Comparison of Business Model Canvas (BMC) Among the Three Consulting Companies

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Abstract: The Business Model Canvas (BMC) helps the companies in creating their business models based on nine building blocks. BMC is a tool that provides a clear view of what the company needs to achieve and focuses on the strategic elements that matter most and will have the greatest impact to the business. In this paper, we discuss on three consulting companies: ITECH Consulting, Kincardin Group, and Glen Ford's Project Management Consultant. These three companies are then compared among the nine building blocks in the BMC and we focused on key resources, value proposition, and customer segments in order to identify which BMC is the best among those three companies.

Keywords: Business Model Canvas (BMC), business model, project management, consulting.

1. INTRODUCTION

Business model describes the rationale of how an organization creates, delivers, and captures value. Business model can be described via nine building blocks that show how a company makes money. The nine blocks focus on four main areas of a business [1]: (1) customers; (2) offer; (3) infrastructure; and (4) financial viability. The nine building blocks are (1) customer segments, (2) value proposition, (3) channels, (4) customer relationships, (5) revenue streams, (6) key resources, (7) key activities, (8) key partnerships, and (9) cost structure. The nine building blocks in the business model is the basis to create Business Model Canvas (BMC), a tool for describing, analysing, and designing business models.

An applicable and useful business model approach for service environments must consider requirements as follows [5]:

- i. Representation of the relationships between customer and the business model.
- ii. Representation of the customers' share of costs and revenues.
- iii. Representation of the customers' contribution to activities and resources.
- iv. Representation of the specific context of a customer; emphasize the value creation of the customer.
- v. Representation of the relationship and channel between provider and customer.

Business Model Canvas has three significant advantages as stated as follows [6]:

i. Focus:

BMC helps to expand the thinking of the building blocks for creating a business model; it allows the business to understand how each component relates to the others in terms of its functions, activities, and processes. BMC focuses on the strategic elements that matter most and will have the greatest impact to the business.

ii. Speed & Agility:

The key principle of BMC is to focus on quality instead of quantity. It is about determining the key inputs to each block. BMC's construct is simple and focussed and easy to start, develop, and iterate. It adopts an agile mentality of planning, verification, and iteration as it is a living document that should be tested and revamped from time to time.

iii. Common Language:

BMC creates a common reference and language that can be shared and get feedback on each business model. Therefore, it is easy to interpret and use. It is a straight-forward reference that can be used by the internal team members and also by the external advisors, inventors, and partners.

BMC for each company is different and is influenced by business area, the business scope and type of business. In this study, we chose to focus on the BMC of two consulting companies and one independent consultant to compare their building blocks in order to identify the best BMC to be adopted. Hence, we provide several recommendations to extend the boundaries of thought, to generate new options, and, ultimately, to create value for each company.

2. CASE COMPANY

2.1 ITECH Consulting Group:

ITECH Consulting Group, Inc. (ITECH) is a woman-owned small business (WOSB) that has operated for more than a decade in support of various program initiatives in both federal and commercial markets. ITECH Consulting Group is a client-focused, success-oriented professional services consulting company with offices in the Washington D.C. area and projects across the United States. ITECH was established in 1998 in response to an identified need for highly qualified information technology professionals to supplement the workforce at various prime contractors to the U.S. federal government. By offering top quality technical consulting professionals, ITECH has been able to achieve a successful track record of providing professional services in both classified and unclassified environments. ITECH identifies, hires, and retains highly talented professionals to support efforts in both the public and private sector. Their consultants have extensive knowledge and experience in a wide range of skills. The breadth of knowledge among consultants allows for sharing of information and skills transfer among themselves and within a client's organization. Areas of focus include:

- Professional Labor Services / Staff Augmentation
- IT Service Support
- Business Continuity and Resiliency
- o Service Desk and Close Support
- IT Strategy and Architecture Services
- Maintenance and Technical Support Service
- Systems Engineering
- o Network and Communications Engineering
- Program Management
- Project Management
- Information Technology Service Management
- o ITIL Compliant Process Engineering
- Supply Chain Management
- Logistics Management
- Financial Management
- Customer Relationship Management
- Strategy and Change Management
- Web Design and Application Development

Supply technology services and focus on analytics and Enterprise mobility are the need of the customers. The key success of ITECH is the relationship with their customers. The best way to have a tactical discussion about strategy development business is by using Business Model Canvas (BMC) [3]. The BMC for ITECH Consulting Group is shown in Figure 1.

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Key Partners	Key Activities	Value Propositions	Customer Relationship	Customer Segments
-Partnership with Corporates that need IT services. Partnerships with OEMs Partnerships with products companies that do not have technology and product consulting bandwidth Partnerships with VC to provide high-Quality low- cost technology services to companies that VC have invested in	-Build Technology Capabilities/Practices Sales and Marketing of services Partner wit appropriate organizations Build prototypes	-There are a lot of consulting companies. We provide niche services - Analytics, Enterprise Mobility and QA	-Customer Relationships are key to the success of this business. Channels -All channels - Online and offline	needs technology services. Focused on Analytics and
Cost Structure Revenue Streams -High Quality Resources at competitive cost on the following cost				
structure/basis - Project based estimated cost - Hourly cost - Monthly				
fee - Cost plus model - Revenue sharing model - Cost and Stock model				

Figure 1: Business Model Canvas of ITECH Consulting Group [4]

ITECH is a global business consulting firm with innovative paradigm. The channels are based on online and offline. The teams fully participate with their clients to understand the real business issues and provide practical, realistic and implementable recommendations that are backed by research based analytical data. Their customers are from commercial and government:

- **1. Commercial** Computer Sciences Corporation, EDS (an HP company), Hewlett Packard (HP), LearningTree International, Middle East Broadcasting Network, SAIC, Terremark Federal, General Dynamics;
- 2. Government Department of the Air Force (DOD), Department of the Army (DOD), Defence Intelligence Agency Collage (DIAC), Department of Commerce (DOC), Department of Defence (DOD), Department of Energy (DOE), Department of Homeland Security (DHS), Join Forces Command (DOD), Department of Justice (DOJ), Department of Labor (DOL), Department of State (DOS), Department of Transportation (DOT), Central Intelligence Agency (CIA), National Aeronautical & Space Administration (NASA), U.S Marine Corpd (NMCI), Department of the Navy (NMCI), National Security Agency (NSA), U.S Department of Agriculture (USDA).

The teams partner with their clients to work on the most challenging issues that businesses are faced with today. Therefore, they provide a niche services to clients such as Analytics, Enterprise Mobility and QA. Besides, the revenue streams are either from: (1) Business Consulting - Org restructuring, design and implement strategy, social media strategies; (2) Technology Consulting - Enterprise Mobility, Data (Analytics, BI, Dwh); (3) Process Outsourcing - BPO, KPO and LPO, and/or (4) Professional Services. Total of cost structure required high quality resources at competitive cost on the project based estimated cost, hourly cost, monthly fee, revenue sharing model and Cost and Stock model.

2.2 Kincardin Group:

Kincardin group is a consulting company in Australia that consult on eight areas: (1) operational review; (2) strategy development, (3) business modelling; (4) franchising, licensing & distribution; (5) sales management; (6) operations &

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processes; (7) business exit & succession planning; and (8) project management. The founder, Angus Mackay said that "my purpose is to give back to the world." He has 15 years of professional experience including managing, consulting, and advising organizations across a range of industries that includes corporatizing a significant retailer, developing many network based businesses, the turn-around of an underperforming manufacturing business, and advising on the sale of a digital media business. He has a Masters of applied Finance from Macquarie University and a Bachelor of Business in Finance & International Management from University of Technology, Sydney [9].

The eight areas of consulting service provided by Kincardin are as follows [9]:

i. Operational Review:

It sets the context for a project and considers structure, strategy, systems, staff, skills, style, and culture.

ii. Strategy Development:

Many businesses fail to understand the changes that are occurring in their own markets and lose touch with their customers. Kincardin will encourage them to reconceive products, markets, and objectives; consider and test new concepts and strategic pathways; clarify their target customer segments and their value proposition and embedded learning and discovery into their DNA.

iii. Business Modelling:

Kincardin will help to bring clarity to the different values of potential strategic choices, build an understanding of the key drivers of growth and profitability, and determine how and when they could achieve a successful exit and all fundamental to good decision making.

iv. Franchising, Licensing & Distribution

Kincardin will help to expand the existing footprint of the businesses, with minimal capital, while maintaining the level of control that they choose. Kincardin has a deep understanding of network based businesses and business model choices to expand or improve the performance of their channels to market.

v. Sales Management:

When a good salesperson meets a bad business, it is usually the latter that keeps their reputation. Any weakness in any part of a business model will be magnified once a customer comes into contact with a business. Addressing these areas will ensure strong sales management practices and training can produce the results that are justly deserved.

vi. Operations & Processes:

Lean principles are applied to refocus the business processes on those activities that their customers place value in and will pay for. New thinking is also incorporated and ways of working to improve quality, reduce waste, and boost consistency.

vii. Business Exit & Succession Planning:

Kincardin has strong knowledge of equity and debt markets to accelerate potential growth opportunities and investment exit. Succession planning requires business owners to strike a balance between their personal requirements and the needs of their business. Kincardin helps to navigate their potential choices and preserve their legacy.

viii. Project Management:

Deliver anything from individual and discrete initiatives that form part of an existing strategy to transformational change.

The most effective way to have a strategic discussion about any existing or potential business is to use Business Model Canvas (BMC). The BMC for Kincardin is shown in Figure 2. Figure 2 shows 9 building blocks in BMC for Kincardin group. The key partners include accountants, financial planners, business & executive coaches, training providers, banks, commercial lenders, leasing providers, IT services, strategic marketing, customer experience, human resources, corporate & commercial law, and tax structuring. The key activities include consulting, training, sales, and networking while the key resources are consultants and trainers.

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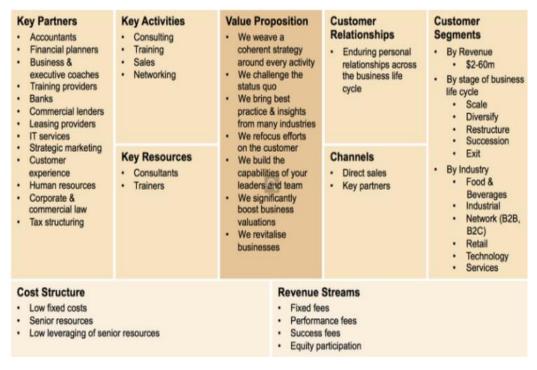


Figure 2: Business Model Canvas for Kincardin [9]

2.3 Glen Ford's Project Management Consultant:

Glen Ford is a serial entrepreneur from Canada and the founder of Can Da Software is located in Mississauga, Ontario, Canada. He has over 20-year experience Project Management skill set in IS/IT the majority of which was spent in project leadership positions. Moreover, Ford has strong business understanding, strong financial skill, strong interpersonal and communication skills and strong information systems engineering skill. Glen Ford has Wide business and IS development experience including Banking, Insurance, E-Commerce, Manufacturing, Accounting, Marketing, and Distribution systems, and Decentralization/Re-centralization, Total Quality Management, Team Building and Re-engineering. He has provided leadership in small, medium and large projects. What makes him even more in his field is experience and has developed capabilities in various methodologies, including SEI/CMM, ISO 9000, Coad/Yourdon, UML, and PMI/PMBOK. Ford able to think strategically and he can apply lessons learned in one industry to other industries in order to create innovation. Ford excelled in consultant area as he became consultant for companies that are recognized in Canada. Below are his careers as a consultant [7]:

i. Project Management Consultant/Instructor:

threeO Project Solutions Inc

June 2005 – Present (9 years 10 months)

ii. Senior Project Management Consultant:

VProz Inc.

December 2010 – January 2013 (2 years 2 months)

iii. Project Management Consultant:

Can Da Software

January 1997 – January 2008 (11 years 1 month)

iv. Senior Consultant:

BWCA Management Consulting November 1986 – December 1987 (1 year 2 months)

There are four main business-oriented activities Glen Ford do and bring value to his clients. The activities are as follows [7]:

1. Project Management

Ford help organization in minimizing the organization gap and bring value to his clients by reducing their costs resulting from team dysfunction and from lost opportunities through project failure. Ford said, "I turn creativity into innovation."

2. Business Process and Strategy

Ford helps organizations to develop their business and bring value by helping his clients to clarify their strategies, convert those strategies to accomplishable projects, and by improving the efficiency and effectiveness of their business processes. He said, "I guide people to understand their business, their future and improve their profits."

3. Writing and Training Course Design

Ford help businesses and individuals connect to their customers and potential customers by enhancing their standing as experts through a number of media. He brings value by helping people overcome their difficulties and by helping businesses grow their business. "I write books and design courses that help people learn."

4. Training

Ford helps business, organizations, and people to grow by helping them to improve their efficiency and effectiveness through learning and skills development. he bring value by providing information, guiding people through the process of learning, and by improving their ability to provide value as he said "I help people learn about project management, building a business and helping themselves through helping others to learn."

Ford gives value to his customers from his knowledge and experience. As a consultant, Glen Ford also develops a business model for him as a Project Management Consultant. Figure 3 shows the Business Model Canvas (BMC) designed by Ford for his consultant business.

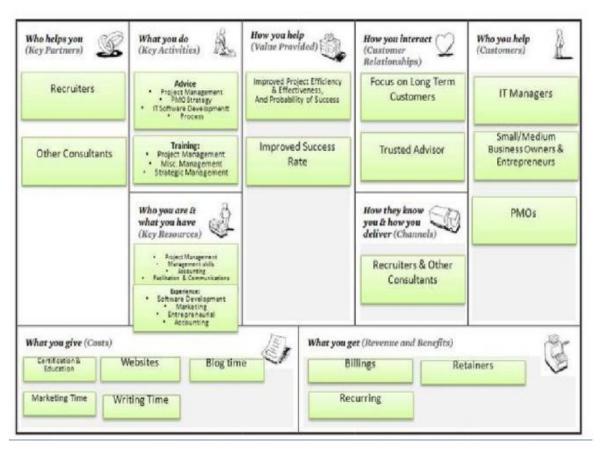


Figure 3: Glen Ford's Project Management Consultant BMC [7]

Ford businesses' customer segments are for any small or medium company and entrepreneurs that needs consulting services, IT Managers, and PMO (Project Management Office). Customer Relationships are the key to the success of the business. Thus, Ford focuses on long term customers and trusted advisor. Ford is reaching to his customers from recruiters and other consultants. There are a lot of consulting companies but Ford focuses on improving project efficiency and effectiveness. He will work on increasing the probability of success and the success rate of the company. Ford key activities are from advising and training, partnerships with recruiters, and other consultants. His cost structure comes from the certifications and educations that he is gained. Other costs are the websites and time for blog, marketing, and writing. From those costs, he gets revenue from the billings with potential of retainers and recurring customers.

3. ANALYSIS BETWEEN ITECH, KINCARDIN, AND GLEN FORD

Business model canvas are an excellent way to review business management strategy and reveal the visual ideas describing a consulting firm's value proposition, customers, infrastructure and finances.

3.1 Customer Segment:

Customer segment is a dividing a company's customers into groups relevant to a particular business. Without client or customers, consulting companies could not survive any longer [1]. ITECH serve for commercial groups and government. However, the value propositions, distribution channels, and customer relationships of ITECH are all tailored to the specific requirements of a niche services. At the same time when clients recognized and satisfied with services, revenue streams will be generated from Business Consulting, Technology Consulting, Process Outsourcing and Professional Services.

Kincardin's customer segments are come from medium size of business. The company can communicate personally with clients because of they have consultants and key partners who can gives training, consulting, sales even networking to their clients.

As compared to Glen Ford, his focus customers segments are among IT managers, business owners, entrepreneur and PMO. He can provides guidance and training session on project management, PMO strategy and IT software development. Besides, he will ensure to have a long term relationship and being a trusted advisor to his clients because he has great skills, experiences and knowledge.

3.2 Value Proposition:

Value proposition offer by consultant can be from publication white papers or providing business model to clients, it has given them a taste of what the company services is all about [2]. For example, Kincardin Group is willing to help and transform the enterprise value, customer support and employee capabilities by make available the business model canvas. By using the experience of Kincardin's founder, Angus Mackay, he is ready to lend a hand on developing many network based businesses and advising on the sale of a digital media business.

In contrast to ITECH and Glen Ford, it provides an advance services and willing to help on increasing the probability of success rate. Both companies have expertise on technology, knowledge and experience that will benefit their clients need.

3.3 Channels:

Channels will describe on how company will communicate or reach client to deliver value proposition using the most effective channel.

ITECH uses online and offline channels to market their consulting services. Promoting business by advertising online can be done by paying for banner ads on websites so when clients or future clients searches for a particular keyword phrase it will lead to the company. An offline marketing can be a successful tools to be implemented that can be either drop business cards, taking photos of company events and daily activities, and then posting those online etc. other than direct sales, Kincardin use its key partners to market business where the cost is lower. Same goes to Glen Ford as his consulting expertise and skills are promoted by recruiters, other consultants and the internet.

3.4 Customer Relationship:

A company should clarify type of customer relationships if they want to establish with each customer segment and it can be from personal to automated relationship. ITECH has fully participated with their customers to understand the real

business issues and to provide services required by customers. For Kincardin, they bring their best practice and insights in consultancy and it is possible to continued personal relationship across client business lifecycle. To Glen Ford, maintaining a long term relationship and trusted advisor will build meaningful business relationships. It is at the core of Glen Ford personal job satisfaction and professional expertise.

3.5 Revenue Stream:

Revenue stream can indicate cash a company can get from clients and can be either transaction revenue (one-time payments) or recurring revenue (ongoing payments).

ITECH revenue comes from business consulting by helping restructure organization, design and implement strategy including social media strategies. The next revenue is technology consulting focusing on enterprise mobility and data analysis. Moreover ITECH get money from professional services and process outsourcing including Business Process Outsourcing (BPO), Knowledge Process Outsourcing (KPO) and Legal Process Outsourcing (LPO). Kincardin revenue comes from fees (fixed, performance and success) and equity participation. Glen Ford revenue comes from billing, retainers and recurring clients.

3.6 Key Resources:

Key Resources describes the most important assets needed to make a business model work as through them that consulting firm able to generate Value Propositions and Revenues. ITECH and Kincardin have to hire consultants with experience and knowledge in consulting area. At the same time, both consulting firm probably have a strong financial structure to allow them to employ good consultants who are able to serve under the consulting company.

As compared to Glen Ford, key resources needed by him to become a successful consultant are quite different and challenging compared to other consulting firms. When two companies hire knowledgeable and experienced consultants, Ford with its own efforts seek and sharpen his knowledge and skills in his consulting area. Ford has a certificate in project management skills such as certification in Project Management Professional (PMP). It can increase companies trust to get Ford service.

3.7 Key Activities:

Key activities are the key business activities that a company is going to provide 'value proposition' to the client.

ITECH key activities are building technology capabilities and services to clients. At the same time, ITECH do sales and marketing service for customers by acting as a platform for partners to promote their services and product. Same goes to Kincardin where their key activities are consulting, training, sales and networking. As compared to Glen Ford as freelance consultant, his key activities focus on advising and training.

3.8 Key Partnership:

Key partnerships are usually formed to reduce costs as company unable to neither own all resources nor perform every activity by themselves.

ITECH partnership with corporates that need IT services. Partnerships with Original Equipment Manufacturer (OEM) and at the same time partnership with product companies that do not have technology and product consulting bandwidth. Furthermore, ITECH build relationship from Venture Capital (VC) where ITECH give financial assistance to high potential and growth start-up companies. In return the companies will provide high-quality low-cost technology services to ITECH. in the other hand, Kincardin and Glen Ford partnership with recruiters and other consultants. ITECH indicate that this strategy is more strategized compared to the other two companies.

3.9 Cost Structure:

Most companies expect lower cost structure. Therefore cost can be distinguished between cost-driven (focus on minimizing costs wherever possible) and value-driven (focus on value creation).

ITECH rely on the expert judgment of experienced managers/consultants who can make accurate estimation from previous projects. Furthermore, ITECH applying revenue sharing model which refers to the distribution of profits and losses between stakeholders (employees, companies, business alliance). Kincardin applying low leveraging of senior

4. RECOMMENDATION AND CONCLUSION

resources are usually more strategic, more intense, and shorter in duration. Glen Ford clearly focused on value creation

where he focuses on obtaining education and certification from a qualified party in his respective fields.

Other technique in creating a good BMC is called ideation, which is very crucial nowadays. Ideation is a creative process for generating a large number of business model ideas and successfully isolating the best one [1]. The challenges of this process are ignoring the status quo, forget about the past, stop focusing on competitors, and challenge orthodoxies. In generating new business model ideas, it requires to challenge the orthodoxies to design original models that meet unsatisfied, new or hidden customer needs.

ITECH and Glen Ford need to adapt an offer-driven epicentre of business model innovation. In offer-driven, new value propositions are created and affect other business model building blocks. For example, in ITECH, they provide niche services: Analytics, Enterprise Mobility, and Quality Assurance. These services offered are then affected other business model building blocks such as the partnership, key activities, key resources, customer relationship, channels, customer segments, cost structure, and revenue streams. Whereby in Glen Ford, they offer project efficiency and effectiveness, and probability of success and also improved success rate. Again, the values provided are then affected other business model building blocks. Therefore, each building block must go through the ideation process before the real BMC is created. The value propositions in these companies are very important as it will affect other building blocks. Thus, the ideation process should be adopted in creating a good BMC.

As for Kincardin, it is based on resource-driven epicentre of business model innovation. It originates from the existing infrastructure or partnership to expand or transform business model. For example, the partnership in Kincardin is among accountants, financial planners, business and executive coaches, training providers, banks, commercial lenders, leasing providers, IT services, strategic marketing, customer experience, human resources, corporate and commercial law, and tax structuring. This partnership are then expanding or transforming the business model.

Thus, the three consulting companies shall use the ideation technique in order to improve their BMC in future. The ideation process [1] includes (1) team composition, (2) immersion, (3) expanding, (4) criteria selection, and (5) "prototyping". In team composition, a good team member plays an important role in creating effective new business model ideas. The team members should be diverse in terms of seniority, experience level, business unit represented, customer knowledge, and professional expertise. The immersion process are then took place where the team members should go through this phase by doing general research, studying customers or prospects, analysing new technologies, or assessing existing business models. This process could last for several weeks. Next, the expanding process needs the team members to expand the range of possible solutions and to generate as many ideas as possible.

The aim for this phase is quantity, not quality. Each of the nine building blocks can be a starting point. For example, brainstorm the ideas and possible solutions will help the team to generate as many ideas as possible rather than criticizing during the process. After expanding the possible solutions, the team should define the most important criteria to reduce the number of ideas that has been expanded earlier. The criteria should be prioritized according to the context of the business including revenue potential, possible customer resistance, and impact on competitive advantage. After the most important criteria are defined, the team should be able to "prototype" few potential business model innovations. This process can be done by using BMC to sketch out and discuss each business model.

The three business model canvas (BMCs) has a lot of advantages compared to the classic thick business plan that takes a lot of time to be prepared. The BMC is like a tool to guide people thinking in a more systematic through each of the nine building blocks for devising a business strategy that matter most and have the greatest impact on driving business growth. The BMC created are depends on type of the companies' business models. Hence, there are no specific BMC can be considered as correct or the best because every BMC is tailor-made to suit the type of business of the company.

REFERENCES

- [1] A. Osterwalder & Y. Pigneur, "Business Model Generation." John Wiley & Sons, Inc., Hoboken: New Jersey, 2010.
- [2] A. Osterwalder & Y. Pigneur, "Value Proposition Design." John Wiley & Sons, Inc., Hoboken: New Jersey, 2014

- [3] Zolnowski, C. Weib, & T. Bohmann, "Representing Service Business Models with the Service Business Model Canvas The Case of a Mobile Payment Service in the Retail Industry," 7th Hawaii International Conference on System Science, pp. 719-720, 2014.
- [4] C. ITECH, ITECH Consulting Business Model. [Online]. Available: http://www.canvasbm.com/canvas?id=6549
- [5] G. Ford. Can Da Software, 2003. [Online]. Available: http://www.can-da.com/index.html
- [6] Get2Growth, 2015. Advantages of the Business Model Canvas. [Online]. Available http://get2growth.com/business-model-canvas/
- [7] Glen D. Ford, Glen D. Ford, Your Avatar in the Game of Business. [Online]. Available: http://glendford.com/
- [8] H. Shaikh & K.W. Habib, "The Impact of Social Media on Consultancy," Sindh Univ. Res. Jour. (Sci. Ser.), Vol. 46 (3), 2014.
- [9] Kincardin Group. Business Model. [Online]. Available: http://www.kincardin.com.au/
- [10] R. Amit & C. Zott, "Business Model Innovation: Creating Value in Times of Change," IESE Business School-University of Navarra, 2010

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