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Eureka! Winning Ways: Analysis of Early Client Experiences

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Eureka! Winning Ways:

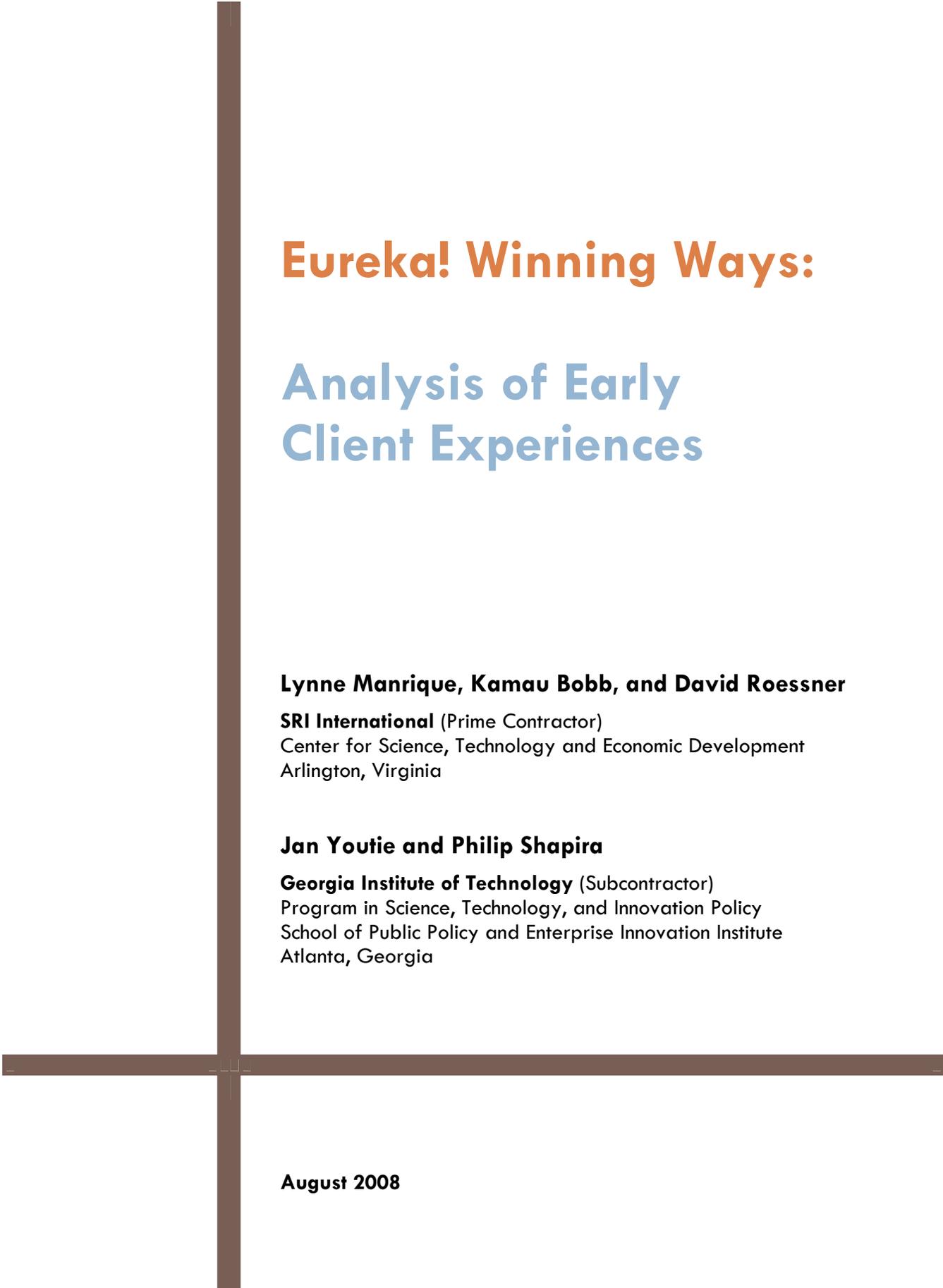
Analysis of Early Client Experiences



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Executive Summary

Project Background and Objective

The Manufacturing Extension Partnership (MEP) of the National Institute of Standards and Technology (NIST) has a longstanding record of helping small- and medium-sized (SME) manufacturers to identify and implement technologies and practices that improve manufacturing efficiency and product quality. More recently, MEP has begun to build a growth services portfolio to assist manufacturers with the development of new products, new customers, and new markets. Its first growth services offering, called Eureka! Winning Ways (E!WW),¹ was piloted in late 2006 and has been implemented widely since the beginning of 2008.

To explore the nature of early E!WW client experiences, as well as inform MEP's planning for potential future growth services offerings and improve its current growth services, NIST MEP contracted with SRI International and Georgia Tech (as a subcontractor to SRI) in order to conduct case studies of eight Eureka! Winning Ways client engagements and to analyze similarities and differences across the cases. The objective of the case studies and the cross-case analysis is two-pronged:

- To provide detailed contextual information and analysis of key factors that have affected the E!WW program's implementation and outcomes to date; and
- To delineate the profile of E!WW clients that choose to participate in the process and to define the results (or lack thereof) generated through participation, so that MEP can estimate the universe of potential participants in E!WW.

Case Study Methodology and Timeframe

The SRI-Georgia Tech team used three methodological tools for elaborating the case studies, including creation of a logic model, development of detailed interview protocols for each site visit, and design of a structured process for identifying and selecting target cases. The development of the tools, selection of target cases, site visits, preparation of case study reports, and cross-case analysis were conducted from late 2007 through July 2008. At the time of the site visits, an average of approximately 6½ months had elapsed since the companies' Trailblazer report-out sessions, which denotes the end of the E!WW engagement.

Structure of the Cross-Case Analysis

The cross-case analysis focuses solely on identifying patterns among the cases and relationships among different variables and company results. Accordingly, the detailed contextual information gathered through the case study interviews is presented in a companion document, "Eureka! Winning Ways: Case Studies of Early Client Experiences." The cross-case analysis is structured around a series of questions designed to define levels of results achieved by case study companies and to identify and explore patterns and possible relationships between observed results and

¹ The appendix to this report provides a summary of Eureka! Winning Ways. If the reader is not familiar with E!WW terminology, please refer to the appendix.

different variables. For variables that exhibited clear yes-no and/or positive-negative patterns vis-à-vis the companies' experiences and results, the team also conducted detailed analysis to identify and synthesize subtler patterns.

Findings

The summary of findings from the cross-case analysis is organized according to the project's three research questions, namely:

- What circumstances and issues propel companies to try the E!WW approach?
- What factors – both internal and external to the company – seem to influence achievement of results?
- What types of activities are pursued by E!WW participants, and what benefits do participants experience?

Circumstances and Issues that Propel Companies toward E!WW

Three issues predominate as factors that precipitated the case study companies' involvement in E!WW. These issues include the:

- High level of competition in the industry;
- Need or desire for company growth; and
- Need or desire for product diversification.

Variables related to Results

For case study companies, four variables appeared to be connected to the firms' experiences and results. The factors that emerged most clearly and consistently for case study companies are:

- **Industry characteristics**, especially consistent job loss in the recent past as well as over an extended period of time and the level of R&D intensity, with lower levels of R&D apparent in several cases exhibiting higher levels of positive results;
- **Firm characteristics**, notably, the nature of ownership, structure and process of new product development, and degree of success with technological or process improvements;
- **Eureka! session**, particularly the mix of participants, the growth coach, the role of the session in dispersing idea generation and development, and the use of a team approach by MEP centers for the session; and
- **Trailblazer period**, namely, the growth coach, the emergence or absence of shared ownership of and responsibility for idea development, affirmation of the company's capabilities or ideas via Trailblazer activities, the focus provided by the defined idea development period, as well as variations in implementation of this E!WW component such as extension of the period beyond 30 days and exploration of more or fewer than the standard two ideas.

Types of Activities and Benefits

Most case study companies adapted existing ideas for pursuit during Trailblazer, rather than exploring completely new ideas. Case study companies also tended to develop new products during Trailblazer, rather than targeting new customers or markets. From these ideas, case study companies experienced a range of results in three categories, as follows:

- **Long-term outcomes**, including new sales;
- **Short-term outputs**, particularly new products or services, new partnerships or collaborations, new product development processes, and new marketing or sales approaches; and
- **Changes in capabilities and actions**, especially changed attitudes to new product development, new individual staff capabilities, and new product prototypes.

Implications for MEP

The findings from the cross-case analysis provide insight for MEP as it pursues E!WW implementation. In particular, the team observed important implications for MEP with respect to the:

- **Target customer for E!WW**, in particular that centers may wish to target their E!WW marketing efforts toward companies that feature some of these characteristics: (i) are in industries that have experienced consistent job loss, (ii) are in more traditional (not R&D-intensive) sectors, (iii) are family-owned, (iv) use a concentrated idea generation and new product development process; and (v) have had some degree of success with past technological or process improvements.
- **Mix of participants** that centers and companies may wish to include in E!WW activities, not only thinking strategically about which company staff to involve but also considering inviting participants from outside the firm,
- **Importance of the growth coach** to the overall implementation of E!WW, and the related need for growth coaches be selected carefully, trained well, and supported adequately;
- **Design of the E!WW service**, specifically recommendations to consider (i) incorporating a team approach into the Eureka! program process and training, (ii) the option of extending the Trailblazer period by one month for some clients; (iii) the possibility of augmenting or decreasing the number of ideas pursued during Trailblazer for some companies; and (iv) strengthening the re-load process, incorporating on-going, related center efforts; and
- **Evaluation timeframe**, namely extending the timeframe for gauging results to one year after the end of the Trailblazer period.

Introduction

Project Background and Objective

The Manufacturing Extension Partnership (MEP) of the National Institute of Standards and Technology (NIST) has a longstanding record of helping small- and medium-sized (SME) manufacturers to identify and implement technologies and practices that improve manufacturing efficiency and product quality. In light of a changing global manufacturing environment, MEP has more recently begun to build a growth services portfolio to assist manufacturers with development of new products, new customers, and new markets that in turn will help manufacturing SMEs define and build attributes that distinguish them from their competition. MEP's first growth services offering, called Eureka! Winning Ways (E!WW),² was piloted in the fall of 2006, launched in early 2007, and since the beginning of 2008 has been implemented widely.

Because the E!WW program is relatively new, the conditions that precipitate participation and influence results are not yet well understood. To explore the nature of early E!WW client experiences, as well as inform MEP's planning for potential future growth services offerings and improve its current growth services, NIST MEP contracted with SRI International and Georgia Tech (as a subcontractor to SRI) in order to conduct case studies of eight Eureka! Winning Ways client engagements and to analyze similarities and differences across the cases. The objective of the case studies and the cross-case analysis is two-pronged:

- To provide detailed contextual information and analysis of key factors that have affected the E!WW program's implementation and outcomes to date; and
- To delineate the profile of E!WW clients that choose to participate in the process and to define the results (or lack thereof) generated through participation, so that MEP can estimate the universe of potential participants in E!WW.

Following from this dual purpose, the overarching research questions to be addressed through the case studies are:

- What circumstances and issues propel companies to try the E!WW approach?
- What factors – both internal and external to the company – seem to influence achievement of results?
- What types of activities are pursued by E!WW participants, and what benefits do participants experience?

The remainder of this section details the methodology that guided implementation of the case study design and analysis (including target case selection), an overview of the selected cases, and the framework used to conduct the cross-case analysis. The next section, "Patterns Observed among Cases," presents detailed analysis across the case studies, followed by a summary of findings and implications for MEP.

² The appendix to this report provides a summary of Eureka! Winning Ways. If the reader is not familiar with E!WW terminology, please refer to the appendix.

Case Study Methodology and Timeframe

The SRI-Georgia Tech team used three methodological tools for elaborating the case studies. They included creation of a logic model, development of detailed interview protocols for each site visit, and design of a structured process for identifying and selecting target cases. The development of the logic model, interview protocol, and target case selection process was conducted in late 2007 and, following comments from MEP, completed in January 2008. Target cases were selected during January and February 2008. The team conducted site visits in March and April 2008 and drafted and finalized the case study reports in May and June 2008. The cases were analyzed as a group during June and July 2008.

Logic Model

The SRI-Georgia Tech team constructed a logic model to depict the chronological chain of evidence progressing from inputs and activities (i.e., causes) to short-term and long-term outcomes (i.e., effects). Through the logic model, depicted on the following page, the team had a clear organizational framework for developing the case study protocol, for comparing externally-collected data with interview findings, and ultimately for conducting cross-case analysis. In developing the logic model for the Eureka! Winning Ways process, the SRI-Georgia Tech team identified and incorporated:

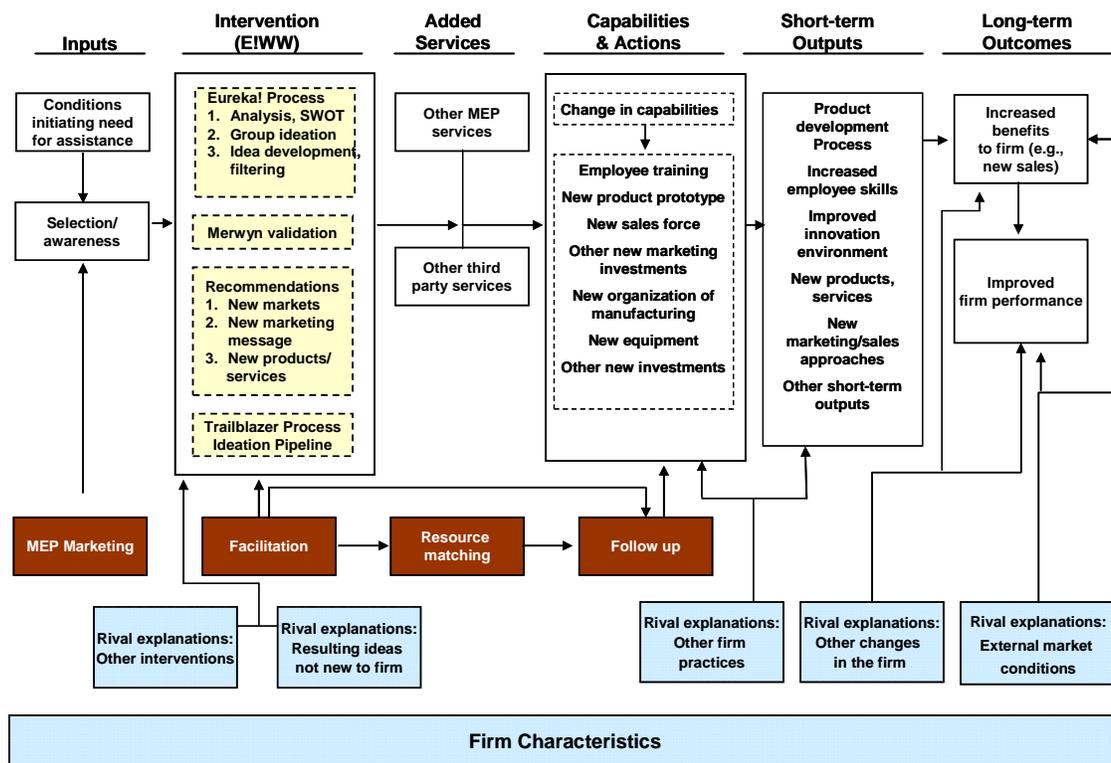
- Key elements of the E!WW process and how they might be expected to contribute to sought-after results;
- Availability of additional services that might have influenced achievement of short-term outputs and long-term outcomes;
- Mechanisms through which and points at which MEP staff (i.e., growth coaches) interact with E!WW participants and potentially affect results; and
- Stages in the chain of evidence at which external or rival factors might explain activities or outcomes.

Development of Interview Protocols

Following from the logic model, interview protocols were designed to examine the progression of events and activities in sequence, from the MEP client's introduction to E!WW to the effects of the intervention. In exploring this information chain, the SRI-Georgia Tech team relied on the following data sources:

- Interviews with staff and leaders of the E!WW case study companies;
- Interviews with MEP growth coaches who worked with the case study targets;
- Discussions with Eureka! Ranch staff;
- Eureka! Ranch data for case study companies;
- E!WW forms (provided by Eureka! Ranch and/or MEP centers);
- MEP center project activity information;
- Secondary sources such as company websites, media reports, and Lexis-Nexis; and
- Industry data from public statistical sources.

Logic Model: Eureka! Winning Ways



In keeping with the overall objective of providing in-depth understanding of E!WW participants, processes, and results to date, the case study protocol was designed to address the three major research questions described above. The research questions framed the categories of information that were sought by the SRI-Georgia Tech team during the case study interviews. The following table summarizes the nine categories of information (and key sub-sets thereof) sought via the interview protocols.

Key Information Sought Via the E!WW Case Study Protocol
Industry and Company Background Information
<ul style="list-style-type: none"> ▪ Industry or subsector changes in the past 1-3 years ▪ Main company products/product lines or services and customers ▪ Changes within the company (e.g., introduction of new products/services, new leadership at the firm, etc.) in the past 1-3 years ▪ Current employment and change in employment in past 1-3 years ▪ Skill sets and education levels of employees ▪ Current revenues and changes in past 1-3 years
Decision Process for E!WW Participation
<ul style="list-style-type: none"> ▪ How the company was introduced to E!WW ▪ Key issues/threats to be addressed by E!WW and degree of urgency for each ▪ Other growth services options considered (besides E!WW)

Key Information Sought Via the E!WW Case Study Protocol
Company Experience of E!WW Implementation
<p>For each segment of E!WW (e.g., planning session, Eureka! session, etc.):</p> <ul style="list-style-type: none"> ▪ The 1-2 most beneficial segment(s) and why they were beneficial ▪ The 1-2 least beneficial segment(s), why they were not useful, and how they could be improved ▪ The key roles of the growth coach in each segment
Other Activities During E!WW
<ul style="list-style-type: none"> ▪ Type(s) and timing of any additional activities/services accessed during E!WW ▪ Source(s) of other activities/services ▪ Most and least beneficial aspects of non-E!WW activities/services ▪ New practices introduced or changes made as a result of these activities/services
Ideas Identified and Pursued through E!WW
<ul style="list-style-type: none"> ▪ Description of the four ideas submitted to Merwyn ▪ Activities and results of Trailblazer period for the two selected ideas ▪ Current status of ideas recommended for development at end of Trailblazer
Changes and Outputs Associated with E!WW
<ul style="list-style-type: none"> ▪ Changes in capabilities and/or actions pursued by the company to develop idea(s), and extent to which the company attributes the capabilities/actions to E!WW ▪ Short-term outputs of the company's pursuits of new idea(s) and extent attributable to E!WW
Changes and Outputs from Other (non-E!WW) Activities
<ul style="list-style-type: none"> ▪ Additional ideas pursued (outside of Trailblazer or E!WW) and how these ideas were identified and developed ▪ Changes in capabilities and/or actions pursued by the company to implement these idea(s) ▪ Short-term outputs of the company's pursuits of new idea(s) generated through non-E!WW activities
Long-term Outcomes and Implications for the Company
<ul style="list-style-type: none"> ▪ Types of long-term outcomes experienced by the company from E!WW, e.g., improved firm performance, new sales ▪ Extent that other (non-E!WW factors) changed or affected the way the company does business ▪ Durability of the effect on company operations or culture of E!WW participation

Case Selection Process

As of October 30, 2007, when the project began, 59 MEP clients had participated in Eureka! Winning Ways. Of these 59 clients, seven clients participated in E!WW during the pilot stage, and another 19 clients took part in E!WW sessions conducted by Eureka! Ranch staff at the boot camps that trained MEP staff to serve as growth coaches. The remaining 33 E!WW participant companies went through the E!WW process via their respective MEP centers and with MEP growth coaches. Because the intent of training MEP staff to become growth coaches is to internalize within MEP the capability to offer E!WW, the potential targets for these case studies comprises the group of 33 E!WW participants, as the experience of these companies represents the

“steady state” of E!WW implementation that the experience of future E!WW clients will most closely resemble.

To decide which cases to select from the pool of 33, the SRI-Georgia Tech team identified and agreed with MEP staff on key criteria for selecting the case study targets. The criteria used in selecting the cases and the level of importance assigned to each criterion are summarized in the following table.

Summary of Key Criteria for Selecting E!WW Case Study Targets	
Criterion	Level of Importance
Company Size	Primary
Industry or Industry Sub-Sector	Primary
Length of Affiliation with MEP	Secondary
Representation of Growth Coaches	Secondary
Geographic Location	Tertiary

Target Cases

As mentioned above, the target case studies were selected to reflect the universe of E!WW participants to date according to criteria including: size of company; industry or industry sub-sector in which the company operates; length of affiliation with the respective MEP centers; diversity of E!WW growth coaches; and geographic location. The table on the following page outlines the characteristics of the selected cases.

The companies that were ultimately selected and studied operate in the following manufacturing sectors:

- Agricultural implements
- Fabricated metal products
- Industrial hardware
- Machinery
- Magnetic and optical media products
- Medical products
- Metal stamping and parts
- Wood products

The MEP centers that implemented E!WW for the case study clients are:

- Delaware Valley Industrial Resource Center, DVIRC
- Georgia Manufacturing Extension Center, GaMEP
- New Jersey Manufacturing Extension Center, NJMEP
- Minnesota Technology, MN Tech
- Vermont Manufacturing Extension Center, VMEC

Distribution of Eureka! Winning Ways Case Study Clients	
Criterion	Number of Cases
Company Size	
1 to 30 employees	2
31 to 55 employees	2
56 to 100 employees	2
101+ employees	2
Industry or Industry Sub-Sector Characteristics	
Number of different NAICS codes	9 ³
Number of companies in growing/declining/mixed industries ⁴	4/3/2
Number of companies in R&D-intensive sectors ⁵	5
Number of companies in industries with R&D spending as a percentage of sales that is above average/average/below average/n.a. ⁶	3/2/2/2
Year of Affiliation with MEP	
1995 to 1998	3
1999 to 2005	3
2006 and 2007	2
Representation of Growth Coaches	
Number of different growth coaches	5
Geographic Location	
Number of states or MEP centers	5

As indicated in the table above, eight companies were interviewed and studied for this project. One company requested that its case study not be published. Accordingly, seven companies are covered in the cross-case analysis.

Structure of the Cross-Case Analysis

Contents of the Cross-Case Analysis

The cross-case analysis focuses solely on identifying patterns among the cases and relationships among different variables and company results. Accordingly, the detailed contextual information gathered through the case study interviews is not repeated here;

³ One company operates in two NAICS codes.

⁴ Based on one-year and ten-year changes in employment and in value of production at manufacturing establishments, using data from the U.S. Census Bureau, *2006 Annual Survey of Manufactures*, <http://factfinder.census.gov>. For purposes of this report, a “growing” industry sector means at least three of the four data points are positive, “declining” means at least three of four data points are negative, and “mixed” means the industry has an equal number of positive and negative data points. The four data points include employment change at manufacturing companies from 2005 to 2006, employment change from 1997 to 2006, value of production change at manufacturing companies from 2005 to 2006, and value of production change from 1997 to 2006.

⁵ As defined by National Science Foundation, *Science and Engineering Indicators 2006*, Table 8-43: High-technology NAICS Codes.

⁶ As defined by National Science Foundation, “Expenditures for U.S. Industrial R&D Continue to Increase in 2005; R&D Performance Geographically Concentrated,” Tables 2 and 3, NSF 07-335, September 2007.

instead it is presented in a companion document, “Eureka! Winning Ways: Case Studies of Early Client Experiences.” The team decided to present the detailed information regarding individual cases separately because some readers may be more interested in the cross-case analysis than in the cases themselves. In addition, since the set of cases is somewhat lengthy, dividing the information into the two documents creates greater readability.

A second major characteristic that defines the contents of the cross-case analysis is use of the generic term “company” and an associated number, e.g., Company 1, Company 2, etc. The team has chosen not to refer to companies by name in order to maintain a clear focus in the cross-case analysis on learning from these early experiences in implementation of this new MEP program. By deemphasizing the direct relationship of interviewees’ comments to specific companies or MEP centers, the use of the generic term preserves the original purpose of the case study project and avoids the tendency to interpret case study findings as an evaluation of either the program itself or of program implementers, which the case study project does not address and is not intended to provide. The process for grouping and numbering the companies is described in the next section.

Methodology for Conducting the Analysis

The cross-case analysis is structured to identify contextual and procedural factors associated with: (i) incentives leading to the request for services and variations in client characteristics (on the “input” side of the logic model); (ii) client-service interactions (the “intervention”); and (iii) client responses (the “output” side). Because understanding the types of outputs experienced by E!WW clients is a key objective of the case study project, the first step in the team’s cross-case analysis is likewise structured around outputs. Specifically, for each company, the team compiled interview data to answer the following question:

- As a result of the company’s participation in E!WW, was there a positive:
 - Change in capabilities and actions?
 - Short-term output?
 - Long-term outcome?

Based on data related to the three parts of this question, the team organized the companies into groups reflecting the levels of positive results attained through E!WW, with the term “results” hereafter referring collectively to changes in capabilities and actions, short-term outputs, and long-term outcomes. Within the groups, the companies were assigned numbers (i.e., Company 1, Company 2, etc.) randomly, that is, within each group no distinction in levels of results is designated or implied by the number. Instead, within groups, all companies are considered to have achieved approximately equal levels of results, regardless of their “company number.”

The team then identified and explored possible relationships between results and the circumstances and issues that propel companies to participate in E!WW, as well as the internal and external factors that influence results. In line with the logic model and research questions, the key variables that the team considered for analysis are:

- **Industry characteristics** (a prominent background criterion for selecting target companies)
- **Firm characteristics** (the base of existing conditions for activities depicted in the logic model)
- **Inputs** (including the company's introduction to E!WW and its reasons for choosing to participate)

For each of these variables, the team used the interview data to answer the question:

- Did the variable have a significant, observable effect on the changes, outputs, and outcomes experienced by the company (yes or no)?
 - If yes, was the effect positive or negative?
 - If no, why not? (i.e., the team explored aspects of the variable more deeply in order to ascertain if the effect was truly unimportant vis-à-vis program changes, outputs, or outcomes, or instead was simply "hidden" from view)

For the variables that the logic model predicts will have a collective impact on changes, outputs, and results – namely the "Intervention" – the team analyzed central elements separately, including the:

- **Planning meeting** (e.g., the mix of participants and the degree to which understanding of and agreement with the reasons for E!WW participation were achieved)
- **Eureka! session** (i.e., how it was perceived and experienced, as well as variations to the standard session may have had positive or negative effects)
- **Trailblazer planning and implementation** (which for the purposes of the cross-case analysis encompasses the "added services" component of the logic model)⁷

For each of these intervention segments, the team used the interview data to answer the question:

- Was the segment important to participants' experience of E!WW (yes or no)?
 - If yes, was the experience positive or negative?
 - If no, why not?

For variables that exhibited clear yes-no and/or positive-negative patterns vis-à-vis the companies' experiences and results, the team then conducted detailed analysis, using quantitative data and/or word tables, to identify and synthesize subtler patterns regarding the relationship between each variable and results or regarding the most or least beneficial aspects of each intervention segment.

⁷ In all cases where companies accessed added services, the resources were utilized as part of Trailblazer implementation and/or were accessed in coordination with the related MEP center, rather than as a subsequent or separate intervention; thus, the team considers their impact to be part of the Trailblazer period.

Patterns Observed Among the Cases

Identifying Changes, Outputs, and Outcomes

The three types of results expected from E!WW participation include positive changes in capabilities and actions, short-term outputs, and long-term outcomes. In examining the effects of E!WW participation for each type of result, the team assessed various indicators or examples of changes (listed in the following table) and then compiled results in each category for each case, as detailed in the second table below.

Examples of E!WW Results		
Changes in Capabilities and Actions	Short-term Outputs	Long-term Outcomes
<ul style="list-style-type: none"> • New capabilities for individual staff • New product prototypes • New marketing investments • New equipment • Changed attitudes toward new product development (NPD) 	<ul style="list-style-type: none"> • Increased employee skills across the company • New products or services • New marketing or sales approaches • New product development process • New partnerships 	<ul style="list-style-type: none"> • New sales • Improved firm performance

Number of Cases Experiencing Results in each Category		
Changes in Capabilities and Actions	Short-term Outputs	Long-term Outcomes
7	4	3

The team then aggregated the changes, outputs, and outcomes across the categories. Based on the combined results, the team created groupings to compare the levels of results experienced by case study participants. The groups are designated by the highest level of results achieved. If the highest level of results a company achieved is long-term outcomes, then it is implicit that the firm also achieved short-term outputs and changes in capabilities and actions. Likewise if the highest level of results achieved is short-term outputs, then the company also experienced changes in capabilities and actions. The following table summarizes the terminology and definitions for grouping the cases and the number of cases in each group.

Categorization of Cases based on E!WW Results		
Case Groups (by level of results)	Group Parameters	Number of Cases
Long-term Outcomes	Experienced positive changes in capabilities and actions, short-term outputs, and long-term outcomes	3
Short-term Outputs	Experienced positive changes in capabilities and actions and short-term outputs	1
Changes in Capabilities and Actions	Experienced positive changes in capabilities and actions	3

To respond to the case study project objective of gaining knowledge of the types of benefits experienced by E!WW client companies, the team examined the cases for evidence of the types of results listed above in “Examples of E!WW Results.” At the time of the site visits, an average of approximately 6½ months had passed since the companies’ Trailblazer report-out sessions; three months was the shortest length of time between the Trailblazer report-out session, and nine months was the longest. Thus, the case studies capture results that had been achieved through that time.

The results of this analysis are detailed in the table on the following page and synthesized below. As indicated in both tables, changed attitudes to new product development was the most commonly shared result among case study companies. Attitudinal impacts reported to the team ranged from first-time recognition of the need for new product development to emerging fearlessness among staff about pursuing NPD. Regardless of the precise nature of the attitudinal change, interviewees consistently reported that the change was important in the context of their firm. The second most widely mentioned type of change related to individual staff capabilities, which reflects interviewee comments regarding addition of specific skills to their repertoire or change in the method of conducting their work that were brought about by E!WW participation.

Detailed Analysis of Company Results: Synthesis of the Nature of Results by Case		
Type of Result	Nature of Results	Number of Cases
Long-term Outcomes	New sales	3
Short-term Outputs	New products or services	4
	New partnerships or collaborations	3
	New product development process	2
	New marketing or sales approaches	2
Changes in Capabilities and Actions	Changed attitudes to new product development	6
	New individual staff capabilities	5
	New product prototypes	4

Within the short-term outputs category, three companies entered into new partnerships or collaborations, a type of results that (in terms of the logic model) contributes to the companies’ innovation environment and, in addition, potentially extends the effect of E!WW beyond the company itself. Several types of new partnerships and collaborations were described by case study companies, including work with a university and with local businesses and individuals. Development of new product prototypes (within changes in capabilities and actions) and launch of new products or services (within short-term outputs) represented other broadly reported results of case study companies. At the highest level of results (long-term outcomes), new sales were achieved by three companies.

Detailed Analysis of Company Results				
Group	Case	Types of Changes in Capabilities and Actions	Types of Short-term Outputs	Types of Long-term Outcomes
Long-term Outcomes	Company 1	New individual staff capabilities	New products or services	New sales
		New product prototypes	New product development process	
		New marketing investments	New partnerships or collaborations	
		Changed attitudes to NPD		
	Company 2	New individual staff capabilities	New products or services	New sales
		New product prototypes		
		Changed attitudes to NPD	New marketing or sales approaches	
	Company 3	New individual staff capabilities	New products or services	New sales
			New product development process	
Changed attitudes to NPD		New marketing or sales approaches		
Short-term Outputs	Company 4	New individual staff capabilities	New products or services	--
		New product prototypes		
		Changed attitudes to NPD		
		Other investments (purchase of materials, use of equipment and space)	New partnerships or collaborations	
Changes in Capabilities and Actions	Company 5	Changed attitudes to NPD	--	--
	Company 6	New individual staff capabilities	--	--
		New product prototypes		
Company 7	Changed attitudes to NPD	--	--	

Identifying Patterns between Variables and Results

After identifying and analyzing the levels of results experienced by the case study companies, the team examined patterns between groups and similarities and differences within each group vis-à-vis the key variables mentioned in the previous section. These patterns are explored below.

Industry Characteristics

In designing the framework for the E!WW case study project, the team included the company's industry or industry sub-sector as a primary criterion for selecting case study targets. Industry characteristics were expected to influence company results, to provide insight into motivating factors for company's participation in E!WW, and potentially to form rival explanations for observed results. Accordingly, four indicators were selected to ensure that the case studies illustrated a variety of industry circumstances – including growing, contracting, and stagnant industries and sectors offering differing degrees of opportunity for innovation. The four industry indicators are:

- Employment trends (at 1-year and 10-year intervals)
- Production value trends (at 1-year and 10-year intervals)
- R&D expenditures as a percentage of sales
- R&D intensity of the industry

To assess the degree to which industry circumstances affected the company throughout the E!WW process, from the decision to participate to realization of results, early in each interview the team probed for information regarding recent major changes in the industry, their effects on the company, and the central issues or threats that prompted the company's participation in E!WW. As summarized in the following table, interview data revealed that industry circumstances had a significant effect on the E!WW results of only one company – and in this case, the effects were positive.⁸ For the other six companies, industry context appeared to have little or no impact on the companies' E!WW experience, a finding that contradicts initial expectations.

INDUSTRY CHARACTERISTICS: Did They Have Significant, Observable Effect(s) on E!WW Outcomes, Outputs, and Changes? If so, was the effect positive (+) or negative (-)?			
Group	Case	Effect?	+ or - ?
Long-term Outcomes	Company 1	No	n/a
	Company 2	Yes	+
	Company 3	No	n/a
Short-term Outputs	Company 4	No	n/a
Changes in Capabilities & Actions	Company 5	No	n/a
	Company 6	No	n/a
	Company 7	No	n/a

⁸ In this case, the positive effects were two-fold. First, global events in the industry (a recall of toys from China) opened enormous opportunity for growth by this American toy maker. The same global events also provided motivation to use E!WW as a way to capitalize on this growth opportunity as well as an immediate demand for the new product line developed during the Trailblazer period.

The team had anticipated industry characteristics would be important reasons for E!WW participation and success, but interviewees did not connect their companies' participation to industry context. Because of the gap between the team's expectations and the interview data collected, the team reviewed background data regarding industry characteristics for patterns before concluding its analysis on this variable. The following table depicts the comparison of observed results and the industry characteristics selected by the team for the target case selection process.

Detailed Analysis of Industry Characteristics					
Group	Case	Employment Trends ⁹ (1-year/10-year)	Production Value Trends ¹⁰ (1-year/10-year)	R&D as a % of Sales ¹¹	R&D Intensive Sector ¹²
Long-term Outcomes	Company 1	- / --	+ / ++	Av	Yes
	Company 2	- / -	+ / ++	N/a	No
	Company 3	- / --	+ / -	BA ¹³	No
Short-term Outputs	Company 4 ¹⁴	+ / -- and - / --	+ / ++ and - / ++	BA ¹² and N/a	No and Yes
Changes in Capabilities & Actions	Company 5	- / --	- / --	AA	Yes
	Company 6	+ / +	+ / ++	AA	Yes
	Company 7	+ / --	+ / +	Av	Yes

As indicated by gray shading in the table, it is notable that the firms that enjoyed the highest levels of results from E!WW also were those that had experienced job losses in the past year and past ten years. Also of possible significance is an apparently inverse relationship between R&D intensity and results, since the three companies achieving lower levels of results all operate in R&D intensive sectors, while only two of the four companies attaining higher levels of results are characterized as R&D intensive. The observations that the team derives from these case study patterns are that:

⁹ "-" = single digit contraction; "--" = double digit contraction; "+" = single digit expansion; "++" = double digit expansion. Source: U.S. Census Bureau, 2006 Annual Survey of Manufactures, <http://factfinder.census.gov>.

¹⁰ Ibid.

¹¹ Categories include: Av = average (same as national average for all industries of 3.7%); BA = below average (less than 3.7%); AA = above average (greater than 3.7%); and n/a (not available). Sources: National Science Foundation, "Expenditures for U.S. Industrial R&D Continue to Increase in 2005; R&D Performance Geographically Concentrated," Tables 2 and 3, NSF 07-335, September 2007.

¹² Includes R&D-intensive industries for which the number of R&D workers and technology-oriented occupations accounted for a proportion of employment that was at least twice the average for the industries surveyed (National Science Foundation, *Science and Engineering Indicators 2006*, Table 8-43, High-technology NAICS codes.)

¹³ Data for this company's NAICS code is available only at 3-digit NAICS level (NAICS 332), so the below average rating may be misleading or incorrect. Mainly because of this data deficiency, the team has not reached any conclusions or observations about the possible relationship of this variable to results.

¹⁴ This company operates in two NAICS codes.

- Consistent job loss in an industry may be a factor in propelling companies not only to participate in E!WW but perhaps also to have a greater tendency to succeed once involved in the program; and
- R&D intensity does not seem to predict or translate into propensity to capitalize fully on E!WW or to achieve results via the program. In fact, case study companies in lower R&D intensity sectors experienced higher levels of results, representing a possible inverse relationship between this indicator and E!WW outcomes.

Firm Characteristics

In defining the target case studies, company size was a primary criterion for several reasons, such as MEP’s mission to serve small- and medium-sized manufacturers, the ways in which E!WW might contribute to achievement of this mission, and the fact that three-quarters of E!WW participants at the time of target case selection were small, employing 100 or fewer workers. In conducting the case study research, the team gathered additional information regarding firm characteristics, including:

- Annual revenues
- Company’s experience with new technologies and production or process improvements
- Role of company leaders in new product/process development
- Internal organizational framework for new product/process development, and
- Ownership structure.

After compiling the data gathered regarding firm characteristics, the team analyzed the apparent effects of these traits on each company’s E!WW experience; the results are provided in the following table. The pattern that emerges from this analysis is clear: firm characteristics affected results in all cases. Moreover, among the companies that achieved the highest levels of results (i.e., long-term outcomes and short-term outputs) from E!WW, the impact of firm characteristics was universally positive, while among companies that experienced lower levels of results (i.e., changes in capabilities and actions), the effect was uniformly negative.

In light of the strong pattern among firm characteristics revealed in the cases, the team conducted further analysis, encapsulated in the table on the next page. As denoted by the gray shading, several patterns emerge readily. First, it is striking that the three

companies that experienced long-term outcomes are all private, family-owned firms. While definitive conclusions cannot be reached on the basis of this limited number of

FIRM CHARACTERISTICS: Did They Have Significant, Observable Effect(s) on E!WW Outcomes, Outputs, and Changes? If so, was the effect positive (+) or negative (-)?			
Group	Case	Effect?	+ or - ?
Long-term Outcomes	Company 1	Yes	+
	Company 2	Yes	+
	Company 3	Yes	+
Short-term Outputs	Company 4	Yes	+
Changes in Capabilities & Actions	Company 5	Yes	-
	Company 6	Yes	-
	Company 7	Yes	-

examples, the team hypothesizes that such firms, or at least their owners and family members, may have a greater stake in the company's success overall and thus have greater motivation to maximize their participation in E!WW.

Detailed Analysis of Firm Characteristics						
Group	Case	Employees	Annual Revenue	Nature of Ownership	Experience w/ Technology or Improvements ¹⁵	Organizational Structure for NPD ¹⁶
Long-term Outcomes	Company 1	56 to 100	\$11 m	Private/family-owned	High Success	Concentrated
	Company 2	1 to 30	<\$10 m	Private/family-owned	Moderate Success	Concentrated
	Company 3	31 to 55	\$3 m	Private/family-owned	High Success	Concentrated
Short-term Outputs	Company 4	101+	\$50 m	Private	High Success	Cooperative
Changes in Capabilities & Actions	Company 5	1 to 30	\$12 m	Private	Moderate Success	Concentrated
	Company 6	56 to 100	<\$50 m	Private	Low or No Success	Competing
	Company 7	31 to 55	\$10 m	Private	High Success	No structure ¹⁷

Second, for case study companies, it appears that having some degree of success with previous technological and/or process improvements is an important element for rewarding participation in E!WW, though having had moderate or high success with such improvements is not sufficient to guarantee long-term outcomes or short-term outputs via E!WW. Third, a counterintuitive pattern is that case study companies in which responsibility for new product development is held by one or a few individuals within the company (usually in leadership positions) achieved higher levels of results in E!WW (though this characteristic is also present in one case in which a lower level of results was attained). It may be that in some of these cases E!WW helped to unleash the creativity and ideas of a broader range of company staff. Fourth, among the case

¹⁵ The team considered experience with technology or process improvements during past ten years. The term "high" indicates that the company has undertaken numerous technological or process improvements efforts, often via formal processes such as certifications and training. "Moderate" is defined by a few, mostly informal, technological or process improvement efforts. "Low or no" indicates sporadic, ineffective, or no efforts to incorporate technology and improve technology.

¹⁶ "Concentrated" means that new product development (NPD) responsibilities involve only the top leaders; "cooperative" denotes that responsibilities are shared across departments or throughout much of the company; "competing" indicates that different departments or parts of the company actively seek to hold primary responsibility for NPD.

¹⁷ For this company, new product development is driven exclusively by customer requirements, so there is no structure for internally-generated NPD.

study companies no clear pattern emerges with respect to the relationship between firm size (as measured either by number of employees or annual revenues) and levels of results from E!WW. Accordingly, from examination of the case studies, no observations regarding the most relevant size characteristics for an E!WW engagement can reliably be made.

Inputs

As outlined in the logic model, inputs consist of three elements – the conditions precipitating the need for growth services assistance, the MEP center’s marketing of E!WW in each case, and the process by which the company became aware of E!WW and decided to participate in this process rather than pursue other options. However, in none of the cases did the team detect a tangible influence of these inputs on the results experienced by each company, as summarized in the following table. Possible reasons for this absence of effect are described below.

INPUTS: Did They Have Significant, Observable Effect(s) on E!WW Outcomes, Outputs, and Changes? If so, was the effect positive (+) or negative (-)?			
Group	Case	Effect?	+ or - ?
Long-term Outcomes	Company 1	No	N/a
	Company 2	No	N/a
	Company 3	No	N/a
Short-term Outputs	Company 4	No	N/a
Changes in Capabilities & Actions	Company 5	No	N/a
	Company 6	No	N/a
	Company 7	No	N/a

The case study interviews revealed strong similarities with regard to conditions influencing the need for E!WW, with the following circumstances discussed by all or most of the companies:

- High level of competition in the industry;
- Need or desire for company growth; and
- Need or desire for product diversification.

This uniformity in underlying conditions precipitating the need for growth services assistance likely reflects the overall marketplace in which U.S. manufacturers operate. Because these conditions are experienced by all or most U.S. manufacturers, these generalized contextual elements seem unlikely to exert specific pressure or influence on an individual company’s results from E!WW.

Also on the input side, in six of the seven cases, interviewees reported that the decision to participate was influenced by existing relationships with the MEP center; for example, some company leaders served on the MEP center’s board or had been frequent users of other center services (mostly lean). In these six cases, company leaders had been approached by the local center to participate in E!WW on a pilot basis at reduced cost so that the center could refine its execution of E!WW and generate local examples of E!WW implementation for future marketing of the program. In the other case, E!WW was offered at no cost on a pilot basis to a company that did not have a preexisting relationship with the local MEP center. In no cases, however, did

interviewees connect the influences on their decision to participate with the results of their companies' E!WW experiences.

On the basis of the case studies, it appears that the method of introduction to E!WW and the general conditions preceding E!WW participation have little or no effect on results. However, most of the case studies represented pilot efforts in which companies, mostly with pre-existing MEP affiliations, were encouraged to participate in E!WW not only for the company's sake but also for the benefit of the center. As a result, there is a possibility that in future E!WW client engagements, these inputs may assume somewhat higher significance, though the team does not believe these will be cited as critical to company results as long as the basic motivations of competition and need for growth and diversification are present for SME manufacturers.

Planning Meeting

The Eureka! planning meeting is intended to familiarize company participants with the mechanisms and objectives of the E!WW process and to create shared understanding regarding what the company wants to achieve through E!WW participation. Since it is one part of the "Intervention" column of the logic model, the planning meeting is not expected to have an individual, direct connection to changes, outputs, or outcomes. Rather, the logic model predicts that the planning meeting connects with other aspects of E!WW to assert a collective impact on results. Therefore, as mentioned in the methodology section, this component of E!WW (and the others that follow in this report) is analyzed in terms of whether or not the component was important to participants' experience of E!WW and, if so, the most and least beneficial aspects. To make these determinations, the team reviewed information gathered regarding the mix of participants in the planning meetings and the degree to which interviewees reported that the meeting helped to develop consensus regarding the goals for participation.

It should be noted that, in most cases, the planning meeting was not a prominent feature in interviewees' recollections of their companies' E!WW experience, and in some cases the interviewees had not participated in the planning meeting. As a result, there are gaps in information regarding the companies' experiences in the planning meeting and the related most and least beneficial aspects, and, as illustrated in the following table, no clear pattern emerges from analyzing this variable.

In the two cases where the planning meeting had positive effects, the reasons were different. In one case, the planning meeting highlighted a strong motivating factor for E!WW participation – learning how a new product prototype would fare in a Merwyn evaluation – that shaped the company's commitment to and interest in E!WW. In the other case, the meeting also

PLANNING MEETING: Was it Important to the Company's E!WW Experience? If so, was the effect positive (+) or negative (-)?			
Group	Case	Effect?	+ or - ?
Long-term Outcomes	Company 1	?	?
	Company 2	No	N/a
	Company 3	Yes	+
Short-term Outputs	Company 4	Yes	+
Changes in Capabilities & Actions	Company 5	?	?
	Company 6	No	N/a
	Company 7	?	?

revealed a clear basis for E!WW participation: a degree of urgency to increase revenues, partly to enable provision of health care coverage for employees.

Eureka! Session

Overview of the Analysis

Unlike the planning session, the Eureka! session was well-remembered by interviewees, and, as a result, the team’s interviews produced a large amount of information. Because interviewees generally spoke at length regarding the Eureka! session, and because their comments implicitly and explicitly addressed the link between the session and the changes, outputs, and outcomes experienced by the company, the team concludes that in all cases the Eureka! session had a significant impact – sometimes positive and sometimes negative – on the companies’ experience of E!WW. The following table details the team’s company by company analysis on this variable.

As indicated in the table, four companies recounted positive experiences in the Eureka! session, while three reported negative experiences. Because the Eureka! session is one of several elements of the E!WW intervention (as depicted in the logic model that frames this analysis), it is not expected to contribute individually to results. However, it is interesting that most of the companies that reported positively about the Eureka! session also achieved higher levels of results (i.e., long-term outcomes or short-term outputs), while, with one

EUREKA! SESSION:			
Was it Important to the Company’s E!WW Experience?			
If so, was the effect positive (+) or negative (-)?			
Group	Case	Effect?	+ or - ?
Long-term Outcomes	Company 1	Yes	+
	Company 2	Yes	-
	Company 3	Yes	+
Short-term Outputs	Company 4	Yes	+
Changes in Capabilities & Actions	Company 5	Yes	+
	Company 6	Yes	-
	Company 7	Yes	-

exception, most of the companies describing negative effects experienced results limited to changes in capabilities and actions. In light of this fairly consistent pattern, further analysis was undertaken in order to determine what about the Eureka! session is especially significant for participants. In particular, the team examined the positive and negative experiences of case study companies in order to identify elements that can be built upon or improved and, thereby, to serve the project objective of strengthening MEP growth services offerings.

Detailed Analysis

The team first compiled and analyzed numerical data available about the sessions from Eureka! Ranch. As illustrated in the following table (see next page), in terms of their Readiness to Create (gauged by the Eureka! assessment but related to the ideation that takes place during the Eureka! session), the case study companies generally mirror the

average MEP company that participates in E!WW,¹⁸ so studying this quantifiable aspect of the Eureka! session does not produce any clear or definitive pattern. In terms of their on-the-spot feedback of each Eureka! session component, six of the seven case study companies had scores that are below the average for MEP clients as a whole; because there is such similarity across the case study companies, using the measure to detect patterns is again not possible. Accordingly, the team turned to qualitative information drawn from the case study interviews, as presented below.

The table on the following page summarizes the most and least beneficial elements of the Eureka! session as reported by the case study companies. The table also notes whether or not the MEP center incorporated any variations to the standard Eureka! session in its implementation for each company and the nature of any changes made.

Detailed Analysis of Eureka! Session: Quantifiable Aspects			
Group	Case	Readiness to Create ¹⁹	Process Data ²⁰
Long-term Outcomes	Company 1	Av/BA	BA
	Company 2	AA	BA
	Company 3	Av	BA
Short-term Outputs	Company 4	Av	BA
	Company 5	Av	AA
Changes in Capabilities & Actions	Company 6	Av/BA	BA
	Company 7	Av	BA

Av = average; AA = above average; BA = below average
If two scores are listed (e.g., Av/BA), the company had equal numbers of scores in each category.

With regard to company experience of the Eureka! session, the terms used in the table to encapsulate high or low benefit include the following:

- **Growth coach** denotes the interviewees' descriptions of the impact that the knowledge, abilities, or manner of the growth coach had on the company's experience;
- **Distribution of idea generation and development functions** refers to the engagement and motivation of a wider cross-section of the company, beyond the CEO or a handful of top company leaders, to participate in ideation and related follow-up activities;

¹⁸ The MEP Client Benchmarks provided in "Doug's Advice for MEP Eureka! Winning Ways Growth Coaches," Version 2 (6/15/07), are the reference points for descriptions in this report to average, above average, and below average for MEP companies participating in E!WW.

¹⁹ Eureka! Ranch uses three categories to compare the responses of MEP clients to the Eureka! assessment against the responses of world class companies. These categories are: "concern," which denotes a score that is 15% or more lower than a world class company; "caution," which indicates a score between 14% and 6% lower; and "good," which indicates a score that ranges from 5% lower and up. In this table, "average" indicates that the company's score is in the same category (i.e., concern, caution, or good) as the average MEP client; "below average" means it is in a lower category than the average MEP client; and "above average" denotes that the company's score is in a higher category than the MEP average.

²⁰ Eureka! Ranch collects feedback from each of the six Eureka! session "cycles." For MEP clients, the average aggregated score across the six cycles is 7.0. Accordingly, in this table, a company score of 7.0 equals average, a score lower than 7.0 is below average, and a score above 7.0 is above average.

Detailed Analysis of Eureka! Session: Qualitative Aspects					
Group	Case	Company Experience		MEP Center Implementation Variations	
		Most Beneficial Elements	Least Beneficial Elements	Standard or Modified Eureka! Session	Nature of Change(s) if Modified
Long-term Outcomes	Company 1	Growth coach Distribution of idea generation/development Mix of participants	--	Modified	Team approach
	Company 2	Growth coach	Time pressure Length of day Slides - repetition, content, jargon	Modified	Team approach
	Company 3	Distribution of idea generation/development Mix of participants Promotion of creative thinking	Idea selection process	Modified	Team approach Focused idea generation
Short-term Outputs	Company 4	Mix of participants	--	Modified	Team approach
Changes in Capabilities & Actions	Company 5	Distribution of idea generation/development Promotion of creative thinking	Writing and idea articulation skills Length of day	Modified	Team approach
	Company 6	--	Time pressure Length of day Slides - repetition, content, jargon Idea selection process	Standard	N/a
	Company 7	--	Time pressure Length of day Slides - content, jargon Growth coach	Modified	Team approach

- **Mix of participants** typically was mentioned when external consultants or industry experts joined the Eureka! session; however, in one or two cases the participant mix also was raised by interviewees to describe the convening of personnel from a broad range of intra-company departments;
- **Promotion of creative thinking** signifies that the Eureka! session prompted a higher than usual degree of creativity regarding new product or process ideas; **Time pressure** indicates cases in which companies felt the session moved too quickly from subject to subject, leaving important points undiscovered because of the pace required to get through the Eureka! session topics;
- **Length of day** indicates that diminishing levels of energy, enthusiasm, and creativity experienced by the end of the Eureka! session were cited as significant factors;
- **Slides – repetition, content, jargon** summarizes an array of criticisms of the Eureka! session presentation itself, including repetition, unnecessary or irrelevant content, and distracting or confusing program-specific terminology;
- **Writing and idea articulation skills** refers to the obstacles encountered by participants whose regular job functions do not require writing and to the perception that the ability or inability to articulate an idea, rather than the quality of the idea itself, is a major factor in the idea generation and selection process; and
- **Idea selection process** indicates that participants believed that the process for winnowing ideas down to the four submitted to Merwyn is too subjective, does not consider the ideas' technical feasibility, and/or affords inadequate opportunity to examine the match between ideas and company goals and strategies.

From the company side, a quick glance at the table hints at the apparent importance of the Eureka! session to the case study companies' overall E!WW experience and, thereby, as an element contributing to subsequent achievement of results from the program: two of the four companies that experienced long-term outcomes or short-term outputs described no elements of the session as of low utility, while two of the companies that had more limited results (i.e., achieved changes in capabilities or actions) recounted no beneficial elements from the session. Likewise, the number of most and least beneficial elements cited by case study participants displays a sharp divide between the companies that attained long-term outcomes and/or short-term outputs as compared to those that experienced changes in capabilities and actions. Among the former group (those with the greatest results), eight "most beneficial" and four "least beneficial" elements were mentioned; in the latter group (those with a lower level results) two "most beneficial" and ten "least beneficial" factors were cited. In short, for the case study companies, positive reactions to the Eureka! session significantly affects the companies' E!WW experience and appears to serve as a key foundation for achieving greater levels of results through the program, and vice-versa.

It must be noted that the revised version of E!WW, Eureka! Winning Ways 2008, launched May 12, 2008, addresses several of the issues raised by case study participants, namely time pressure, length of the day, and repetition and content in the slides; the revision may also address the need for writing and idea articulation skills. Because only growth coaches have access to E!WW materials, the team is not able to assess precisely the degree to which the revised approach responds to the items described by case study participants as least beneficial. However, the announcement in

the Growth Strategy Community of Practice²¹ describing the improvements made in the new edition appears to relate directly to all of the comments from case study participants, with the exception of the idea selection process and, possibly, writing and idea articulation skills.

The following table further synthesizes the patterns of comments about the Eureka! session derived from the case study interviews. As indicated, among companies that achieved long-term outcomes and/or short-term outputs, the mix of participants was cited most often – with the growth coach and distribution of idea generation and development also noted – as highly beneficial elements of the Eureka! session; among these companies, no “least beneficial” factors were cited more than once, thereby indicating no clear pattern. By contrast, among companies that experienced the lowest level of results, no “most beneficial” elements were cited more than once, though one “least beneficial” factors was cited three times (namely, length of day) and two other “least beneficial” elements were cited twice (i.e., time pressure and slides). Writing and idea articulation skills and the idea selection process were mentioned once each by companies that experienced changes in capabilities and actions, and the former element (writing and idea articulation skills) was also noted by one company that a higher level of results.

Detailed Analysis of Company Experiences with the Eureka! Session: Synthesis of Most and Least Beneficial Elements				
Groups	Most Beneficial Elements	Cases in which Element is Cited	Least Beneficial Elements	Cases in which Element is Cited
Long-term Outcomes and Short-term Outputs	Mix of participants	3	Time pressure	1
	Growth coach	2	Length of day	1
	Distribution of idea generation/development	2	Slides – repetition, content, jargon	1
	Promotion of creative thinking	1	Writing and idea articulation skills	1
Changes in Capabilities or Actions	Distribution of idea generation/development	1	Length of day	3
			Slides – repetition, content, jargon	2
	Promotion of creative thinking	1	Time pressure	2
			Writing and idea articulation skills	1
			Idea selection process	1

Summary of Analysis

From the detailed analysis of case study companies’ experience with the Eureka! session, the team derives the following observations:

- The importance of the mix of participants and the growth coach in establishing the Eureka! session as a springboard for achievement of results by case study companies indicates that the “human factor” was demonstrably present for these firms, despite the overall E!WW program having been designed as a systematic,

²¹ “Eureka! Winning Ways 2008 – LOTS of upgrades, but little change required,” posted by Maggie Nichols on May 14, 2008, <https://www.mepcenters.nist.gov>.

replicable method of idea generation. If other engagements follow this case study pattern, Eureka! session implementation may never be routine, since every company and its staff (as well as their rapport with the growth coach) are different.

- The benefit of having a varied mix of participants from inside and/or outside the company was important for case study companies and, for these firms, reinforces the significance of the “human factor” in Eureka! session implementation.
- The function of dispersing idea generation and development was a key affirmative quality of the Eureka! session for case study companies, and it is possible that additional future rewards will accrue to these companies if the capacity and motivation to pursue new ideas sparked by the Eureka! session continue.

From the angle of MEP center implementation experience, it is noteworthy that a modified approach to the standard Eureka! session was used in all but one of the case studies. Accordingly, the following finding is derived from the implementation experience of MEP centers that worked with the case study companies:

- A team approach to Eureka! session implementation appears preferable to the single growth coach model envisioned in the standard Eureka! session process, at least for six of the seven MEP centers affiliated with companies covered in the cross-case analysis.

The team approaches used by MEP centers for the case study companies include the following:

- Two centers (GaMEP and VMEC) have adopted the practice of having two growth coaches, a lead and a partner, assigned to the Eureka! session;²²
- One other center (DVIRC) also employs the lead and partner growth coach approach but also has as many other center growth coaches as possible in the room to circulate among the tables and assist participants; and
- Another center (MN Tech) has a lead growth coach, who serves as presenter and overall facilitator, plus three other growth coaches, who circulate among the tables and assist during exercises, at each Eureka! session.

²² VMEC employs the “lead growth coach plus partner growth coach” model not only in the Eureka! session but also throughout the E!WW engagement, from the planning session through the end of the Trailblazer period.

Trailblazer Period

Overview of Analysis

Case study interviewees typically spoke at length about the Trailblazer period, providing numerous insights into companies' experiences in this component of the E!WW process. As indicated in the following table, all case study companies attribute high

TRAILBLAZER PERIOD: Was it Important to the Company's E!WW Experience? If so, was the effect positive (+) or negative (-)?			
Group	Case	Effect?	+ or - ?
Long-term Outcomes	Company 1	Yes	+
	Company 2	Yes	+
	Company 3	Yes	+
Short-term Outputs	Company 4	Yes	+
Changes in Capabilities & Actions	Company 5	Yes	-
	Company 6	Yes	+
	Company 7	Yes	-

importance to the Trailblazer period, and five of seven companies report beneficial effects from this E!WW segment. The factors behind the apparent impact of the Trailblazer period are examined below.

Detailed Analysis

As with exploration of the Eureka! session, the team turned first to available quantitative measures related to the Trailblazer period. This Eureka! Ranch data, gathered via the Eureka! assessment, is designed to provide insight into the company's capacity to implement idea development activities during the Trailblazer period. As indicated in the following table, over half of the case study companies mirror the MEP average for Readiness to Execute, including three of the four companies achieving the two highest levels of results revealed in this case study project. Two companies scored above average, but their results were very different – one reached long-term outcomes while the other attained changes in capabilities and actions. Additionally, one of the three companies that experienced changes in capabilities and actions scored below average on many or most indicators of Readiness to Execute.

Detailed Analysis of Trailblazer Period: Quantifiable Aspects		
Group	Case	Readiness to Execute ²³
Long-term Outcomes	Company 1	Av
	Company 2	Av
	Company 3	AA
Short-term Outputs	Company 4	Av
Changes in Capabilities & Actions	Company 5	Av/BA
	Company 6	Av
	Company 7	AA

Av = average; AA = above average; BA = below average
If two scores are listed (e.g., Av/BA), the company had equal numbers of scores in each category.

Since patterns in Readiness to Execute scores are inconclusive, the team turned to qualitative information from the case study interviews to delve further into the experience of case study companies in the Trailblazer period. This information is presented in the following table and discussion. The table summarizes the most and least beneficial elements of the Trailblazer period as reported by the case study

²³ See footnote #17 for a detailed explanation of these terms.

companies and notes whether or not the MEP center incorporated any variations to the standard Trailblazer period and the nature of any changes made. The following phrases are used to describe the company's perceptions of the most and least beneficial elements of the Trailblazer period:

- **Growth coach** denotes commentary by interviewees regarding the impact that the degree of interaction with, resourcefulness of, and/or knowledge of the growth coach had on the company's experience;
- **Shared ownership of and responsibility for idea development, or lack thereof**, refers to the extent to which the Trailblazer period was characterized and affected by the existence or absence of a sense of teamwork within the company for new product/process development during the 30-day period;
- **Affirmation of capabilities or ideas** describes instances when interviewees mentioned that Trailblazer activities affirmed that the company was innovative and/or capable of moving ideas toward production or that they validated a specific company idea;
- **Individual Eureka! concepts** indicates that concepts including "fail fast, fail cheap" and "make it real" were mentioned by interviewees as providing important guideposts for executing Trailblazer activities;
- **Combination of modest and radical ideas** is used in cases where the top two ideas identified for Trailblazer activities included one idea that was relatively achievable and one idea that represented a significant stretch for the company;
- **Comprehensiveness of approach** summarizes feedback from interviewees related to the breadth and depth of questions and issues that are targeted and addressed during Trailblazer;
- **Focus provided by the 30-day period and/or weekly meetings** denotes cases in which the regular updates and short overall time period quickened progress toward and created accountability for implementation of Trailblazer activities;
- **Ends abruptly** refers to the sense that the end of the intense, busy Trailblazer period marks a point when companies experience great need for continued growth coach assistance;
- **Large time commitment** indicates that companies could not dedicate sufficient staff time to conduct Trailblazer activities thoroughly; and
- **Inadequate resources and/or skills** is used for cases in which individuals cited their own skills as being deficient to complete scouting activities and/or in cases in which referrals to external resources and/or direct growth coach assistance were described as lacking.

From the company side, the table clearly depicts a pattern relating difficulties during Trailblazer and low results, as exemplified by the numerous "least beneficial" elements described by companies at the lower end of results (i.e., changes in capabilities and actions), compared to only one such notation by companies with higher levels of results. The table also reveals that even companies that do not eventually achieve outputs or outcomes nonetheless perceive value from the period, as demonstrated by several "most beneficial" factors cited and the fact that the companies report broadly similar types of beneficial elements during Trailblazer. Thirdly, it is significant that the growth coach is mentioned, as either a positive or negative factor, by every case study

Detailed Analysis of Trailblazer Period: Qualitative Aspects					
Group	Case	Company Experience		MEP Center Implementation Variations	
		Most Beneficial Elements	Least Beneficial Elements	Standard or Modified Trailblazer Period	Nature of Change(s) if Modified
Long-term Outcomes	Company 1	Growth coach	Ends abruptly	Standard	N/a
		Shared ownership of and responsibility for idea development, or lack thereof			
		Affirmation of capabilities or ideas			
		Individual Eureka! concepts			
	Company 2	Combination of modest and radical ideas	None	Modified	Extended beyond 30 days
		Comprehensiveness of approach			
		Focus provided by 30-day period and/or weekly meetings			
		Individual Eureka! concepts			Number of ideas pursued
	Company 3	Growth coach	None	Modified	Extended beyond 30 days
Shared ownership of and responsibility for idea development, or lack thereof					
Affirmation of capabilities or ideas					
Focus provided by 30-day period and/or weekly meetings		Number of ideas pursued			
Company 4	Growth coach	None	Modified	Extended beyond 30 days	
	Shared ownership of and responsibility for idea development, or lack thereof				
	Affirmation of capabilities or ideas				

Detailed Analysis of Trailblazer Period: Qualitative Aspects					
Group	Case	Company Experience		MEP Center Implementation Variations	
		Most Beneficial Elements	Least Beneficial Elements	Standard or Modified Trailblazer Period	Nature of Change(s) if Modified
Changes in Capabilities & Actions	Company 5	None	Ends abruptly	Standard	N/a
			Growth coach		
			Shared ownership of and responsibility for idea development, or lack thereof		
			Large time commitment		
	Company 6	Comprehensiveness of approach Focus provided by 30-day period and/or weekly meetings	Inadequate resources and/or skills	Standard	N/a
			Shared ownership of and responsibility for idea development, or lack thereof		
			Growth coach		
	Company 7	Comprehensiveness of approach	Shared ownership of and responsibility for idea development, or lack thereof	Standard	N/a
			Large time commitment		
Growth coach					

company. Observations expanding on these points are provided in the Summary of Analysis section below.

From the perspective of MEP implementation practices, it is noteworthy that three of the seven cases involved modifications to the standard Trailblazer period, including three of the four companies that attained long-term outcomes and short-term outputs. Moreover, these three companies shared one type of variation: the period for Trailblazer activities was extended beyond 30 days. This presents somewhat of a paradox in that the case study companies also perceive value in having a limited time frame for idea development activities; at the same time, the results experienced by case study firms that extended such activities beyond 30 days were generally more extensive (i.e., going beyond change in capabilities and actions to short-term outputs and long-term outcomes), though a definitive cause and effect relationship cannot be inferred from the limited number of cases.

The second variation to the Trailblazer period that was seen in more than one case study company and implemented by more than one MEP center was a variation in the number of ideas. In one case, Company 2, the company pursued one idea during Trailblazer because the company is small and had limited human resources to dedicate to Trailblazer activities during the prescribed period. Also contributing to the decision to pursue one idea was the fact that the second idea considered for the Trailblazer period represented a significant departure from the company's current focus, and the company preferred to undertake evaluation of the more radical idea in a less busy time period. The reasons for departing from the standard Trailblazer practice in this case relate to one of the "least beneficial" elements cited by two companies, namely the large time commitment required to conduct Trailblazer activities.

Rather than the standard two ideas, Company 3 pursued three of the ideas that it submitted to Merwyn for scoring. Two of these ideas were formally part of the company's Trailblazer activities. The third was pursued on a parallel track, along with a fourth idea (not scored by Merwyn) that also received attention during the time frame of Trailblazer activities. Ultimately, the company developed one of the "official" Trailblazer ideas and both of the "unofficial" activities into new products/services; the other idea formally pursued during Trailblazer was tabled (due to cost considerations).

Detailed Analysis

Most and Least Beneficial Elements

The following table further synthesizes the patterns of comments about the Trailblazer derived from the case study interviews. Two sets of patterns are highlighted in the table: light gray denotes elements that were cited in all or most of the case study companies as being most or least beneficial; and dark gray with white text indicates factors that were present in three of the seven cases.

As indicated in the table, in all seven cases the growth coach was cited as either a most or least beneficial element and was highlighted as most beneficial even in one case that experienced the lowest level of results. The importance of shared ownership and responsibility for idea development (or lack thereof) to the Trailblazer segment of

E!WW is also evident in the table. Since shared ownership and responsibility depends in large part on the interaction of company staff (as well as the degree to which a sense of teamwork for new product/process development was nurtured during the Eureka! session), the centrality of the “human factor” is again raised by the detailed analysis of the Trailblazer period for the case study companies.

Detailed Analysis of Trailblazer Period: Synthesis of Most and Least Beneficial Elements				
Groups	Most Beneficial Elements	Cases in which Element is Cited	Least Beneficial Elements	Cases in which Element is Cited
Long-term Outcomes and Short-term Outputs	Growth coach	4	Ends abruptly	1
	Shared idea ownership/responsibility, or lack of	3		
	Affirmation of capabilities or idea	3		
	Individual Eureka! concepts	2		
	Combination of ideas	2		
	Focus provided	2		
Changes in Capabilities & Actions	Growth coach	1	Shared idea ownership/responsibility, or lack of	3
	Focus provided	1	Growth coach	2
			Large time commitment	2
			Ends abruptly	1
	Comprehensiveness	2	Inadequate resources and/or skills	1

The intangible effect of increasing the case study companies’ confidence in their ability to pursue new ideas seems to be an important qualitative aspect of the Trailblazer period. Similarly, and as discussed above, the benefit of a focused and delimited timeframe provided by Trailblazer is an element that companies experienced across levels of results.

Ideas Explored

To explore another angle of the Trailblazer process, the team traced key aspects of the ideas pursued during the 30-day period. The table on the following page summarizes information regarding the nature of the ideas, the types of ideas, and the average Merwyn scores for the top two ideas. For the nature of ideas, when this information was described definitively in the case study interviews, the team used three terms:

- **New** refers to ideas that had not been previously considered by the firm;
- **Existing (no change)** indicates that the idea’s existence pre-dated the Eureka! session and that no changes were made to the idea prior to its submission for Merwyn scoring; and

- **Existing (modified)** denotes that the idea existed within the company prior to the Eureka! session, but that the idea was refined for Merwyn scoring (refinements typically involved a new marketing approach, a new product use, or a product improvement).

Regarding the types of ideas explored through Trailblazer, the team adopted the terminology related to the objectives of the MEP growth services portfolio, namely to help SME manufacturers develop new products, new customers, and new markets. For the average Merwyn scores of the top two ideas, Eureka! Ranch categories (Wow!, Go, Think, and No) were used.

The table depicts clearly that most companies for which information was provided during interviews adapted (or added to) existing ideas for pursuit during Trailblazer. Only one company developed an existing idea without any refinements during the Eureka! session. The fact that many case study companies pursued ideas that were not entirely new to the firm presents a possible rival explanation for the results related to these ideas.

Another visible pattern in the table relates to the types of idea explored, namely that the majority of companies used the Trailblazer process to develop new products. Three companies targeted new customers – interestingly, in all cases via a service rather than a product – and two companies entered new markets. Accordingly, the case study companies appeared more likely to develop new products than to explore other types of ideas through Trailblazer, though no pattern connecting the type of ideas to results is evident. Likewise, the case study companies do not reveal a pattern between average Merwyn scores for the ideas pursued and eventual results.

Detailed Analysis of Trailblazer Period: Ideas Explored						
Group	Case	Idea #1		Idea #2		Average Merwyn Scores for Top Two Ideas ²⁴
		New or Existing?	Type	New or Existing?	Type	
Long-term Outcomes	Company 1	?	New product	?	New product	Wow!
	Company 2	Existing (modified)	New market	N/a (did not pursue a second idea)		Go
	Company 3*	Existing (modified)	New customer (service)	Existing (modified)	New product	Go
Short-term Outputs	Company 4	Existing (no change)	New product	Existing (modified)	New customer (service)	Go
Changes in Capabilities & Actions	Company 5	?	New customer (service)	?	New product	Go
	Company 6	Existing (modified)	New product	Existing (modified)	New product	Go
	Company 7	Existing (modified)	New product	Existing (modified)	New market	Wow!

* Company 3 pursued four ideas. One of the additional ideas also was an existing (modified) idea within the company and which targeted a new customer (via a service). The other idea was a new marketing approach; it is not clear whether or not this idea existed within the company prior to the Eureka! session.

- **Existing (modified)** indicates that the idea existed within the company prior to the Eureka! session, but that the idea was refined for Merwyn scoring.
- **Existing (no change)** indicates that the idea existed within the company prior to the Eureka! session and that no changes to the idea were made for submission to Merwyn.
- **?** indicates that it was unclear from interviews whether the idea was new or existed previously.

²⁴ Eureka! Ranch uses four categories to define Merwyn scores: 70%+ = Wow!; 50% to 69% = Go; 30% to 49% = Think; and 0% to 29% = No.

Summary of Analysis

The team draws the following observations from the case study companies' experience during Trailblazer:

- The importance of the growth coach in every case examined and the reiteration (in six of seven cases) of the significance of generating, or not generating, a shared sense of ownership within the company for the idea development process emphasize the centrality of people in these case, implying that for these companies, the people participating in the Trailblazer period (as with the Eureka! sessions) appear to have exerted significant influence on progress during this E!WW segment.
- Like the Eureka! session, the Trailblazer period had the effect of affirming the capabilities and innovative capacity of some case study companies and their staff. Seeing the Eureka! session concept of “make it real” play out during Trailblazer in some instances was an element of this affirmation of capacity for certain firms.
- Three MEP centers extended the Trailblazer period beyond 30 days, in all cases for companies that ultimately achieved higher levels of results (i.e., long-term outcomes and short-term outputs).
- Two centers altered the standard number of ideas pursued during the Trailblazer period, again for companies that subsequently achieved strong results.
- The 30-day period of Trailblazer activities provides an important degree of focus for several case study companies, enabling some of the firms to experience and embrace the concept of “fail fast, fail cheap” and to surprise themselves with how much they achieved in a seemingly short time frame.
- In two case study companies, steering companies toward a combination of a relatively modest idea and a more ambitious idea may have influenced the company's Trailblazer experience in a positive manner.
- Most companies pursued existing ideas during the Trailblazer period, raising the possibility of rival explanations (i.e., factors external to E!WW) influencing or contributing to results related to these ideas.
- Case study companies tended to develop new products during Trailblazer (rather than to target new customers or new markets), though no pattern connecting the type of ideas to results is evident.

Findings and Implications for MEP

Before presenting the team's findings from the cross-case analysis and related implications for MEP, it must be noted that the small number of cases on which the analysis is based necessarily limits the extent to which claims of causality or even widespread generalizations can be made. Moreover, the cases covered in the analysis reflect E!WW implementation in its early stages, with all of the Eureka! sessions and many Trailblazer report-out sessions conducted in 2007. As noted earlier in the report, a new version of E!WW was launched in May 2008. For these reasons, the observations made by the team in the following discussion refer directly to the case study companies, and implications for MEP represent the team's assessment of the most plausible inferences that can be derived from the findings related to set of case study companies. In short, though broad definitive conclusions cannot be reached on the basis of the case studies, the cases and related cross-case analysis provide a different sort of in-depth and systematic data collection effort than has been conducted previously in relation to E!WW and, thus, add new perspectives on the program.

Findings

The summary of findings from the cross-case analysis is organized according to the three research questions posed at the beginning of the project, namely:

- What circumstances and issues propel companies to try the E!WW approach?
- What factors – both internal and external to the company – seem to influence achievement of results?
- What types of activities are pursued by E!WW participants, and what benefits do participants experience?

Circumstances and Issues that Propel Companies toward E!WW

Three issues predominate as factors that precipitated the case study companies' involvement in E!WW, and the consistency of issues underlying case study companies' decisions to participate provides insight into one set of issues that may be targeted through E!WW. These circumstances include:

- High level of competition in the industry;
- Need or desire for company growth; and
- Need or desire for product diversification.

Variables Related to Results

The cross-case analysis reveals an apparent connection between four variables and the experiences and results of case study companies. Though a causal linkage cannot be assumed, it is important to highlight the commonalities observed among the cases. The factors that emerged most clearly and consistently for case study companies include:

- Industry Characteristics
- Firm characteristics
- Eureka! session
- Trailblazer period

Industry Characteristics

Two observable patterns emerged through the team's analysis of underlying industry characteristics. These patterns include:

- Case study companies that operate in **industries that have experienced consistent job loss** seemed to have a greater tendency to achieve results via E!WW, though the case studies do not provide a definitive basis upon which the team can explain this observation.
- In the case studies, **R&D intensity** did not appear to predict or translate into propensity to capitalize on E!WW or to achieve results via the program. In fact, case study companies in lower R&D intensity sectors experienced higher levels of results, representing a possible inverse relationship between this indicator and E!WW outcomes.

Firm Characteristics

Distinctive patterns regarding which case study companies experienced results through E!WW emerged through the cross-case analysis. Firm characteristics exerted influence across all cases, with positive effects from firm traits seen in cases that achieved higher levels of results (that is, long-term outcomes and short-term outputs) and negative effects observed in cases that generated lower levels of results (i.e. changes in capabilities and actions). The findings regarding firm characteristics include:

- The **nature of ownership** appeared to influence results for case study companies. In particular, the three case study companies that attained long-term outcomes all are private, family-owned firms. Though the limited number of samples included in the cross-case analysis prevents the team from reaching definitive conclusions, it may be that family-owned firms have greater propensity to maximize their participation in E!WW and/or are somehow better prepared to take advantage of the program.
- A **concentrated structure for new product development** appears as a counterintuitive pattern among the three case study companies that achieved long-term outcomes. The team's interpretation of this pattern is that new product development in the case study firms was concentrated among a few people by habit rather than by design and that, therefore, E!WW seems to have provided an opportunity to unleash the creativity and ideas of a wider range of company staff.
- Some degree of **success with technological or process improvements** – whether through formal programs (such as ISO certification), informal efforts, and/or related training – was observed in the case study companies to be an important foundational factor that encouraged achievement of results through E!WW.

- Among case study companies, no clear pattern emerges vis-à-vis **company size** and results from E!WW; accordingly, the cross-case analysis does not result in observations regarding relevant size characteristics for E!WW engagements.

Eureka! Session

Company Experience

The major pattern that emerges from analysis of the case study companies' experiences during the Eureka! session is that companies that achieved higher levels of results tended to have had a positive experience in the Eureka! session, while those that attained lower levels of results often had unproductive or poorly received Eureka! sessions. Delving deeper into the details of elements within this variable, the team has developed the following observations regarding the Eureka! session:

- For several case study firms, the **mix of participants** was cited as an important element of the Eureka! session, an occurrence from which the team infers that, at least for these companies, the "human factor" was present during the Eureka! session, even though the session (like the rest of E!WW) is designed to be conducted systematically.
- In three of the case study companies, the **growth coach** was described as having important positive or negative effects on the company's experience of the Eureka! session, thereby reinforcing the importance of the "human factor" for case study companies.
- The function of **dispersing idea generation and development** was a key affirmative quality of the Eureka! session in some cases, and the team conjectures that that additional future rewards are possible for case study companies for which the Eureka! session sparked increased capacity and motivation to pursue new ideas.
- The 2008 version of E!WW appears to address most of the difficulties experienced by case study companies during the Eureka! session, with the possible exception of two less frequently noted challenges mentioned by case study companies, namely, writing and idea articulation skills and the idea selection process.

MEP Center Implementation Practices

One pattern emerges via the cross-case analysis of the Eureka! sessions, namely:

- **The use of a team approach for the Eureka! session was widespread**, with six of the seven case study companies having participated in a Eureka! session implemented by more than one growth coach.

Trailblazer Period

Company Experience

Case study interviewees cited ten elements within the Trailblazer period that influenced the companies' experiences of this phase of E!WW. Two of these elements were mentioned by half or more of the companies, and two of the elements exerted

conflicting effects – sometimes positive and sometimes negative – depending on the company. In particular:

- The degree of interaction with, resourcefulness of, and/or knowledge of the **growth coach** was mentioned by all of the case study companies, with five companies reporting that their growth coach contributed significantly to the company's progress during Trailblazer and two companies describing an opposite effect. This finding reinforces the importance of the “human factor” in the case study companies, as mentioned above in relationship to the Eureka! session.
- For case study companies, the Trailblazer period was often characterized by the emergence or absence of **shared ownership of and responsibility for idea development**, with six of seven companies citing the presence or absence of this sense of teamwork among company staff (and, again, highlighting the significance of people to this E!WW segment). The absence of shared ownership/responsibility was present for all companies that experienced lower levels of results (i.e., limited to changes in capabilities and actions).
- Several of the case study companies reported that the Trailblazer period **affirmed the company's capabilities or ideas**, including all of the companies that attained long-term outcomes and short-term outputs.
- Three of the case study companies found that the **focus provided by the 30-day period** quickened progress toward and created accountability for implementation of Trailblazer activities.

MEP Center Implementation Practices

The team documented two variations of the Trailblazer process, namely:

- **An extension of the 30-day Trailblazer period** occurred for three of the cases, including the three companies that achieved long-term outcomes and short-term outputs.
- **Exploring more or fewer than two ideas** was seen in two of the four cases that attained higher levels of results (i.e. long-term outcomes and short-term outputs).

Types of Activities Pursued

Among the case study companies, it was more common for firms to adapt existing ideas for pursuit during Trailblazer than to explore completely new ideas or to develop existing ideas without undertaking any refinements during the Eureka! session. Because so many of the ideas existed, in one form or another, within the companies prior to the Eureka! session, it is possible that the rival explanation depicted in the logic model – namely, “resulting idea not new to the firm” – exerted influence during the Trailblazer period and on eventual results for these case study companies. In terms of the types of ideas pursued, case study companies tended to develop new products during Trailblazer (rather than to target new customers or new markets), though no pattern connecting the type of ideas to results is evident.

Benefits Experienced and Results Attained

As summarized in the following table, the case study companies experienced varying combinations of changes in capabilities and actions, short-term outputs, and long-term outcomes. Three of the eight case study companies have seen results encompassing all levels of anticipated results, encompassing changes in capabilities and actions, short-term outputs, and long-term outcomes. In short, participation in E!WW produced tangible impacts on growth – i.e. long-term outcomes – for three case study companies and steps toward growth for four companies.

Results Experienced by E!WW Case Study Companies	
Highest Level of Results Attained	Number of Companies
Long-term Outcomes	3
Short-term Outputs	1
Changes in Capabilities and Actions	3

For each level of results achieved by case study companies, commonalities in the types of changes, outputs, and outcomes were readily observable. The major patterns that emerged in the cross-case analysis include the following.

For the three companies that had experienced long-term outcomes, the type of outcome was the same:

- New sales

In the order of prevalence, the short-term outputs experienced by case study companies include:

- New products or services;
- New partnerships or collaborations;
- New product development process; and
- New marketing or sales approaches.

Three types of changes predominated for case study companies in the areas of capabilities and actions, namely:

- Changed attitudes to new product development
- New individual staff capabilities; and
- New product prototypes.

Most types of results experienced by case study companies – for example, new product prototypes or new products or services – represent tangible steps toward E!WW’s ultimate goal of achieving growth. Two other results observed in case study companies, namely, changed attitudes to new product development and new partnerships or collaborations, do not produce immediately perceptible effects. However, in the team’s view, these changes and outputs suggest the beginnings of changes in culture and attitudes that could later bring about or support direct, measurable effects.

Implications for MEP

Based on the cross-case analysis, the findings described above, and the team's collective experience, the team has developed a number of suggestions for MEP's consideration. These recommendations are grouped into the following categories: target customer; growth coach training and background requirements; service design; and evaluation/monitoring timeframe.

Target Customer

The findings related to the industry and firm characteristics provide insight and direction for MEP centers in targeting their E!WW marketing efforts toward the clients that, based on the case study companies' experiences, may have higher likelihood to achieve growth via this program. In defining and executing their E!WW marketing strategies, the team recommends that MEP centers focus on the companies with at least some of the following characteristics:

- Operates in an industry that has experienced job loss in the recent past (one year) and over time (ten years);
- Is in a more traditional (i.e., not R&D-intensive) sector;
- Is family-owned
- Has a concentrated idea generation and NPD process
- Has had some degree of success with past technological or process improvements

Participant Mix

The case study companies highlighted the importance of people to the experiences of the Eureka! session and the Trailblazer period. As a result, as they pursue E!WW implementation, MEP centers should recognize that the mix of participants can have an effect on the company's experience, not only in the Eureka! session but also during Trailblazer, when the emergence or absence of a shared sense of ownership and teamwork exerts influence. As part of the introduction to the program and certainly during the planning meeting, centers should encourage companies to think carefully and strategically about the mix of participants involved in the program. Centers and companies also may wish to consider involving people external to the company in the Eureka! session.

Growth Coach Training and Background

As mentioned directly above and discussed in the findings, people – including growth coaches – were important to the experiences of the case study companies. During the Trailblazer period, for instance, the “human element” revealed itself via descriptions of the degree and nature of interaction between company staff and the growth coach. For MEP, the uniformity of importance accorded to the role of the growth coach during Trailblazer and the frequent mention of the growth coach as a factor during the Eureka! session underscores that successful implementation of the overall E!WW program requires that growth coaches be selected carefully, trained well, and supported adequately.

Service Design

The case studies revealed several variations from the standard E!WW design and a number of areas in which further strengthening of the program could be considered. In future improvements to the E!WW service design, the team recommends that MEP consider the following:

- The single growth coach model envisioned in the standard Eureka! session process was not the norm for the case study companies. As a result, in future E!WW growth coach training sessions, MEP should consider adding the team approach as an option for centers and growth coaches to consider using.
- The team recognizes that it is useful for the growth coach to encourage strongly the rapid pursuit of activities and achievement of goals during Trailblazer. At the same time, the experience of the case study companies suggests that there is room for flexibility on the precise timeframe for Trailblazer activities, especially for small companies. Incorporating the option of extending the Trailblazer period by one month for some cases should be considered.
- The possibility of augmenting or decreasing the number of ideas pursued during Trailblazer may be an option that some growth coaches may wish to contemplate, especially for smaller companies that may be able to manage only one idea at a time, and may be an option that MEP may wish to introduce in E!WW growth coach training.
- Efforts to develop and improve the re-load process presumably will begin to address the issue of the abrupt end to the Trailblazer process; several MEP centers are currently experimenting with ways to smooth the abrupt end, and planners for E!WW nationally may therefore wish to integrate some of these practices into the re-load process.

Evaluation Timeframe

The team conducted site visits to, and thus recorded results from, case study companies approximately 6½ months (on average) after the companies had completed the Trailblazer period. At this point, three of the companies had experienced changes in capabilities and actions, the lowest level of results, while another three had seen the highest level of anticipated results (in these cases, new sales) as a result of their E!WW participation, and another had experienced results in between. The inference that the team draws is that there is an important time element to be considered in evaluating results from E!WW. Accordingly, MEP should consider changing the point at which the E!WW customer survey is undertaken (currently at six months) to one year after the end of Trailblazer.

Appendix: Summary of Eureka! Winning Ways

Eureka! Winning Ways (E!WW) is a partnership between MEP and Eureka! Ranch, an organization that specializes in helping major corporations to define new products and services. Based on Eureka! Ranch's methodology for idea development with corporate clients, E!WW is a customized approach to help small- and mid-sized manufacturers grow their revenues and profits through identification of new products, new customers, and new markets. In particular, E!WW is designed to help MEP clients choose ideas that have higher probabilities of success and move selected ideas into implementation more quickly.

E!WW is facilitated by “growth coaches” who guide client companies through the entire process, from planning to idea development. In order to build MEP staff's capacity to serve as growth coaches, and thus to replicate E!WW systematically within MEP centers, MEP has sponsored intensive “boot camps” led by Eureka! Ranch staff. The boot camps consist of: (i) implementation by Eureka! Ranch staff of two Eureka! sessions and two TrailBlazer sessions (see below for descriptions of these sessions) with two MEP clients; and (ii) skills transfer sessions to train MEP staff to conduct the entire E!WW process on their own. After participating in a boot camp and completing an accompanying sublicensing agreement between MEP University and the growth coach's MEP center, MEP staff are qualified to act as E!WW growth coaches and thereby are authorized to conduct the E!WW process on behalf of their respective centers.

The Eureka! Winning Ways process is comprised of the following events and steps:

1. **Preparatory Activities:** Preparatory activities include a planning session and completion (by the client company) of the Eureka! Assessment. The planning session is a one to two hour meeting that takes place one to two weeks prior to the Eureka! session (step 2, below); it involves the growth coach and company leaders. The purposes of the planning session are to confirm agreement with the Eureka! session objective, to review logistics for the session, and to gather information regarding the company's strengths and weaknesses, growth pipeline, and initial ideas for new market, product and customer development. The Eureka! Assessment, which is completed by company participants, is intended to provide Eureka! session organizers a better understanding of the company's innovation readiness and capacity.
2. **Eureka! Session** (also referred to as the “growth summit”): This one-day meeting aims to identify at least 50 “smart” choices for growth and to select the four best ideas for screening by Merwyn (Eureka! Ranch's proprietary test marketing model). The Eureka! session focuses on methods for improving the company's marketing messages, for attracting new customers or entering new markets, and for identifying high-prospect ideas for new products, services, or business models.
3. **TrailBlazer Session** (also called the “action planning meeting”): In this three or four hour session, which takes place about a week after the Eureka! session, the

company participants and growth coach review the Merwyn Success Screening Results for the four ideas submitted to Merwyn. Based on these results, the group selects the best two ideas to be pursued in the 30-day Discovery period and assigns a “scout” for each idea. The scout is a company staff member who is responsible for taking the idea through the Discovery process and for reporting back to company leadership about whether the company should pursue development of the idea.

4. **30-day Trailblazer Period and Coaching:** The purpose of the Trailblazer period is to gather the information necessary to reach a decision regarding idea development. During this period, the scout conducts research, investigates competitors’ efforts in the area, and tests assumptions about the idea, among other actions. During this time, the growth coach is in contact with the scout on a weekly basis, with the aims of helping the scout to overcome obstacles, providing information, and, in general, keeping the scout moving forward toward a recommendation.
5. **Trailblazer Report Out Session:** E!WW frames the possible outcomes of the Trailblazer period as: yes, which means the idea should move to development; yes, but, which means the idea is viable but must be modified before moving into development; and no, which means no further actions on the idea will be taken. In the Trailblazer report out session, the scout relays his or her recommendation to company leadership, and the company makes a decision about whether or not to move the idea into development.