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Exploring the Marketing Analytics Practices in Cement Industry: A Case Study Approach for a Cement Company Associated with Indigenous Conglomerate

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Abstract *The dawn of 4th industrial evolution (4.0) in emerging economies, has been a paradigm shift for data consumption in cement companies, where value input from marketing analytics is apparent but holistic understanding is lacking. The cement industry is facing problems in terms of utilising the benefit from marketing analytics reservoirs, at the organisational level, by taking initiatives, depicting issues and remedial steps, and projecting the future possibilities. The objective of this research was to fill this gap. For this purpose, a series of interview sessions from various levels of management at the cement company head office was conducted, followed by transcription, codification, funnelling and triangulation. The results depicted that 'initiatives & benefits' stage is most significant. The collective learning is about cross-functionality of the marketing department for competency designs (marketing and logistics), teaming with IT, training for insight reports understanding, the inclination to data-driven decisions, a steady but comparatively slow shift to analytics in overall marketing operations.*

Key Words: Marketing Analytics, Automation, Cement Industry, Industry 4.0, Business Analytics

Introduction

In the age of the fourth industrial revolution, we are at the tipping point where the data could be characterised as one of the most vital resources, even by the industries that are not technologically intensive. Recent business challenges have triggered the need for exploration of alternatives as to the basis of survival in the economic turmoil situations where the intangibles are the new tangibles, enviably. The manufacturing sector, being on the slow-mode in terms of acknowledging and initiating digital transformation movement (Ebner & Bechtold, 2012) is on the verge of paradigm shift. Moreover, there have been some remarkable examples set by the ones who have developed database, applied analysis, and extract insights that have been profitable in a practical sense (Records & Fisher 2014). Altogether, it is clear from a plethora of studies that regardless of the technological muscle of the industry, business leaders are taking initiatives while recognising the fourth industrial revolution framework. Strategic decision making cannot be effectively and efficiently done by side-lining the data-oriented tools to have readiness for gathering actionable and future-projected insight (Davenport, 2006). So, business leaders and competitive authorities have been steering the strategic manoeuvres by keeping the intuition intensive style as the cognitive backbencher and making the databank as their decision front-face (Lavalle et al., 2011). The integration of decision making with business use cases has provided the way forward to the business communities to embrace business analytics and engage in terms of corresponding initiatives, associated challenges and issues and experienced remedies as well as the way forward. Business analytics is transforming the way business would be operating in the near future (Kiron et al., 2013).

Personalised services are becoming economical as well in terms of multi-level customer-marketer interactions (Kiron et al., 2012; Bean, 2013). So, marketing analytics is the new forefront for the exploration of solution for the companies to utilise the data for a better and sustainable business environment. It is interesting to note that the marketing analytics is a subject of concern that is overlapping with many other disciplines for borrowing the scientific rigour to semantically integrate the interrelated pieces of the business cases at hand (Bizer et al., 2011). Marchand and

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Peppard (2013) are of the view that the scientifically systematic order required in clinical trials are similar to those demanded by projects that are marked by analytics. Moreover, the scope of pragmatism could be even enlarged and enriched for the same (Viaene & Bunder, 2001). Therefore, the pragmatic and practical sense of marketing analytics in terms of cement industry demands an in-depth view of the initiatives taken, challenges and issues faced, and remedies devised for an endeavour towards a holistic view.

Initiatives and Benefits

Effective Project Management (EPM)

Adjie Eryadi and Nizar Hidayanto (2020) depicted that at the organisational level, the support from competent authorities is imperative for realisation of the project success. The alignment of strategic support with managerial routines has to be maintained continuously (Yeoh & Popovič, 2016). The project-based digital transformation phases depend on the investigation of the stream of activities that are vital for the success of overall operations. The planning, realignment and ordering of these actions is the key to mitigating the non-positive influences of neglecting them (Olszak & Ziemba, 2012). The critical success factors in terms of the context have to learn and ensured for the sake of avoiding any performance bottleneck that would lead to failure of the project, which happens in most of the cases where detailed and careful planning is not given to due share in terms of time and other resources' investment (Nguyen et al., 2018). Dawson and Van Belle (2013) is of the view that a dedicated team that is 'champion' in the digital transformation, having a sense of analytics must be taking charge of managing the concerned projects. Trinoverly et al. (2018) projected that key users of the systems have to be involved for their feedback as it will provide a broad-spectrum view of the operational scope to the project management team that would minimise the error chances in analysing the cost-benefit analyses for cement industry.

Jakobsen et al. (2017) studied the decision making and prioritising schemes in terms of project management for a cement plant for smart integration of the technology and economic indicators for simulating the sustainable business. Shrestha et al. (2016) projected that the investment in terms of monitoring and evaluation (M&E) had been the yardstick for project success of cement company, by energy consumption management. Dutta and Bose (2015) advocated the formulation of the framework for implementation of process automation in the cement sector. Bhattacharya and Saha (2015) talked about the improvement in equipment for project management in cement companies.

Strategic Support and Alignment (ST&A)

Adjie Eryadi and Nizar Hidayanto (2020) portrayed that systems based on analytics are best utilised in terms of integrating the data reservoirs available on the company private knowledge management or information system backed databases as well as the external databanks. The integration of these two fundamental data hubs creates the data-harvesting conditions where the extraction of knowledge-rich patterns is possible to an extent where a bucket of synchronised data visualisation techniques could be applied. This helps the organisations to insights through 'data analytics' for prediction of the future. So, the technical and strategic side of the decision-making process is aligned as per the business problem sense (Pham et al., 2016). Hirsimäki (2017) projected that the long terms orientation of the strategic vision that could be converted into strategic support and better alignment with tactical steps could be possible for developing a workable business case. It is interesting to note that strategic support and alignment initiative is vital to refrain from factors that could raise the failure probability-bar in situations of crisis management, where the integrity of even small-medium enterprises is at stake in terms of its chief resources (Mazreati & Radfar, 2017).

Trinoverly et al. (2018) portrayed that decision making capability of the top managers can be significantly enhanced through the alignment of business processes and the corresponding relational data. This ability to initiate this movement is embedded in shifting to automatization and enterprise resource planning solutions. The implementation of these solutions would provide the IT framework that could enable the executive seat holders to capitalise on the customer behaviour predictions, better customer satisfaction maintenance, improved service experiences and accuracy of information exchange between the marketer and the end-user. The functional level capabilities involve better financial report management for speedy decision initiation, long term customer relationship capacity building, platform-based support for product ranges as compared to market rivals. Moreover, the co-development of internal and external customers, mainly employees and end-users of the products and services. Dutta and Bose (2015) are of the view that the critical factors for reaping market-based rewards through the proper application of analytics mainly support at the organisational level, openness to newness in terms of work routines and work engagement, welcoming attitude for change, and culture development on traditions of data-evidence based

management (Kiron & Shockley 2011). Chandra and Goswami (2014) argued that the dimension of customer-centricity in terms of strategic decisions is pivotal to embed the resultant user perception and expectation for market alignment. So, the ground-breaking initiatives that would set the tide for the forthcoming analytics operations have to be started from foundational building in terms of strategic coherence. This involves the investigation of the true business problem through detailed research for chalking out the major actions and minor tasks, along with alternatives, while installing the flexibility for change.

Change Management (CM)

The work of numerous researchers provides consistence evidence for the importance of change management in the manufacturing sector, especially in the cement industry. Change management is reflected by the co-creation of a system through projecting the functional capability conversion into benefits, which the customers could utilise and exchange of value is possible (Yeoh & Koronios, 2010; Olszak & Ziemba, 2012; Pham et al., 2016; Hirsimäki, 2017; Sianipar et al., 2019; Adjie Eryadi & Nizar Hidayanto, 2020). Trinoverly et al. (2018) studied that the failure rate, the complexity of tasks, cost dimension for analytics initiatives and marketing dynamics made change management a separate and specialised cross-functional organisational level task for the top management.

Jakobsen et al. (2017) talked about innovation in business modelling through joint ventures by public-private socio-economic agencies. This would provide the connection between the interests of shareholders and stakeholders. Change management is to be observed in terms of automated control and monitoring mechanism for energy consumption and improvement in the utility of diverse functional capacities, which include all the process of supply chain till the end product. The operational (engineering processes) and managerial procedures should be simulated to data-mine for better alternatives and informed change management (Shrestha et al., 2016). Kumar (2015) discusses similar initiatives and its benefits. The maintenance and monitoring policies and work on the ground that would ensure that automation advancements and investments are not bypassed, and their usage is made mandatory at all stages. This would result in cost reductions, and benefit could be forwarded to the customer. Consequently, the 'new normal' would inhibit the employees from going back to the analytics-less working structure. Dutta and Bose (2015) stated that the initiatives for analytics practices require far more scientifically detailed homework as compared to IT projects and practices. The analytics endeavours involve a company-wide change in terms of training the staff for extracting meaning from the data reservoirs through the usage of visualisation and other techniques. It also requires cross-functional reporting and information management so that the logistics, customer relationship management, energy conservation engineering models and other organisational building blocks could be integrated. The cement plants can move towards achieving their continuous improvement targets and sustainability goals through up-gradation of automation (Bhattacharya & Saha, 2015). Chandra and Goswami (2014) presented that the existing business performance measurement systems of cement industry need to be changed in terms of new benchmarks for resource management and operational efficiency.

User Involvement and Customer Satisfaction (UI&CS)

Adjie Eryadi and Nizar Hidayanto (2020) depicted that knowledge about the user experience is pivotal for assessing the conversion of technological advancements into user benefits. Therefore, adjustments in terms of user expectations are imperative. Trinoverly et al. (2018) talked about the improvement in customer service by detailed records of customer ranging from profile updating to historical customer orders as well as customer lifetime profitability cycle. This will enable system based analytical projection of customer segments and marketer readiness accordingly. Stressed on customer visualisation by utilising any of two techniques, heat or thematic maps and widgets. The marketer can assess 'change need' by geographically pinning the customer segments or connecting related charts to extract data from unstructured data reservoirs (Dutta & Bose, 2015). The user cases based on training the employees who have to interact with the customers directly or indirectly for this purpose is the prerequisite for 'change readiness'. This comprises of training of tools and providing access to databases and IT experts who can assist them (Watson & Wixom, 2007). The viable utilization of digital transformation can accomplish cement plants to arrive at their KPI's as far as crude material usage, energy proficiency, emanations decrease, costs associated with maintenance. This would enable them to shift their resource to better customer handling (Bhattacharya & Saha, 2015). The customer learning cycle of cement factories for becoming smart manufacturing companies is marked by the ease of report generations and system-based interaction with customers (Chandra & Goswami, 2014).

Integrated Supply Mechanism and Tracking (ISP&T)

Adjie Eryadi and Nizar Hidayanto (2020) is of the view that the integration of business conduct and associated operations for an interlock between supply chain, operations, financials, customer services and human resources over a unified platform can notably improve transparency and traceability. The exploration of best possible alternative in terms of the bucket of solutions available for problems encountered by the plant staff, mainly by operations and supply chain as well as customer handling departments, is a routine matter that demands systematic data integration (Trinoverly et al., 2018). The strategic and tactical benefits comprise better product development for competing with market rivals and proactively planning for production actions and work schedules. Resource conservation and real-time data sharing for quick movement of plant material from one phase to another (Jakobsen et al., 2017). The connection between technological resources and tools, operations and supply chain, human resources and safety, customer services and socio-economical mapping, regulatory frameworks at national and international levels, and business economics cases provide the 'bigger picture', which is absent otherwise (Shrestha et al., 2016). Operational resource sharing in terms of equipment can reduce time leads and provide better production tracking (Dutta & Bose, 2015). The mindset for the integrative approach provides employee readiness in terms of skill-building benefits that realise the integrative supply chain management and tracking of production cycles in real-time so that the negative effects of any operational discrepancy could be resolved imminently. Waller and Fawcett (2013) discussed the transformational benefits of geographically e-mapping of warehousing and customer points for cement industry. The costs related to energy consumption can be tracked, and real-time adjustments can be made (Bhattacharya & Saha, 2015). Usability of the capabilities provided through Integrated supply mechanism and tracking (ISP&T) have to be converted into usage opportunities for end-user for better customer acceptance and market penetration (Chandra & Goswami, 2014).

Table 1. Initiates & Benefits

S. No	Authors	EPM	ST&A	CM	UI&CS	ISP&T
1	Adjie Eryadi & Nizar Hidayanto (2020)	✓	✓	✓	✓	✓
2	Trinoverly et al. (2018)	✓	✓	✓	✓	✓
3	Jakobsen et al. (2017)	✓		✓		✓
4	Shrestha et al. (2016)	✓		✓		✓
5	Dutta & Bose (2015)	✓	✓	✓	✓	✓
6	Bhattacharya & Saha (2015)	✓		✓	✓	✓
7	Chandra & Goswami (2014)		✓	✓	✓	✓

**Effective project management (EPM), Strategic support and alignment (ST&A), Change management (CM), User involvement and customer satisfaction (UI&CS), Integrated supply mechanism and tracking (ISP&T)*

Issues and Challenges

Techno-Eco Issues (TEI)

The technological and business economics feasibility reporting and mechanism installation is a complex challenge as it involves technical sense and market acceptance on one platform. The seamless integration of the two has been an issue for many reputable and specialised digital transformation service providers, and the case becomes apparent in the application at cement plants (Adjie Eryadi & Nizar Hidayanto, 2020). The in-house assessment endeavour for techno-eco issues in terms of emission reduction technological solutions are based on the availability of business cases, which could provide the financial benefits for the analytics exercise by the cement industry (Jakobsen et al., 2017). The production of cement mainly involves heterogeneous energy reservoirs that call for sophisticated technology adaptation to minimise the cost in the longer run (Shrestha et al., 2016). Dutta and Bose (2015), and Bhattacharya and Saha (2015) projected that business profits mapping for the technological improvements and quantification of benefits is the top priority for decision making and deployment of resources. User acceptance and market acceptability for probability and technological penetration from the user perspective (Chandra & Goswami, 2014).

Energy Consumption Monitoring (ECM)

As energy consumption is the major factor in terms of the cost of cement industry products, the monitoring and maintenance of related operations need attention by cement producers. The automation systems need to assess in terms of their capability for controlling energy consumption (Shrestha et al., 2016). The effective automation is marked by tracking the fuel costs, alternatives availability, equipment life span and optimisation of power utilisation at all operational levels (Bhattacharya & Saha, 2015).

Integrated Automation Modelling and Mapping (IAM&M)

The Integrated Automation Modelling and Mapping (IAM&M) demands common ground for technical and business use cases. The data gathering and analysis is one of the major challenges as the quality of data can qualify for accurate organisational decision making. The data from various sources has to be integrated so that different systems can be mapped (Adjie Eryadi & Nizar Hidayanto, 2020). The tangible and intangible benefits from integrative approach can only be derived when standardised data reporting formats are set for all departments, and a central data hub is maintained in terms of system or cloud-based (Trinoverly et al., 2018). The automation modelling involves functional flexibility to inculcate the in-house factors of production and external indicators that range from government regulatory compliance and various input costs (Jakobsen et al., 2017). The implementation of digital transformation through marketing analytics practices encounters issues related to synchronisation of newly developed tools with the existing systems, removal of bugs related to integrating internal and external data streams, automation of the complete process and not the chunk of it for avoiding failures (Dutta & Bose, 2015; Shrestha et al., 2016). The modelling and mapping of automation systems in the laboratory through a controlled and accurate analysis environment. It would enable gap identification between pre and post-implementation phases. This would be the input for the assessment of resultant value at the organisational level (Bhattacharya & Saha, 2015). Chandra and Goswami (2014) expanded the canvas to integrating information revolving around strategic and tactical functionalities.

Skill Development Trainings (SDT)

Adjie Eryadi and Nizar Hidayanto (2020) presented that the 'new normal' work routines require new understanding in terms of usage of tools and handling the system. The users would be comfortable in terms of the application of the system that would ease the system extension stage. The focus should be on training and getting aware of the enterprise resource planning system (Dutta & Bose, 2015). The technical, safety and maintenance training modules are important for automation project success (Bhattacharya & Saha, 2015).

Environmental Issues (EI)

The environmental issues involve carbon footprints, emissions mitigation, sustainability procedures and decision making for lower carbon emission alternatives (Jakobsen et al., 2017). Shrestha et al. (2016) argued that strict government rules are necessary for steering the environment-friendly options and pollution control mechanisms that would enable better functioning of the cement industry in terms of international environmental conservation goals. Bhattacharya and Saha (2015) depicted the connection between digital transformation and moving towards low emission fuels, reducing wastage of various inputs and monitoring pollution traces in terms of cement production.

Data-Driven Decision Making (DDDM)

Adjie Eryadi and Nizar Hidayanto (2020) argued that Data-driven decision making could pave the way for increasing shareholder value, sustainable operations, the transformation of information into knowledge reservoirs, and improve organisational decision making capability. This is only possible when related processes and procedures are aligned, that is a major issue and involves business challenges. Trinoverly et al. (2018), as well as Jakobsen et al. (2017), argued that the negative effects from the cement industry operations could be controlled through better decision making based on data-backed actionable insights. Shrestha et al. (2016) observed that evidence-based decision making is a challenge for many cement companies, even though some good examples are recorded. Dutta and Bose (2015) advocated that project success is based on real-time decision making, which can be made possible through data-management at operational and managerial automatization phases (Bhattacharya & Saha, 2015). Chandra and Goswami (2014) User concentric data-backed decisions for perception management in the cement industry are vital for mapping of remedies that are readily acceptable by the end-user.

Table 1. Issues and Challenges

S. No	Authors	TEI	ECM	IAM&M	SDT	EI	DDDM
1	Adjie Eryadi & Nizar Hidayanto (2020)	✓		✓	✓		✓
2	Trinoverly et al. (2018)			✓			✓
3	Jakobsen et al. (2017)	✓		✓		✓	✓
4	Shrestha et al. (2016)	✓	✓	✓		✓	✓
5	Dutta & Bose (2015)	✓		✓	✓		✓

6	Bhattacharya & Saha (2015)	✓	✓	✓	✓	✓	✓
7	Chandra & Goswami (2014)	✓		✓			✓

**Techno-Eco Issues (TEI), Energy consumption monitoring (ECM), Integrated Automation Modelling and Mapping (IAM&M), Skill Development Trainings (SDT), Environmental Issues (EI), Data-driven decision making (DDDM)*

Remedial Strategies

Cost-Effective Operations (CEOPs)

The financial, operating, human resource and technological costs are to be controlled and monitored by utilising the automation and associated innovation-based business models (Jakobsen et al., 2017; Trinoverly et al., 2018). Shrestha et al. (2016) stated that the opportunities for cost-saving are present in moving from managerial and customer interaction digitalisation to operational side (engineering). The cost mitigation is a long-term challenge that ranges from the removal of stagnant inventory to fuel alternatives (Dutta & Bose, 2015; Bhattacharya & Saha, 2015). Chandra and Goswami (2014) presented that transferring the cost-benefit to the customer in terms of benefits and better customer personalisation is the way forward.

Carbon Emissions Mitigation (CEM)

Jakobsen et al. (2017) projected that a notable portion of global carbon emissions results from cement industry and its avoidable to a notable extent through automation of operations and usage of analytics in the context of marketing. Shrestha et al. (2016) share the same notion. The assessment in terms of Pakistani cement sector is provided by Zeb et al. (2019), and the solution is moving towards the cement industry 4.0.

Customer Relation Management (CRM)

Trinoverly et al. (2018) studied CRM in terms of automated profile management. Dutta and Bose (2015) projected that customer geo-mapping and colour coding in terms of customer profiling and customer feedback could promise better customer relations. Bhattacharya and Saha (2015) depicted the customer needs and expanding the scope of the services by the cement industry for smart functioning.

Sustainable Operations (SSOPs)

Adjie Eryadi and Nizar Hidayanto (2020) argued about business sustainability and socio-responsible operations. Trinoverly et al. (2018) and Jakobsen et al. (2017) talked about the importance of socio-economics benefits and environmental conservation that could make cement industries more sustainable. Shrestha et al. (2016) advocated strict regulations and rules, whereas, Bhattacharya and Saha (2015) emphasised technological up-gradation for sustainability targets. Chandra and Goswami (2014) projected the customer-centric sustainable operations for user preferences for customer-friendly cement 4.0.

Industry Best Practices (IBPs)

Adjie Eryadi and Nizar Hidayanto (2020) talked about practices of cement industry favourable vendor selection practices. Trinoverly et al. (2018) projected the practice of functional master-data or central data-hub and standardisation of rules of business. Jakobsen et al. (2017) researched reputable automated systems for simulations to mitigate carbon emissions. Shrestha et al. (2016) discussed the best managerial practices for joint operations by government and corporate leaders. Dutta and Bose (2015) detailed the project success practices, whereas Bhattacharya and Saha (2015) deliberated on process optimisations through the usage of analytics tools. Chandra and Goswami (2014) provided the discourse about smart Cement industry movement through customer focus

Predictive Modelling Applications (PMAs)

The race for intelligently predicting the future to a profitable extent is carpeted by the fourth industrial revolution. Even the technology moderate industries like cement are moving towards digital transformation and practically reaping the resultant rewards. The cement industry is observing the utilisation of predictive modelling applications in cross-functional modes where the system generates the patterns that form the basis for system-based triggers for forthcoming operations and procedures (Lee et al., 2013; Shrestha et al., 2016; Dutta & Bose, 2015; Adjie Eryadi & Nizar Hidayanto, 2020). The process control and predictive mechanisms to project the upcoming changes at the operational and managerial forefront for an opportunity window to be proactive,

instead of being reactive when much of the wealth in terms of marketing analytics is lost (Bhattacharya & Saha, 2015). Customer behaviour predictive modelling through data is executed to project and report futuristic customer priorities (Chandra & Goswami, 2014). The challenge in terms of marketing analytics usage is that it is still in the nascent stage, where companies are spread in terms of stages of initiation, adaptation and encountering the challenges, and learning from the implementation to gather company-specific as well as industry inclusive remedial strategies (Miele & Shockley, 2013). Therefore, detailed blueprint for support from various organisational levels and the cycle of alignment and re-alignment can be the most resource-demanding tasks.

Table 3. Remedies and Opportunities

S. No	Authors	CEOPs	CEM	CRM	SSOPs	IBPs	PMAs
1	Adjie Eryadi & Nizar Hidayanto (2020)				✓	✓	✓
2	Trinoverly et al. (2018)	✓		✓	✓	✓	
3	Jakobsen et al. (2017)	✓	✓		✓	✓	
4	Shrestha et al. (2016)	✓	✓		✓	✓	✓
5	Dutta & Bose (2015)	✓		✓		✓	✓
6	Bhattacharya & Saha (2015)	✓		✓	✓	✓	✓
7	Chandra & Goswami (2014)	✓			✓	✓	✓

Cost-effective operations (CEOPs), Carbon emissions mitigation (CEM), Customer relation management (CRM), Sustainable operations (SSOPs), Industry best practices (IBPs), Predictive modelling applications (PMAs)

Methodology

The research design has been dictated by the nature of the research problem, which demanded case study methodology accompanied by stratified purposive sampling as the knowledgeable respondents were only a few in terms of marketing analytics and metrics issues, remedial strategies, initiatives and digital transformation (Yin, 2003; Onwuegbuzie & Leech, 2007; Yin, 1981). The proceeding body of this section is the heading wise bifurcation of the activities executed in the field in terms of methodology.

Interview Guide Process

The interview has been developed, processed and improved by going through the following stages:(i)First Draft: The primary interview guide was made based on the literary grinding of theoretical review and research questions, (ii)Pilot Testing: Pilot testing has been done on one set of the respondents to observe and ensure that the questions have been understood by the respondents, as per the intention of the researcher and demand of the research problem, (iii)Sequence of interview guide: The order of the questions was done as per the preference of the respondent, and (iv)Continuous Revisiting: The interview guide has been revisited in all the phases to create handsomely natural flow that could enable reflections on the questions free from cosmetic and generic sentences. This process for interview guide process has been extracted from the working of Yin (2003), who has extensively written on the subject concerned.

Interview Sessions

Several sessions were exercised for confirming the previous responses. Cross-departmental and interdepartmental checks were also applied to observe the harmony in understanding, experience, and reflection of the concepts. The endeavour for reaching observable maturity level was ensured and exhausted up to the best efforts possible through following stages: (i)Setting the stage: The interview guide was the first email and shared with the respondents for their perusal and understanding. The relevant detail was provided for the respondents in terms of their company and the relevant industry in terms of short notes, links to different reports, news and market update, (ii) Scheduling: The respondents were contacted on their numbers (official or mobile) for scheduling of the first interview session. A very short view about the overall interview guide was sought so that the researcher could learn about the bigger picture and practitioner canvas of the respondent, (iii) Natural Flow: The questions were ordered and a bit modified (verbally) on some instances, as per the preference (s) of the respondent. These preference(s) were filtered by proactively processing their initial response. The interviewees were provided freedom in the initial session so that there could be a natural flow, without any external control, and waterfall alike responses could be achieved. (iv) Conformity: Repeated sessions with the respondents with a time lag of three days to more than a week. Sometimes, the time lag was of about two weeks, (v) Enrichment: The order of the questions was done as per the initial opening sentences of the respondents that reflected their

preference and experiences. Respondents were repeatedly persuaded and requested to connect their responses with their work experiences, company as well as industry dynamics, and the market best practices. The researcher strived to realign the stream of responses by carefully moderating the session, to stay away from activation of the "cosmetic and generalised mode" by the respondent, (vi) Seeking Maturity: The repetition of the same words regarding activities, operations, experience and exposure, was the trigger to depict that maturity of the responses from the particular respondent is achieved, and (vii) Operational (Shop floor) to Strategic (Board room): The respondents were interviewed in terms of their seniority. Bottom to top approach was initiated so that the tactical details could be encapsulated in terms of strategic nature as the interview-based case study progresses towards seat holders of higher cadre. This detailed and step by step approach was adapted in interview sessions for information thickness extraction.

Transcription Process

(i) Framing: The responses were framed and moulded in terms of the theoretical fundamentals, natural language, the thickness of experience instances, events, company know-how and gradual elevation of the researcher's spearhead empirical exposure, (ii) Classification and Codification: The finalised transcript was processed through the grouping and regrouping stages in terms of sub-concepts and concepts. The codification was carried out to make it ready for qualitative analysis through NVivo. The ultimate target for classification and codification was to seek patterns through qualitative analysis. The detailed comparison and contrast within the department and across the organisational hierarchy revealed the constructs. The constructs pave the way for knowledge thickness from transcripts and themes are generated that assist in the provision of actionable insight in terms of multi-layered implications and way forward for the researchers in terms of better scales development (Bazeley & Jackson, 2013).

Selection of the Company

The cement company has been selected in terms of the following yardstick depicted by investigation through company reports, publicly available information, and preliminary contact with the company representative in terms of (i)Application of marketing analytics and metrics as well as overall management stance, (ii)Projection of future benefits and present outcomes, and (iii)Future prospectus.

Respondents

The respondents were selected by analysis of their profiles on LinkedIn, the company site and other online professional platforms. The respondents' suitability assessment was carried out by the checklist below: (i)Current Position, (ii) No of years' experience in the company, (iii) No of years' experience in the relevant industry, (iv)Level of holistic experience by holding various positions in the relevant industry, (v)International Exposure, (vi)Education, Certifications and communities joined at different forums, (vii) Referred by the respondent interviewed. Most of the people interviewed were team leads, management and strategic seat holders as the problem is demanded the same. However, the struggle was done to interview middle management. The chief respondents from the Head Office of the cement company along with their teams had been titled as Assistant Manager as well as Manager Sales & Logistics, Manager Marketing, Senior Manager Marketing, Manager Marketing & Operations, Manager Export, Manager Institutional Sales, GM Marketing, and lastly the IT Manager.

Analysis and Discussion: Codified, Funnelled, and Triangulated Inferences

Initiatives and Benefits

Effective project management (EPM) along with Change management (CM) and Integrated supply mechanism and tracking (ISP&T) have been found the major factors at the initiative phase. The respondents from the company reflected that "Manufacturing companies need people who are good at project management, marketing analytics and other new subjects to grow and develop innovative products" as well as "we are looking ahead as markets are changing and one can not only rely on past data. We are working on bifurcating our brands in terms of pricing, quality, usage, and ready access to different market zones". Moreover, the "Institutional sales are complex and need a lot of preparation and documentation, so future-readiness through marketing analytics is vital for us" and "industry 4.0 is the future as foreign markets demand automatized transactions, international supply chains harmonisation through sharing of required data through digital channels and having smart contracts". So, "Marketing analytics is more demanding as real-time data upgrading and relational databases, new reporting techniques and information management, as well as system and

cybersecurity, is needed", therefore "opportunities in cement and manufacturing sector are attached to overall market demand, having contracts for big projects". These responses reflect the depiction by Adjie Eryadi and Nizar Hidayanto (2020) that top management recognition of the benefits associated with initiatives like planning for Tecno-eco conservation, mapping of processes and cost leadership is necessary. Therefore, the managers should know how to report on marketing analytics in a manner that is cognitively digestible by the boardroom seat holders. However, the top management support will be of no benefit on the ground if the work routines are not aligned with the requirements of the 'new normal' brought by industry 4.0 (Yeoh & Popovič, 2016). So, one of the major sets of critical success factors revolves around the ways of daily task engagement, which involves utilisation and planning of all kinds of resources and assets (Nguyen et al., 2018). Therefore, the complexity of the system demands that the feedback from the shop-floor is necessary that would encourage the liquid flow of information across departments as marketing analytics initiatives reap benefits by seamlessly integrating the organisation as one 'body of processes' (Trinoverly et al., 2018).
Observation: The marketing analytics practices are closely related to logistics and supply chain management functions in terms of the present cement industry and better integration among these operations is required for futuristic initiatives.

Issues and Challenges

The issues and challenges phase is dominated by Techno-Eco Issues (TEI), Integrated Automation Modelling and Mapping (IAM&M) and Data-driven decision making (DDDM). The responses reflect that the cement is "using the latest ERP system as being part of a conglomerate. The management gives much importance to data-backed decisions, and there is not a single meeting that I have attended where readily available data is not be presented for future trends assessment". Moreover, the "strategic plan and connected decisions" are vital and having "huge quantity available and the latest data about the markets led us to decide on entering into those markets, which was a success". So, "decisions cannot be made without reports from ERP" and "marketing analytics through ERP has provided us with decision support and idea about multiple trends that makes our discussion with the seniors". Therefore, the competition authorities are of the view that "Data Science is strategically linked with marketing as the data in various forms is needed for decision making, the quality of data, its visualisation and formation in terms of reports and data audit is vital and has multiple benefits". The agglomeration and synthesis of the experts' viewpoints portray that the reverse management is necessary as planning must be done in terms of the issues and challenges that could or would arise in terms of training of the employees, adjustment to new work procedures and shift to industry 4.0 that negates notable indicators of a professional career that were celebrated in the previous era. Such kind of shift is apparent in the movement through embedding the IT functions across the departments, rather than making it a separate one, as marketing analytics demands coupling of operational techno-business sense by the employees in terms of their daily targets (Adjie Eryadi & Nizar Hidayanto, 2020). This means that the challenges are conceptualised as a trigger point for solution thinking in the organisation that ranges from smart control of carbon emissions and energy wastage (Jakobsen et al., 2017). The quantified mapping through integrated modelling propels the management to support their decisions through data-based reports that give insight into market relevance and future feasibilities (Trinoverly et al., 2018). The data-driven working framework would enable the link between pre-post implementation consideration for ERP systems and DDDM (Adjie Eryadi & Nizar Hidayanto, 2020) where user perspective would be decisive in terms of exploring the remedies that would enhance the competitive organisational resilience (Chandra & Goswami, 2014).
Observation: The recognition of challenges associated with the conversion of marketing analytics into business profits, better automation models, and ERP mapping is present. The vitality of DDDM is felt in the board room, but capacity status is at the nascent stage that requires a lot of work.

Remedial Strategies

The remedial phase consists of Cost-effective operations (CEOPs), Industry best practices (IBPs), and Predictive modelling applications (PMAs). The respondents from the cement factory head office portray that "the need for marketing analytics is there and we have reaped benefits from it", and it is "considered for application at the manufacturing side to cut costs". Moreover, in terms of the IBPs, the cement company has "to be locally fit and prepare for the future challenges and foreign markets", whereas, the "benefit is being transferred to our dealers in terms of monitory benefit". The PMAs involves "future projections of capacity building, micro tracking of measures taken to reduce waste, focus on international markets" and rigorous strategic way forward regarding "ecosystem development stages". The critical analysis of the information-thick responses projects

that the struggle for cost-effectiveness embraces innovative solutions as a remedy and an anecdote for future orientation because industry 4.0 brings a disruption, which not only changes the way of business leadership but brings more opportunities than the prior ages of industrial revival. So, the cement industry can reap the benefits by exhibiting remedial actions that are mainly based on long-term orientation and focusing on managerial as well as engineering side, while looking for ways of marketing analytics applications (Trinoverly et al., 2018). This two-step strategic map could initiate the operational sustainability race amongst the functional organisational representatives that would emerge as a positive competition for change from marketer as well as customer side to co-create in cement industry (Shrestha et al., 2016; Chandra & Goswami, 2014). The industry best practices are yet another remedy for unlocking local and international markets for utilisation of stagnant capacity and moving ahead for the fostering competency to meet the customer demands and smart-marketing (Adjie Eryadi & Nizar Hidayanto, 2020; Trinoverly et al., 2018).

Observation: The management, from junior to senior level, has unanimously reflected that the predictive capability of marketing analytics, better cost management measures and moving towards international cement market practice is the way forward for the future ahead of cement industry in Pakistan.

Conclusion

The result of the research endeavour is marked by the research case base studies' connectivity with the practices, for marketing analytics, exercised at a cement company associated with an indigenous conglomerate in Pakistan. It is pertinent to mention that apart from the shortcomings in terms of the practical rigour in the developed world. Recognition and sense are observed and notable. The initiatives taken by the company through recognition of changes fourth industrial revolution, codified by the case studies available paves the way for further understanding of the nascent research problem at hand. The issues and challenges, whether based on the operational (mainly engineering) or strategic side of the problem deal with the integration of functions and the presence of a holistic view of the company in terms of a network map of inputs and outputs, for better monitoring and control. The way forward and futuristic view encapsulated in remedial strategies is promised by keeping intact with the transformational movement to reap the socio-economic rewards. Furthermore, the word-cloud below, as being the collective result of the responses from all the representatives from the head office of the company, project the 'bigger picture' of this case study, by depicting that the coupling of data, customer, business sense and analytics for the future orientation of industry is the way forward. The application of ERP systems, not limited to reporting but mapping the process and procedures for seamless integration of the organisational work routines, is imperative for reaping the benefits of industry 4.0, where the benefits emerge from the issues and challenges that are considered as an opportunity rather than a threat. So, the shift in thinking, planning, strategizing, re-adjustment and re-alignment and looking at the future gaps and possible preparation is the key to survive and succeed, as per the impactful work of Davenport (2006).

Managerial Value and Implications

From being a buzzword to a proper set of work routines and operations, marketing analytics is making its room in an industry that is mainly energy-hungry as production procedures as the most resource-demanding. This transformation of utilising the actionable data insights from production to dealing with customer operations in an industry that is not technology-intensive and mainly driven by the demand for hard-product and availability of mining reservoirs, in an emerging economy, is the observable depiction of marketing analytics implementation (MAI). The strategies for MAI have been automatization of marketing operations and integrating them with logistics (largely) as well as with supply chain (to some extent) as per the marketing value creation.

Future Studies

Comparative analysis of seith-culture oriented, international joint-ventures and top companies in the cement industry as well as manufacturing sector need exploration, descriptive studies that pave the way forward for scale development. There is a high call for scales that could measure inclusive opportunities for growth and development through the application of industry 4.0 form smart cement companies. The conversion of operational analytics (engineering) into marketing outcomes needs the attention of the researchers.

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