

Amit and Zott (2001 & 2007) suggested two effects for business model that: One effect relies on the total value-creation that would be the potential of the business model design (value create), and the second is the consideration the impact of business model which can design on the firm's ability to appropriate the value that its business model creates (value capture). The value created should be for all business model stakeholders (focal firm, customers, suppliers, and other exchange partners) in terms of total value created. Brandenburger and Stuart 1996 stated that it is the upper limit for the value that can be captured by the focal firm. Drawing on Brandenburger and Nalebuff (1995) and Brandenburger and Stuart (1996), Amit and Zott (2007) argued that the value created eventually flow appropriately from the focal firm hinges on the bargaining power of the focal firm relative to other business model stakeholders

Following from the argument above, we divided the ADVISOR frame into elements and shall later articulate the assertions for each of the ADVISOR business model components and elements to identify value created and value captured by the firm shown in Figure 1.

Figure 1: Outline of ADVISOR Framework.

The objective of the implementation and field trial was to refine the ADVISOR online tool for IDM Business modeling using the same platform with more interactions and accessibility for the startups and

incubators to know the advantage and experience the use of tool for business modeling. The latest online tool (cf. *http://sigideadvisor.zzl.org/tool_login.php*) consists of modules that perform both the data-capture as well as the analytics. Screen-shots are attached as annexes to this paper and the functionalities of the tool will be described in the remainder of this paper. Of particular interest will be how the tool was refined using Empathic Design as a research methodology.

ADVISOR BUSINESS MODELING FRAMEWORK

The ADVISOR framework was designed to be utilized to examine the stability of business model in IDM marketplace. The objective of this framework is to identify the value added variables of intermediaries and their payoffs. There is an evident theory derived on observing the relationship among these intermediaries which yields the market place stability. The stable state is identifying the proportionality between the value added by intermediaries and payoffs derived intermediaries, producers and consumers. Shafer, Smith & Linder (2005) stated that a business model is defined as a group of basic interdependent systems that give life and nourish a competitive organization, which addresses costumer needs, discriminates its offerings, and defines the tasks it should perform. Business model representations undergo rapid evolution during implementation. These models help in capturing critical patterns of data such as changing relationships and strategic alternatives. The profit obtained and the core logic of their strategic alternatives provide business sustainability over time. Morris, Schindehutte & Allen (2005) stated that differentiation for completion based on these categories creates a competitive position.

The framework enables de-novo firms to self realize their strengths, weaknesses, opportunities and threats emanating from operating in the IDM marketplace. This model also helps to assess the position of the firm in digital market. The ADVISOR elements serve as a resource view of a firm for intangible assets, skills and capabilities within a firm which align with its IDM eco-system especially in competition. This can influence ability and competitive advantage of the firm's value creating according to Barney (2001) cited by Wu et al. (2010). The theoretical linkages of each of the seven components of the ADVISOR Business modeling tool has been enhanced with mouse roll-over features are provide under ADVISOR tab framework. This enables an IDM firm to assess its business model with respect to specific business growth and sustainability values of the market in which it operates in order to refine its strategy.

Table 2 shows the questions and statements with enhanced features such as anchoring for each question and response in simple business language that explains the meaning of the terms.

Table 2: Elements for ADVISOR Business Modeling Tool.

Components	Elements	Value Created	Value Capture
A **Adoption by Customers**	Customer Dependency	My customer is dependent on my firm's product or service for growth.	This dependency is recognized and rewarded by the players in the market.
	Network effect	There is a network effect to the use of my firm's product or service.	This network effect is recognized and rewarded by the players in the market.
	Crossing the Chasm	My firm's product or service has crossed the chasm (i.e. a critical mass of customers who support economies of scale and scope).	This is recognized and rewarded by the players in the market.
	Other Factors	What other factor significantly contribute to the adoption of your product or service by your customers?	

D **Disruptive Innovation**	Disruptiveness Innovation	My firm's product or service is disruptive to an established market or segment.	This disruptive nature of my firm's product or service is recognized and rewarded by the players in the market.
	Beneficiary of Disruptive	My customers and business partners benefit from the disruptive innovation of my firm's product or service.	Disruptive innovation is a source of competitive advantage for my firm.
	Source of Disruptive Innovation	What is the primary source of your firm's disruptive innovation?	
V **Value Proposition**	Uniqueness	My firm's product or service is unique in the market.	The uniqueness of my firm's product or service is recognized and rewarded by the players in the market.
	Complementary	My firm's product or service complements the product or service of the customer.	The complementary nature of my firm's product or service is recognized and rewarded by the players in the market.
	Criticality	My firm's product or service solves a critical customer problem.	The problem solving nature of my firm's product or service is recognized and rewarded by the players in the market.
	Other Factors	What other factors may be significant in terms of creating or capturing the value proposition?	
I **Interface**	Ease of Learning	My firm's product or service is easy to learn.	The easy to learn characteristic of my firm's product or service is recognized and rewarded by the players in the market.
	Simplicity	My firm's product or service is simple to use	The simple to use characteristic of my firm's product or service is recognized and rewarded by the players in the market.
	Interactivity	My firm's product or service is fun to interact with.	The fun to interact nature of my firm's product or service is recognized and rewarded by the players in the market.
	Other Characteristics	What other characteristics may be significant with respect to creating or capturing value through the interface?	
S **Service Platform**	Multi-homing Service	My firm's product or service is supported by different service platforms (eg. networks, operating systems, devices) to reach our customers.	The multi-homing capability of my firm's product or service is recognized and rewarded by the players in the market.
	Switching Cost	In terms of time and money, there is a switching cost for my firm's customers and partners.	The switching cost creates a competitive advantage for my firm.
		Does your firm adopt a single or multiple service platform strategy?	Does your firm adopt an opened or closed service platform strategy?

	Platform Strategy	This single/multiple service platform strategy creates a competitive advantage for my firm.	This open/close platform strategy creates a competitive advantage for my firm.
	Other Significant Features	Is there any other feature of the service platform that is significant to creating or capturing value?	
O **Organizing Model**	Effectiveness & Efficiency	The distribution of my firm's product or service is effective and efficient.	The effective and efficient distribution of my firm's product or service is recognized and rewarded by the players in the market.
	Relationship with Customers	Overall, my firm's relationship with customers and business partners is excellent.	This excellent relationship is recognized and rewarded by the players in the market.
	Awareness of Substitute/ Complementary Products & Services	My firm is fully aware of substitute or complementary products or services in the market.	The available complementary or substitute product or service is a source of strength to my firm.
	Other Significant Rules	What is your most significant rule for engaging with your customers and business partners?	
R **Revenue or Cost Sharing**	Source of Revenue	My firm's major sources of revenue are: (*tick all that apply) End users Auction and licensing Advertising Re-syndication Others: (please specify)	These major revenue streams are recognized and rewarded by the players in the market.
	Pricing Strategies	The predominant pricing strategies for my firm's product and service are: *	My firm's pricing strategies are feasible in terms of cash flow (liquidity) and credit assurance (trust).
		What is the major reason for choosing your firm's dominant pricing strategy?	
	Revenue Exclusiveness	Additional revenues are exclusive to my firm.	

Each ADVISOR element is assessed by the firm using a scale such as the one shown in Figure 2. The relative numeric scores of these elements are then used for the SWOT analysis to be described later.

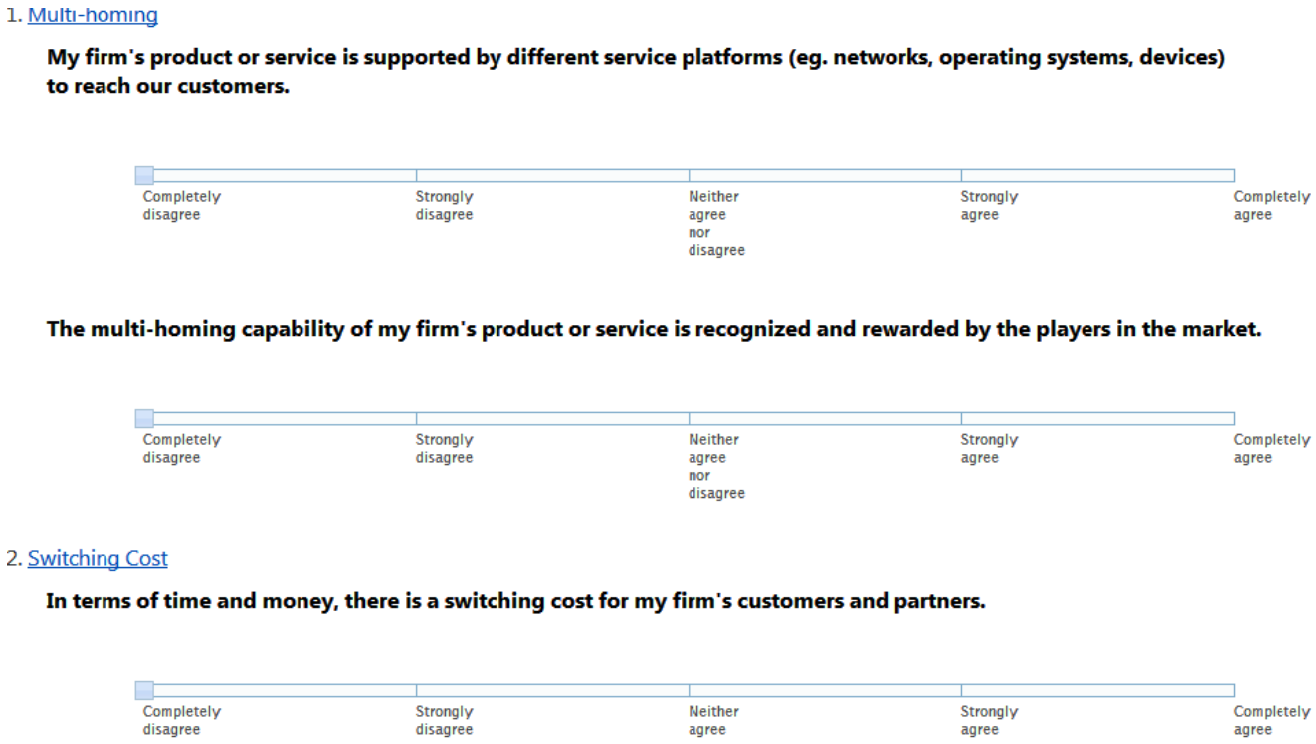

Figure 2: Scales for the Assessment of ADVISOR elements.

DESIGN & DEVELOPMENT METHODOLOGY

We chose "Empathic Design" to carry out validation and testing plan for our online tool. Empathetic design is an emerging field in the topic of managing strategy and marketing investigation. Analysis of the collective observations provides the insight required to define new product concepts on what will be valued by the consumer. Empathic design which employs field studies originated from anthropology to investigate the daily life of research participants. Researchers personally have to observe and keep a record of the creative designing process for developing a product, service or innovative concepts consumers need. It is commonly used in the early product development period or in the designing process to generate innovative concepts. Landwehr (2007) stated that this user centered design method can give the product or service designers the advantage of ad-hoc solutions to the problems by individuals and modify those to become a user centered design or to be aware of design flaws the users have assumed unfixable.

Such questions have not been addressed to potentially critical customer needs. Therefore, the main problem to be solved of empathetic design is to analyze the users' inner knowledge and to realize their need. Leonard and Rayport (1997) provided five steps of empathetic design and asked what ways can be used to show end-user's or designer's internal knowledge to find out their needs and what methods can be applied to analysis of the process.

Step 1: Observation

Clarification of whether customers or non-customers should be observed. Firstly, the observers are placed in a small team where each member has expertise in a different discipline. Secondly, the observers should be watching out for the people using the product and service in normal routines at their own natural environment. We planned to conduct the sessions with eleven incubators and startups to carry out the observation; however, we only received five responses due to the time constraint.

Step 2: Capturing Data

Relatively few responses are gathered through questions via a few open-ended questions. The observations over inquiry and interpretation of people' actions and feelings can minimize literalness. Capturing data may be done through visual, auditory, sensory and documentary methods and the information are captured using visual, auditory, sensory and documentary tools. Subtle, expeditious, unexpected and spontaneous clues can often fail to be perceived during the interpretation or translation the captured data to the word or number. For capturing data about our project, we arrange seven questions for our online tool and ask their comments, suggestions, and queries along the lines stated in Table 3.

Step 3: Reflection and Analysis

After capturing data from questions, the observer team returns to reflect what they have observed and to review the visual data with other colleagues. Those individual observances may ask a few questions to the observers which they may or may not answer and that may regard as further observation in order to identify all of the customers' needs and problems.

In our project, we analyse the reflection and answers from the above seven questions as shown in Table 3:

Table 3: Reflection and Analysis from Emphatic Design.

Was the ADVISOR modeling exercise useful to you or your firm?
It is a very useful tool
It more likes discovery about the strength and weakness of firm.
Specifically, Was the ADVISOR modeling exercise useful to you or your firm? Specifically, was there a "moment of truth", a spark of innovation, or discovery about your firm?
The tool is formally designed.
The SWOT analysis is very transparent to show the opportunities and threats.
Is this the type of business modeling process your firm would likely engage in continuously for growth and improvement?
Provided the tool is enhanced further with respect to the recommendations.
More detail will be even better.
Did you have any specific difficulty or challenge in using the tool?
The tool could be enhanced to support less user entry for certain text boxes provided in user information such as year and employee numbers.
Some users required the component description to be popped before taking up each component questions in the tool.
Were there any unintended benefits derived from using the tool?
SWOT Analysis provided better insight to the business model.
Generally, did the reflection – analysis – articulation exercise involved with ADVISOR modeling make sense to you and your firm?
The assessment seems to be too generic which may not be useful for all kind of firms.
The assessment results can be much clearer by using color coding in the results.
The average measure in the scale represents 50% agree and if the user skips a question it defaults as "weak".
Overall, how could we improve the ADVISOR modeling process?
User prefer "Less user Entry" – eg for year and ranges for no of employees.
Scale - The average measure in the scale represents 50% agree and if the user skips a question it defaults as "weak".
Can include Intermediate saving sessions
Enhance analytics report by color coding to the result for easy identification.

Step 4: Brainstorming for solution

Specially, brainstorming transforms the observations into possible solutions and suitable formats. Though this process can be highly creative, it is not undisciplined. The value of brainstorming is increased as the

seeds of ideas are often sown during this process. After we gathered the responses from the incubators and start-ups, our team members called up a meeting for brainstorming possible solutions as per the following:

- The tool could be enhanced to support less user input for example for "year" input.
- The tool could be made more useful by adding precise recommendation in the Analytics report, as the current tool recommendations are too generic.
- As there are too many texts in the analytics report "color coding" the different results such as "red" for weakness, etc.
- Currently the user is not given an option if he/she does not know the answer rather by default weak is assumed. A "don't know" or "not sure" option could be added in order to prevent from misleading the analytics computation.

Step 5: Developing prototypes of possible enhancements

Prototypes are a vital part of empathic design for clarifying the concept of new product or services for the development team, placing the functions for those who are not formally represented on the team, and stimulating.

Due to the time constraint, we could not develop a prototype of possible solutions for the results based on the reflection and analysis after brainstorming for them. However, we will discuss about for possible prototype in "Future Work" session for further development.

As this is an enhancement project to add new features and standards based on the principles of Empathic Design, we adopted the existing technology used by the prototype developers. The following are the stated reasons given for choosing PHP, JavaScript, and Dreamweaver as the basis for the portal with MySQL acting as database server which we concurred with:

- Ease of use
- Provide complete features
- Cross platform compatibility
- low cost for development and production.

Based on the principles of Empathic Design enhancements were implemented and a new site was setup with the new SIGIIDE version made available online at *www.sigideadvisor.zzl.org.*

TOOL ANALYTICS AND FIELD TRIALS

As the existing SIGIDE fulfilled the tool analytics logic completely the tool analytics logic as in the base version was retained. The first challenge was to determine the Benchmark Performance Level of the de-novo IDM firm. After some amount of consultations with the literature as well as faculty, it was determined by four measures which were derived from a much used reference in Corporate Finance and Value (Koller, Dobbs & Huyett, 2010). As shown in Annex 1, the measures rated during the registration page would be normalized to a maximum score of 100 (extremely low = 0, fairly low = 25, neither low nor high = 50, fairly high = 75, extremely high = 100). The formula for the detailed mapping algorithm is stated below.

Points Mapping for SWOT Analysis:-
Weak < 33
Moderate >33 & Moderate <=66
Strong > 66 & Strong <=100

The company performance benchmark is used to compare against scores computed from the assessment questions. For example in Value Proposition we have Uniqueness, Complementary and Criticality, under Uniqueness there is one question for value created, and one question for value captured. If the user selects 'Completely agree' then they are awarded points. This point is used to compare against the performance

benchmark (i.e. Weak, Moderate, Strong). If the value created is greater than performance benchmark, the Uniqueness will be a 'Strength'. The same applies to the value captured questions under Uniqueness. If value captured is more than the company performance benchmark, it is placed under 'Opportunity'. The characteristics under each ADVISOR component are analyzed through the same process so that they are classified on the Strength, Weakness, Opportunity or Threat column if they fall under any of the SWOT category. Otherwise they would not be identified. A sample SWOT output is tabulated below.

Table 4: Extract of SWOT Analysis for Value Proposition and Interface Elements.

Component	Value Created	Value Captured	Feedback
Value Proposition	Strong	Strong	Product or service is likely unique. You may need to constantly look out for the emergence of substitute products. Product or service is likely capturing value, however this is not a source of strength. Product or service is likely complementing product or service of customers. Again, beware of substitute products. The complementary nature of your product or service is likely capturing value, however there might be room for improvement. Product or service is likely solving customer's critical problem. You may wish to consider vertical or horizontal additions. Product or service problem solving nature is likely capturing value, however there might be room for improvement.Other factors significant in terms of creating or capturing the value proposition are: .
Interface	Strong	Strong	Product or service is likely easy to learn. Note that there is room for continuous improvement. Ease of learning your product or service is likely capturing value, however there might be room for improvement. Product or service is likely simple to use. No doubt, there is still room for improvement. Simple to use interface is likely capturing value, however there is always room for improvement. Product or service is mostly fun to interact with. Reflect on how to improve on this strength. Fun to interact with nature of your product or service is likely capturing value, however there might be room for improvement.Other characteristics significant with respect to creating or capturing value through the interface are: .

In other words, an element or component is deemed weak, moderate and strong if it is below or above the benchmark levels. In this manner, a SWOT table (such as the exemplar in Table 4) could be constructed. This benchmark result is only used for SWOT analysis and it does not affect any other analyses.

Due to the urgency of launch and delay in obtaining the requisite approvals for the field research, we are not able get appointments with IDM de-novo firms as planned to perform Empathic Design analysis on the ADVISOR Tool. However we approached and managed to get the help of a volunteer to who has IDM knowledge and experience to perform analysis with the new ADVISOR Tool. We highlighted to follow the empathic design concept according to Leonard and Rayport (1997) as explained above. During the design and development phase we considered the usability of the site and research objectives of the tool usage toward Business Intelligence. The methodology used to evaluate and enhance the ADVISOR tool includes a cyclic method of empathic analysis which the research process includes study of existing tool and comparing the usability against the need of the tool with the help IDM SIGIDE evaluation.

The tool also enabled us to obtain valuable feedback while interacting with IDM firms that perform analysis with the ADVISOR Tool. According to Leonard and Rayport (1997), we can review and learn five types of user feedback that is impossible to gather from traditional market research.

- Triggers of Use: We can prompt the circumstances to people to use our business modeling tool. We can know the opportunity for this tool if they do not turn to our offering when, and how we expected.
- Interactions with the User's Environment: We can observe how our tool fits into the users' own business firm.
- User Customization: The incubators and start-ups may reinvent or redesign the tool to serve their own purposes.

- Intangible Attribute of the product: We can know emotional or psychological reaction that can be leveraged from observation.
- Unarticulated user need: We can be aware of the missing features or poorly designed features and the modification needed to be improved those they do not think to ask for.

CHALLENGES AND FURTHER WORK

The first challenge was to understand the ADVISOR model, the underlying concepts as well as the work done till date. It is never easy to enhance upon another's work as we only have a general idea what has been done till date. Even with documentation we still require a fair bit of trial and error before we got a grasp of what has been done till date.

As with all on-going design and development, we faced the same issues where two out of three team members had no preceding IDM domain knowledge, we had difficulties to visualize the key concepts in order to elicit the tool requirements as well as to propose suitable solutions. Thanks to the guidance of SIGIDE members, we had overcome this challenge by studying relevant research journals, sharing and discussing the thoughts within the group.

Due to the nature of the coding performed by the previous team, we had to seek expert help, programmers who were versed in PHP and HTML, to assist in understanding of the logic. We had amended a fair bit of the codes so that they conform to universally accepting coding methodology.

Due to the development time constraints, we were not able to implement some features in the tool. After observing and analyzing the Empathic Design user reflections, we have come up with some suggestions for the following features that can be implemented in the next version of SIGIDE Online Tool in order to enhance the usability and understandability.

- The newer tool - sigideadvisor.zzl.org - has to undergo a second round of empathic design with the IDM incubator and startups, based on the feedback, the tool can be enhanced further.
- Based on the volunteer performances analysis, its recommend to have comparison which can facilitate user to understand the performance and growth between 2 years of results.
- User are not interest to fill up open end question and are likely to leave them mostly blank, so it will be good to improve the tool questions to have closed end for both value create and value capture.
- The tool could be enhanced to support less user entering of input (for example for "year") and more through selection of options.
- The tool could be made more useful by adding precise recommendations in the Analytics report, as the current tool recommendations are too generic.
- As there are too many texts in the analytics report "color coding" the different results such as "red" for weakness, etc.
- Currently a user is not given an option if he/she does not know the answer rather by default weak is assumed. A "don't know" or "not sure" option could be added in order to prevent from misleading the analytics computation.

The list is incomplete and such is the nature of ED and tool building. It is hoped that potential for a business modeling tool has been demonstrated.

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