

Analytics



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BUSTER**

We live in an age of fastened decision-making, assorted market disruptions and information and misinformation overload. Coos used to make about six or eight critical decisions involving the organization and products per year. Now, they make that number of comparable decisions every month or so.

Meanwhile, torrents of data relentlessly rush in, enervated by a digital revolution, which is characterized. It all begs the question: 'Where can we make the time to absorb this much Informational or Is It another case of " I appreciate that it's there, but I am not sure what to make of it. " Despite all the value- add that business analytics brings to the table, companies have hardly been able to realize its true potential.

Such an attainment implies incorporating more facts into decision-making, facing the information deluge from big data and more nimbly adapting to the WWW. INFORMS. ORG Figure 1: Report card. Changing environment. By upgrading the corporation, we can better integrate business analytics into " how we do business" and thereby compete on BAA. This article will clarify where we are In the BAA revolution, how to measure our BAA maturity and what killer competencies we can realize. We hope this Information will enable corporations and leaders to upgrade.

By upgrading the corporation, we mean more than just adding quanta to a conventional infrastructure. We are past the point where the usual additive approach will keep up. We need a holistic upgrade. Upgrades are needed in five major areas: culture, organization, people, statistics and data. Let's start by recognizing where we are in this technological revolution. The

introduction of the automobile provides a familiar example of the changes needed to fully leverage a new technological innovation.

Three areas of change - culture, Infrastructure and the evolution of the BAA tools - are salient to the discussion. First, the introduction of the automobile met with strong cultural resistance, particularly from 1900 to 1930. Road telltales, which included children playing in the street, met with outrage.

Decision-makers need to: (a) plan for their information needs, (b) learn how to better incorporate statistical results into decision-making, and (c) digest a haystack of information by judging the accuracy and reliability of the results. This can be much more difficult than the earlier state of affairs when decision-makers could rely upon their years of industry experience and the opinions of their peers to draw conclusions. While that experience is still relevant, it has a shorter shelf life and must be tempered with up-to-the-moment information.

For managers, the need is to embrace more specialization from everyone and to identify credible business analysts and business quanta. They need to change their game from checkers to chess. Second, fully leveraging the automobile required constant improvements to the infrastructure. This innovation led to the gradual development of a full-blown ecosystem consisting of roads, gasoline stations, mechanics, traffic rules, traffic signs and driver's licenses. (In the United States, the last state to require a driver's license did so in 1954 and five years later that state required an examination. Likewise, organizations need a very different infrastructure to incorporate business analytics. Corporations need to ensure that the data

are put to the 26 | ANALYTICS-MAGAZINE. ORG best possible use and feed into optimal decision-making at all levels. While data warehouses have become more accessible and user-friendly, the greatest organizational challenge is to extend the BAA team. We need to include senior management, probably a CACAO (Chief Analytics Officer), analytics-based decision-makers and an effective business analytics leader who can complete the SLIT (Quant Lead Quant Team).

We must focus on the need for specialization and placing the right people in the right roles. Certifications are becoming available in the United States, and they will help managers identify business quanta and leaders of quant teams from the other " chess pieces. " To help with discernment, AS launched the[(#)]in 2010 and INFORMS launched this year. In a similar vein, Michael Raps of North Carolina State University launched the first master of science in analytics (MASS) degree, which emphasizes practical and soft skills. Third, automobiles have evolved from their less sophisticated ancestors.

We have moved from wagon wheels to balkanized rubber tires and now automobiles can park themselves, navigate, monitor tire pressure and talk. BAA needs to evolve too. We need to: 1) expand the tool set, and 2) adapt the tools for corporations and for big data. W W W. I N FORMS. ORG Expand the tool set: We need to start by leveraging more of the tools, which have already been built for scientific applications. For example, we need to more frequently pursue the data we need rather than always accepting whatever is leveraging statistical sample designs, designed experiments and planned simulations.

These tools enable starting with the business problems and information needs and aggressively pursuing the best information. Similarly, quality control is seldom used outside of manufacturing even though almost every corporation tracks several Kips and can readily apply these tried-and-tested techniques. Furthermore, there are numerous data reduction techniques, which can readily subdue big data or specific applications, yet they remain mostly idle amid the hurried excitement.

Adapt the tools: Many of our ancestral scientific tools were customized to investigate causality within the confines of small, purposefully planned samples and in a methodical decision-making environment. There was a time when we had to deliberately misapply diagnostics designed for coefficient estimation because other applications lacked corresponding diagnostics. In recent 28 | A N A L E T I C S - M G A G decades, researchers have enhanced statistical techniques to better cover the corporate problem mix.

This mix contains more data visualization, prediction, ranking and clustering (grouping) relative to coefficient estimation, which we perform to investigate causality. Business datasets are frequently big and they tend to be conveniently collected rather than planned. This difference emphasizes the need for validation techniques and clarity around the difference between statistical significance and relative significance. Finally, the business decision-making environment is always fast-paced and sometimes lowbrow. This environment has created a conflict between being a steward of pristine information and playing more of an influencer role.

In expanding the tool set and adapting the tools, we will inevitably improve and broaden BAA applications. One key application requiring better coverage is decision-making. We need to rethink what tools should be used in making and evaluating decisions. This effort can be further facilitated by changes in leadership to make the corporation more quantified and thereby widen the breadth of business analytics as a whole. By juxtaposing the BAA revolution with past technological revolutions, we glean insight into where we are now and where we are going. WWW. INFORMS. ORG

MEASURING BUSINESS ANALYTICS MATURITY Measuring a corporations BAA maturity can provide a map of strengths and weaknesses, generating a great deal of Table 1: Business analytics maturity model. Maturity Dimension Culture Organization Degree to Which BAA is Integrated Into How We Do Business Adaptation of Structure to Facilitate Analytics-Based Decision Making Senior Management Decision Makers insight. A proper measurement must be objective and include sufficient expertise. The review team should be led by experienced external business quanta who can benchmark capabilities relative Spotty Developing

BAA Recognized at Specialization Thought Given to Location of Quanta;
Cross functional analytics teams Mid-level Advocate within one LOB
Leverages analytics when convenient A few BBS in one LOB Off-topic
manager delegates Recognized and appreciated by some in the corporation
Employed by BBS only Occasional BAA Thought To Be Additive Kept in Closet
Somewhere Cosmetic support for BAA Opinion-based decision making Only
BAs; no BBS No leadership, only management Absent People Business

Analysts and Business Quanta Directors of Analytics Statistical Qualifications of Decision Makers and Business Quanta

Statistics Statistical Diagnostics Statistical Review of Decisions and Statistical Results Data Collection Data Software Data Management Absent Absent Only uses data that finds us Very Basic Incoherent Data Dictionaries & Data Encyclopedia Seeks data available through vendors Enables Descriptive Data Analysis Readable Data Dictionaries & Data Encyclopedia Data ANALYTICS-MAGAZINE. ORG WWW. INFORMS. ORG to competitors (low hurdle) and needs (high hurdle). At present, holistic benchmarking of any kind is difficult to find; perhaps, Tags Advisors is the closest.

Table 1 categorizes five areas to watch or measuring BAA maturity: culture, organization, people, statistics and data. Table 1 buys us? Phase Leading In Leadership & Among Decision Makers Decision Makers & Quanta Collaborate; Enterprise-wide representation Enterprise-wide Advocate; several mid-level advocates Planning information needs; understands some diagnostics Manager of BBS delegates Leader has data analysis training and experience Leadership can identify quanta Pioneering BAA Woven Into Corporate Fabric Quanta in Leadership Roles Hires CACAO; Makes Analytics-Based Decisions as an example to others Analytics-Based

Decision Making; Mastery of statistical diagnostics; ability to delegate decisions BAs and BBS brainstorm about innovative solutions Business Analytics Leader; completing a SLIT Enterprise-wide recognition and appreciation of Stats and CAPS Understood by decision makers too Institutionalized Institutionalized Common Proactively seeks data for future

needs Robust mechanisms to generate data-driven insights Data treated as 'Corporate Asset' Business treated as customer by IT Data collection is part of business strategy Integrated systems to seamlessly consume derivative insights CACAO or other Quant signs off on warehouse

There are no corresponding planned business applications for this convenient data. When a new business need is identified, we scour the data encyclopedia (portfolio of data choices with background extolling their virtues) looking for " best information. " In practice, there are serious gaps. For example, one common unmet need is competitor information. When there is a gap, we want to be in a position to do more than use the best information available as a substitute. We want the super power to collect or generate information customized to fit the business needs - proactively pursuing information.

This requires that the expertise to design samples, experiments and simulations be in the hands of people who understand the business and have earned our trust. Killer competency No. 2: quant leadership. There are times when we want to wield the power of a large Quant Led Quant Team (SLIT). This requires a business analytics leader who understands what the team can do and how it functions. We want a leader who has adequate training, practice experience, business acumen and a grasp of the soft skills.

We may need to find or develop this person, who might be standing right in front of us. The natural people to identify talent are the other BAA leaders: CACAO (Chief Analytics Officer) and analyticities decision-makers. As previously mentioned, many corporations are not realizing the true power of

BAA. They stop short by encumbering the quant group with an off-topic "manager" A AN LET I CSS possessing every thinkable skill except BAA practice experience. This compromise means that the corporation receives only diluted quant expertise.

This is like having a manager of finance, legal or accounting who has only two semesters of relevant training and no practice experience. The quant team needs its own overall "leader." Otherwise, each quant is left to lead themselves, and they lack cohesion, guidance and focus. If a large quant team is managed and not led, this is a sign of three possibilities: 1) the corporation is not ready for BAA; 2) the corporation has more quant than it knows what to do with; and/or 3) the corporation can not identify an appropriate leader. Killer competency No. : quant involvement. Statistics is a specialization.