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The faces of intelligence

The pace of change – from political, market and competitive forces – has visibly accelerated over the last years; and there is no credible forecast of a slowdown. The result is that every organization – public and private, business or government, large or aspiring-to-greatness – must learn to gather, process, and use information more efficiently.

A business white paper
by FAST Search Best Practices
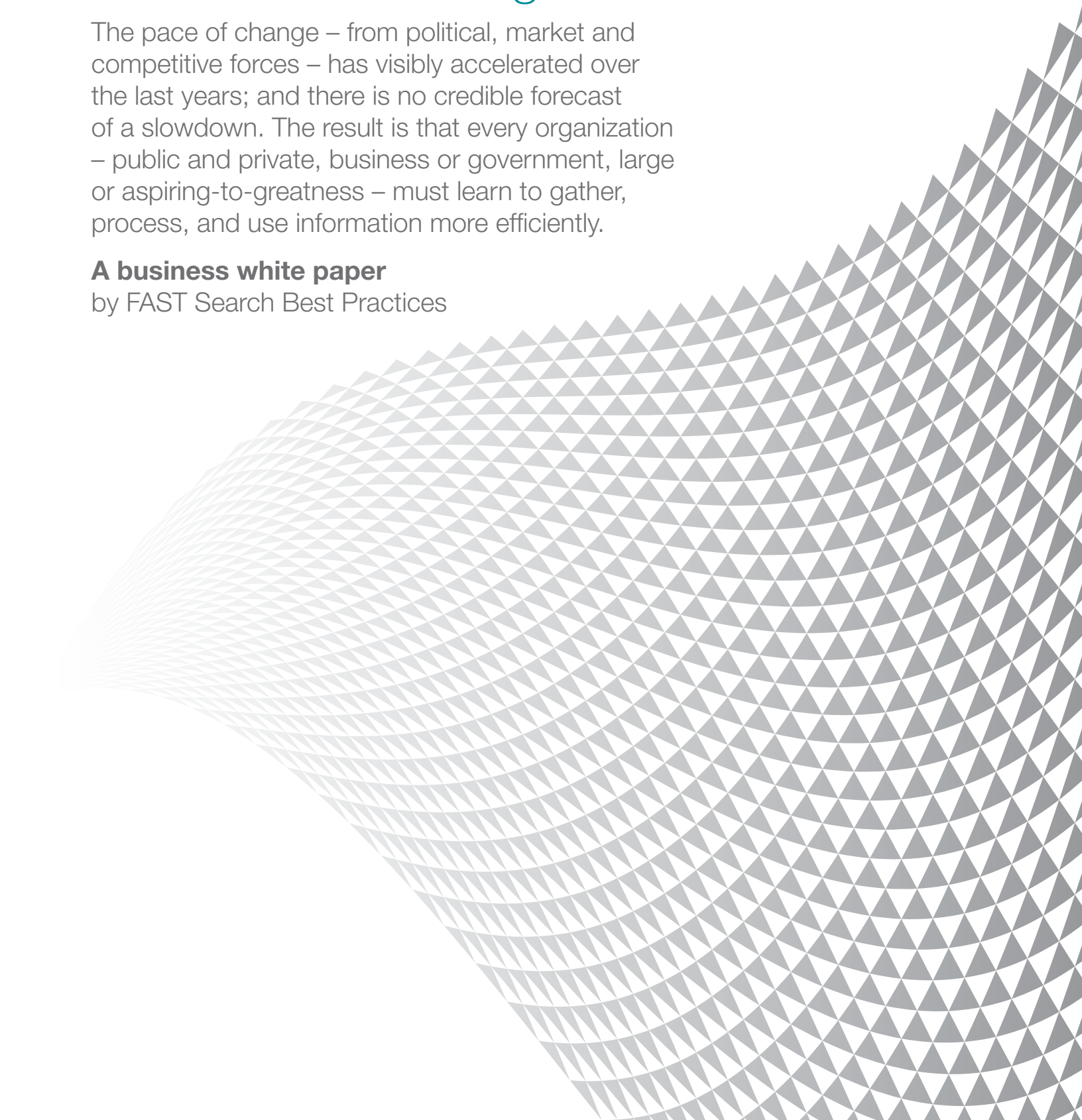
Intelligence Scenario

It is eight o'clock in the evening. Long after most professionals have left the events and activities of the day behind, their work is just beginning. Altogether, they are a group of 45 'silent', unknown professionals whose nightly work interprets and collapses the entirety of the day's events into a clear, manageable flow of information that reaches the highest levels of decision-making, around the world. Tonight is like any other night – yes, the specific information varies from day-to-day, but they have learned to do what many would consider improbable with clock-like precision and unflappable reliability.

Their task, in short, is to make the chaotic intelligible, the inchoate coherent, and the disorganized clear-cut. Without their effort, countless hours would be wasted looking for actionable information, important decisions would be made with greater uncertainty, and prudent preparations would not be undertaken. Theirs is the daily task of producing intelligence – a unique combination of hardware, software, communications, information, and human 'wetware' – the processing of facts and factoids, rumors and judgments, opinions and evidence through the complex calculus of human reasoning.

In the course of a year, they will gather and evaluate, collectively, millions of different pieces of information. They organize each information element into one or more of over three thousand distinct categories or areas of interest and grade/select the most salient items for distribution to the consumers of their intelligence work. In addition, because the world is changing, they research and extract information on hundreds of new, 'customized' subjects – reflecting the interests/needs of their consumers who depend upon their work.

Achieving the productivity and accuracy required of this operation necessitates a clear division of labor. Recognizing this, they organize into three distinct teams. One group of intelligence analysts has responsibility for crafting and maintaining the 'intelligence filters' that feed information directly to consumers and serve as the principal gathering tool for the overnight analyst team. In addition, this team has responsibility for developing and maintaining confidential, custom screens/filters for demanding clients. In the parlance of the intelligence community, this team produces work for both intelligence consumers and other analysts. This is the 'intelligence gathering team'.

A second team, responsible for evaluating information 'items' in their domains of expertise and judging/grading information for its 'salience' or decision-making value, produces interest-area (topical) specific collections of documents for daily distribution to their consumers. Call this group the 'intelligence assessment team'. In their work this evening, these analysts evaluate and organize a stream of thousands of into a collection worth passing on to their 'intelligence' consumers.

The third team is the one responsible for operating the real-time, assessment and early-warning desk. In addition to the use of screens and filters prepared by the 'gathering' team, this group – call them the 'intelligence early-warning team' – monitors real-time information and traditional media services to alert consumers to important events or critical information. These analysts provide consumers with a knowledgeable 'desk' where a real-time view of strategic, tactical, and political forces is always available.

The Tools of Intelligence

Capturing and Sequencing Information – Gather
To achieve their objective of providing 'up-to-the-second' intelligence to their consumers, this organization requires an operational system for processing information in real-time. Specifically, the system collects information from thousands of 'sources' (from large, well-known sources to smaller, focused sources of specialized interest), over every conceivable data transmission method (e.g. satellite, leased line, dial-up, FTP, etc.), and in a dizzying variety of data formats (from well-formed stable ones to periodically changing ones). The system 'normalizes' each item, converting the item into a single, standard format and representation, and then passes the information off for a first round of sophisticated analysis. Given the 'mission-critical' nature of the information provided by the system, its design also requires explicit redundancy/fault tolerance.

Next, the system analyzes the 'content DNA' of each item – assigning appropriate meta-data to characterize the item and storing the item and metadata into a database. Once 'sequenced', each item is available to support the down-stream work of assessment and early warning. And while the process may seem entirely mechanical, the im-

pact of human intelligence, in the form of the 'gathering' team, is already present. The software for sequencing 'content DNA' requires patterns constructed and maintained by the 'gathering' team.

The importance of maintaining these 'sequencing/analysis filters' cannot be overstated. As concepts, entities, events, and the phrases used to characterize them change, the content DNA of an item mutates. The 'analysis' team performs its research, crafts and evaluates 'sequencing' strategies, and tests filters to minimize the effects of 'genetic drift' over time or across concepts. Their work in this area has been embodied into categorization technology and represents invaluable intellectual capital developed in the process of serving their consumers.

Performing Intelligence Analysis – Analyze
Normalized, sequenced, and stored in a repository, items are available the essential activities of intelligence – immediate provision to consumers or 'early-warning' analysts, indexing for subsequent retrieval by consumers and analysts, or processing for use by the 'intelligence assessment' team. Provisioning uses both a real-time/ 'push' notification sub-system and an asynchronous/'pull' presentation sub-system. In addition, 'early-warning' analysts use tools to select, manage and publish/forward the information they receive for analyze.

The second use, utilizes sophisticated query/search methods for information retrieval and 'analysis-gathering', with a scalable, high-performance search engine platform – a prerequisite for providing high levels of service and reliability to consumers and down-stream analysts. Query tools give analysts or consumers the ability to perform more sophisticated analysis – crafting complex Boolean expressions, restricting results by using information from proprietary metadata, employing proximity and stemming operators to narrow or expand meaning, and domain restriction by source and date of issuance – the tools for investigation, navigation, and organization that 'wetware' requires for drawing inference or making association concrete.

The third activity, additional processing to support the work-product of the 'intelligence assessment' team, organizes and presents the daily 'traffic' of items that have been screened to be potentially worthy, by subject or topical area. 'Assessment' team members have tools for summarizing, grading, and presenting items. As

they complete the evening's analysis, their selections are provisioned to consumer -- providing the most important information from the day's traffic, for each subject.

It is two 'o'clock in the morning. The assessment team has completed the evening's work. In the morning, 'gathering' and 'early warning' will restart the processes of refining and alerting critical to an accurate, timely intelligence process.

Provisioning Intelligence to Consumers – Communicate
A critical component in the successful implementation of each platform is the ability to quickly, even automatically, publish/distribute intelligence to consumers. Creating 'networks' of informed decision makers is the heart of any effective intelligence system – a characteristic shared with more traditional media/publishing systems. In this respect, designers and managers of intelligence operations always balance the need for security and privilege against the force of Metcalfe's Law – viz. the usefulness, or utility, of a network increases with the square of the number of users.

Improving the Intelligence Process

There are several points of enduring strain in any intelligence system. The common underlying factors are the importance of time in the reasoning/analytic process (the 'strain of analysis') and the unmanageable, irreversible flow of time itself (the 'strain of time'). The former directly impacts the quality of intelligence. The latter is central to the productivity of an intelligence system.

At a high level, the core 'primitives', or analyses, inherent in modern information intelligence are

- 'Reconnaissance' – recognizing and identifying persons, places, and other entities
- 'Pattern' – identifying similarities across intelligence items
- 'Intensity' – recognizing the frequency and correlation of concepts
- 'Intention' – measuring intelligence for evidence of sentiment, opinion, threat, etc.
- 'Traffic' – calculating and analyzing these four factors, as they change over time
- 'Early warning' – notifying members of an intelligence network, based upon the occurrence of an event, or receipt of particular information

Performing and presenting the results of these analyses, automatically, reduces the 'strain of time' for consumers and analysts – minimizing time spent 'just looking' or gathering facts unproductively. The time saved with 'integrated intelligence' produces an additional benefit. It is axiomatic in the fields of intelligence and cognitive psychology, that more time for reflection, creating and testing hypotheses, and building associations between related ideas produces better analysis and thinking.

One way to reduce the 'strain of time' is to address the complexity and effort spent in navigating through potentially meaningful items. Tools that allow 'intelligence gathering' teams to spend less time finding meaningful results – e.g. by discovering additional 'pattern components' (concepts, entities, events, etc.) and allowing analysts to explore – are high-value additions to any intelligence system. With technologies that dynamically extract and present entities from a group of related items at their disposal, teams typically reduce the time expended in their effort by more than 50%. Bottom line – with more efficient discovery, quality and productivity improve.

"Something's not right…"

Everyone knows where he or she was when they first received the information. Many heard informally, away from the familiar and powerful convenience of the Internet. In the maze of initial reports, some of which proved accurate months later, very few were able to take advantage of the flood of information pouring from many sources. More importantly, many of the implications and consequences that appear obvious now were, in fact, just below the chaotic surface of those events – potentially evident to a careful, reasoned analysis. For some, the events marked the beginning of the end; for others, the end of the beginning – the ability to intelligently anticipate and monitor the resulting upheaval meant the difference between survival and dissolution.

Conclusion

Every single day – not just the days that etch themselves in our memory – but every single day, the circumstances described above happen. Sometimes they happen to more of us, sometimes to a few of us. They happen on a global, national, market, or organizational level. Avoiding disruptive change through the careful and timely analysis of relevant information is the defining benefit of every 'intelligence' system in operation today – in government or industry. In a true Darwinian sense, the forces of change 'select' successful organizations based upon their ability to recognize change and adapt.

The pace of change – from political, market and competitive forces – has only accelerated over the last twenty-five years; and no credible forecast of a slowdown has been made. The result is that every organization – public and private, business or government, large or aspiring-to-greatness – must learn to gather, process, and use information more efficiently if it is to survive and prosper. The outcome of today's wars, in the marketplace or between nations, hinges upon the effective production and consumption of intelligence. There is no mercy for the uninformed or unprepared. Destiny will reward those prepared to learn and to inform. The question is simple – are you adequately prepared?

About FAST SBP™ (Search Best Practices)

SBP consulting is a highly focused transfer of search knowledge and experience from FAST to its prospects and customers. SBP workshops aim to help enterprises realize the full potential of search, by creating optimal strategic, functional and technical roadmaps, delivered in the form of business model, solution and architecture designs.

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SWP.013.B.01.020806