

Risikomanagement mit der Success Driver Analyse (SDA)

- Erfahrungen bei Grossprojekten und Programmen



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***„Drive
Change
planned
and
actively!“***

Education

Thesis in computer science (Informatik), J. Kepler University, Linz, Austria; habilitation in business information systems, author of several books
Researcher and lecturer at the Swiss Federal Institute of Technology, University Zurich and Salzburg
ISO 9001:2008 Auditor, Assessor for Baldrige, EFQM, TPI, SEI trained CMMI-Assessor,
iNTACS certified Principal Assessor for Automotive SPICE, Enterprise SPICE and ISO/IEC 15504
Membership: IEEE, ACM, GI, SwissICT and Software Test Austria.

Professional Career

Research and development in the area of software engineering at J. Kepler University, Linz, Austria and at the Swiss Federal Institute of Technology (ETH) Zurich, Switzerland;
Manager at SBG (UBS) Zurich;
Senior Consultant at ATAG Ernst & Young in CH, A, D, and UK;
Principal, Process Coach and Manager of Project Quality Office and Quality Systems at Unisys (Schweiz);
CEO and Senior Consultant of Qualität & Informatik, Zurich since 1997.

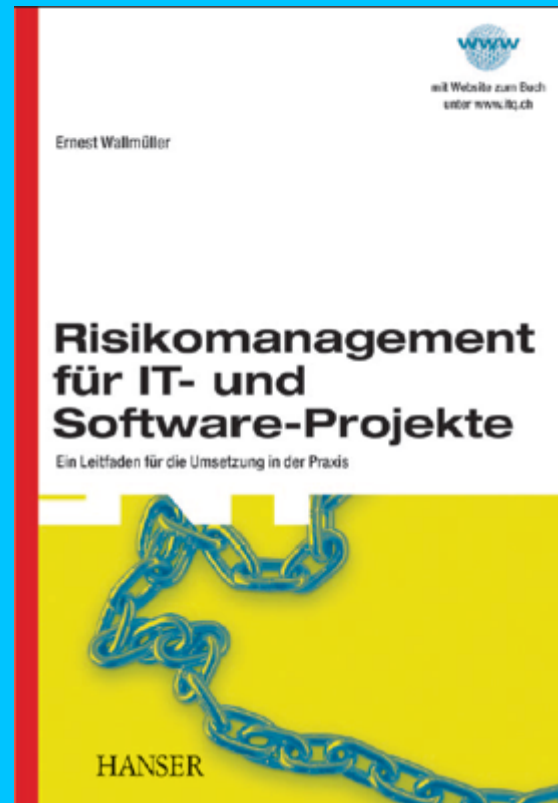
Support and Consulting in the disciplines

- Quality & Process Engineering
- Portfolio, Project, Risk Management
- Audit & Assessment Services
- Organizational & Culture Development

Für alle, die noch Bücher schätzen ...



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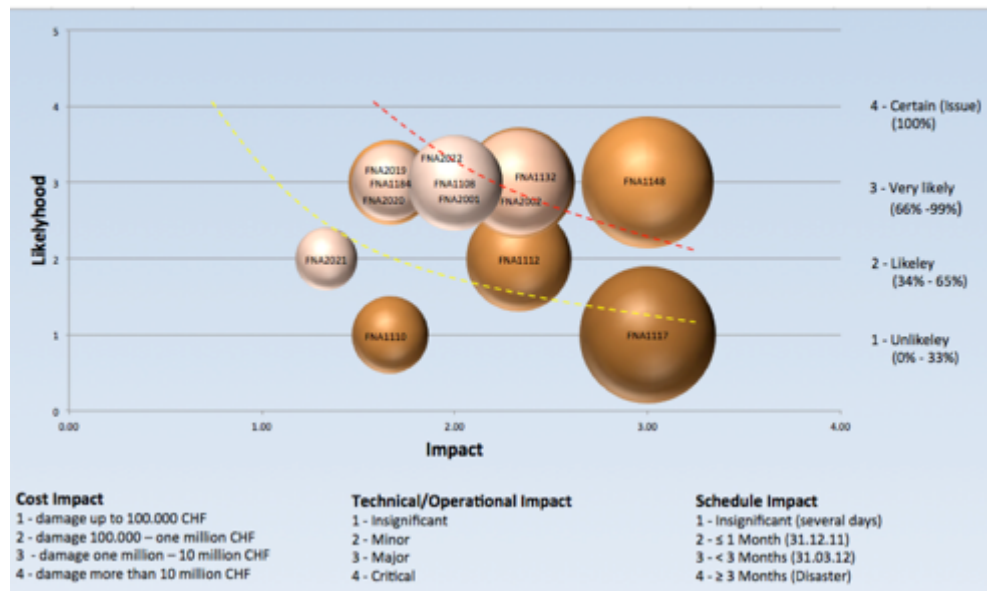
• Agenda



- Situation of risk management in projects and programs
- Success Driver Analysis (SDA) of SEI
 - What is it?
 - Approach
 - Applications
- Experiences
 - Example Airtraffic Control
 - Example Future Network Architecture
 - Example MGL
- Lessons Learned and summary

Risk Management as usual

Risikolandschaft von FNA (5.9.2011)



Risiko-Liste von FNA (5.9.2011)

Gereiht nach Risikogewicht

Risiko-Liste					
#	Risk ID	Risk Short Name	Likelihood	Exposure	Status
8	FNA1148	Voraussetzende Bedingungen der Migration sind ungenügend erfüllt	3	81.00	Pending
7	FNA1132	Nicht genügend Anzahl Change Fenster für die Migrationen	3	57.00	Pending
18	FNA2002	Inkonsistenzen zwischen FNA DB (FR5) und der FW	3	51.00	Pending
4	FNA2022	DFI verschiebt Migration wegen zu hoher Börsenvolumen und Output-Verzögerungen (Produktionsprobleme) bei Kunden	3	42.00	Pending
13	FNA2001	Vergessene Server	3	42.00	Pending

Rethinking Risk Management

- **New research** from the **SEI** in risk management in the last 4 years (*)
- Downsizing and cutbacks have resulted in **growing threats** to corporate information and security and long-term demand for risk management as well as business continuity planning.
- **NEED for: uncomplicated way** to manage risk, giving program managers a holistic view of their program's risks, and it is scalable to **multi-system** and **multi-enterprise environments**—that is a strength since these days multi-organization environments are the norm!
- **NEED for an approach: managing risk from a systemic view across the life cycle and supply chain!**
- Using a systemic risk management approach enables program managers to develop and implement **strategic, high-leverage mitigation solutions** that **align with mission and objectives**.

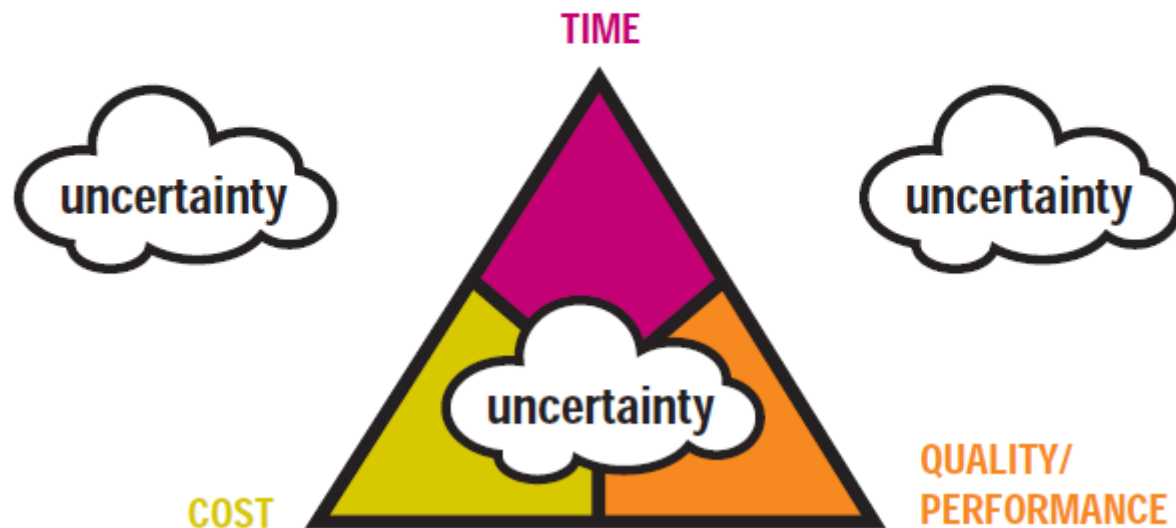
(*) Ch. J. Alberts, A.y J. Dorofee: A Framework for Categorizing Key Drivers of Risk, April 2009 TECHNICAL REPORT, CMU/SEI-2009-TR-007, ESC-TR-2009-007

Projects, Risks and Uncertainty

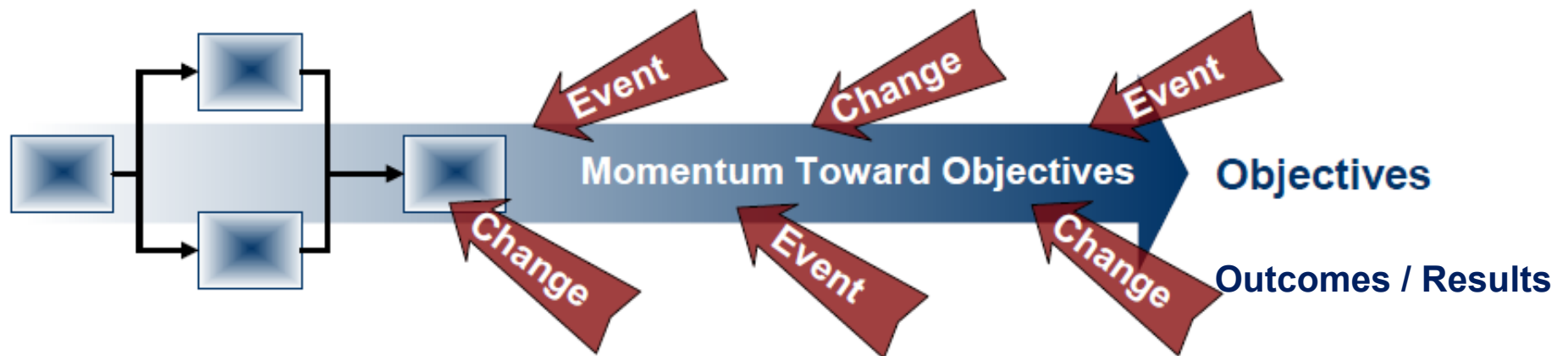
All projects contain risk, arising from interactions between

- OBJECTIVES ... What must happen
- UNCERTAINTY ... What might happen

SUCCESS DRIVERS ... What must be controlled



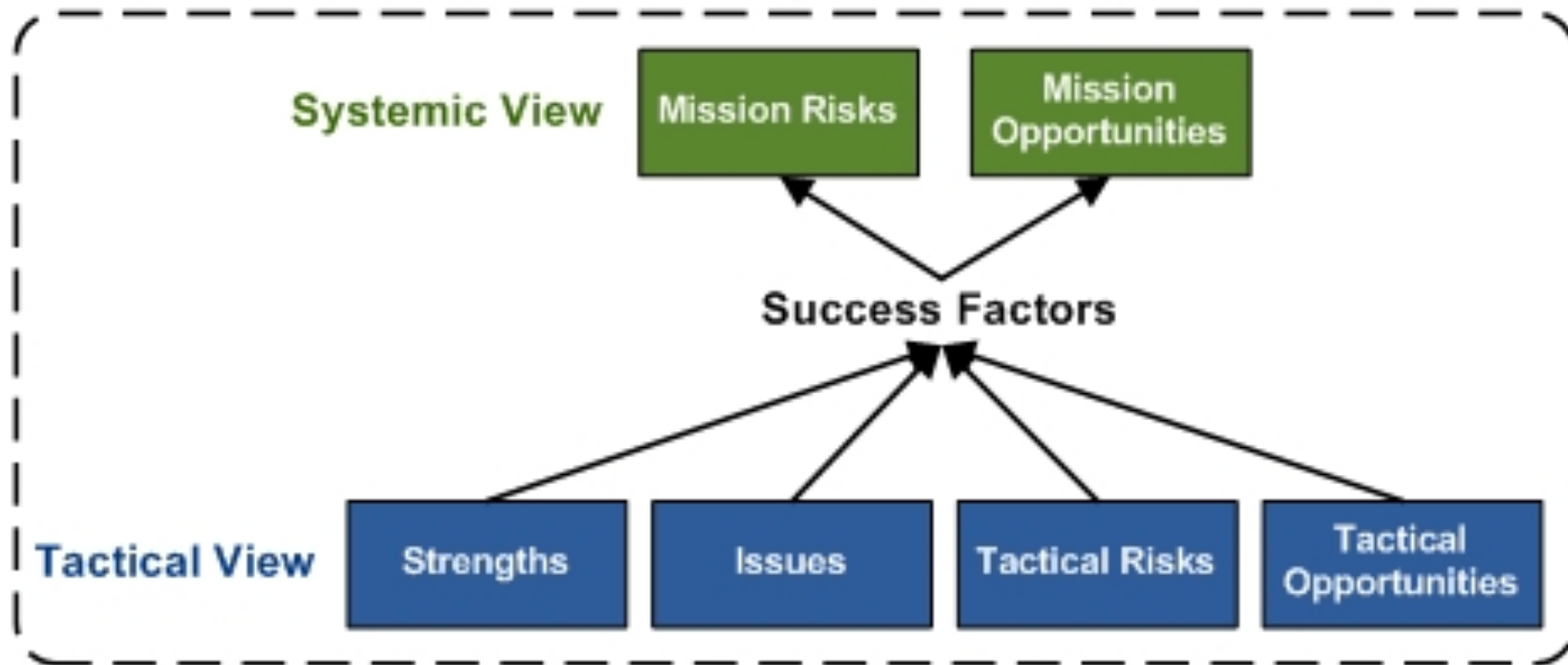
Need to Establish and Sustain Momentum Towards Success



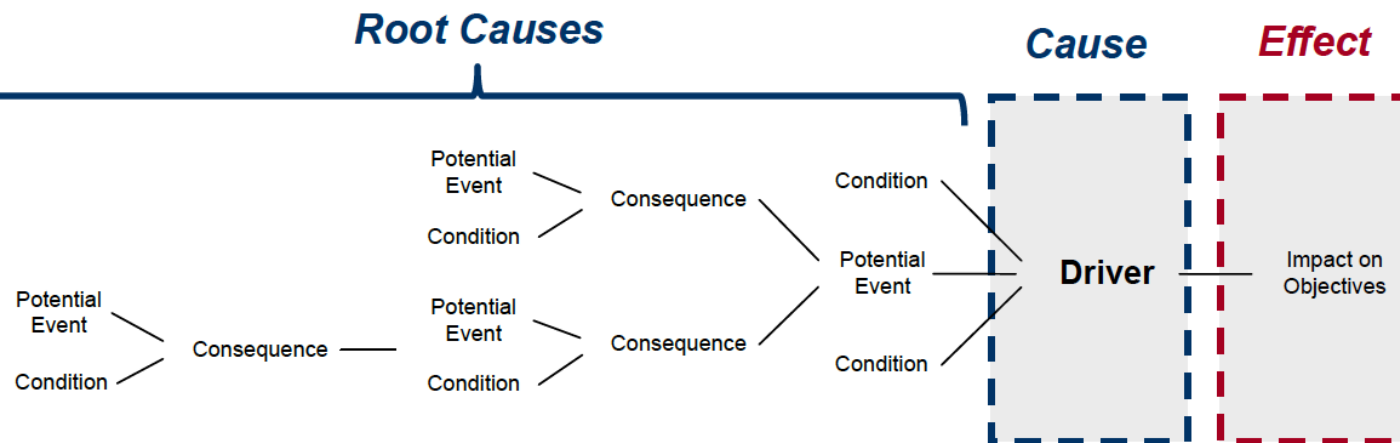
Achieving success requires

1. Establishing sufficient momentum toward objectives
2. Sustaining momentum when stressed by events
3. Sustaining momentum when circumstances change

Integrated Risk and Opportunity Analysis



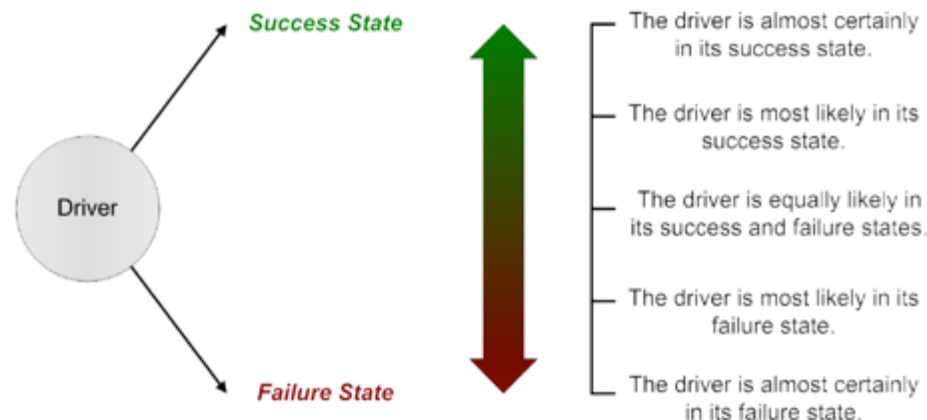
Systemic Analysis of Risk



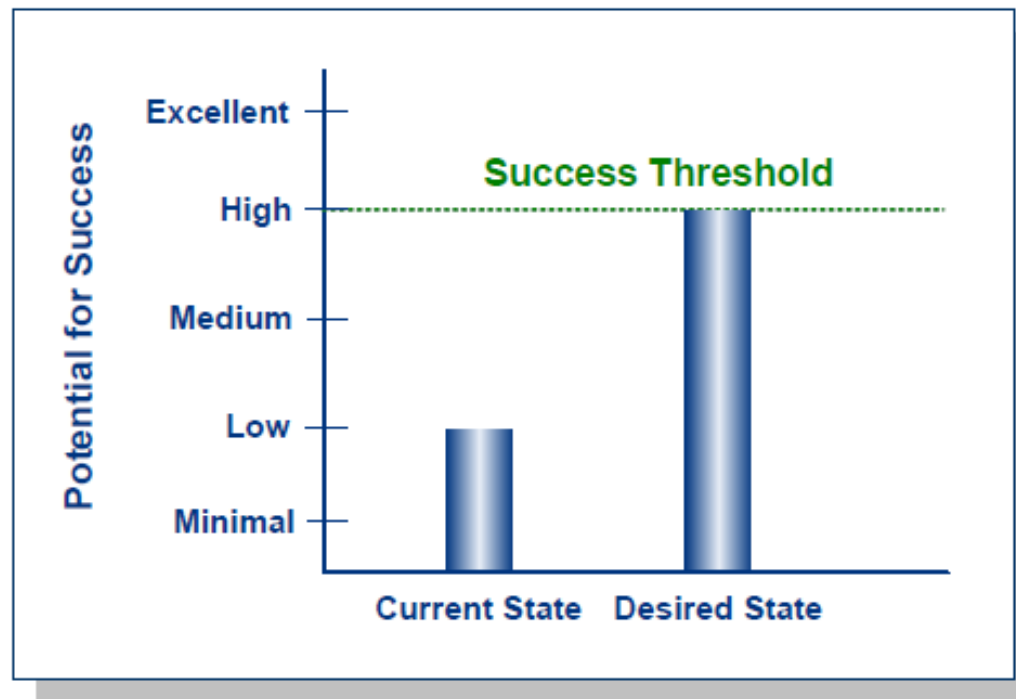
A driver is a factor that has a strong influence on the eventual outcome or result.

By definition, a driver has a direct connection to the impact on objectives.

Conditions and potential events form the root causes of a systemic risk.



Managing the Potential for Success



The potential for success is the likelihood that the desired outcome will occur

The goal is to ensure that the potential for success is within tolerance

TWENTY QUESTIONS (Drivers) EVERY PROGRAM MANAGER SHOULD BE ABLE TO ANSWER

Are program objectives (product, cost, schedule) realistic and achievable?	Are facilities and equipment sufficient to support the program?
Is the plan for developing (and deploying) the system sufficient?	Does the program have sufficient capacity and capability to identify and manage potential events and changing circumstances?
Is the process being used to develop (and deploy) the system sufficient?	Are system requirements well understood?
Are enterprise, organizational, and political conditions facilitating completion of program activities?	Are the design and architecture sufficient to meet system requirements and provide the desired operational capability?
Does the program comply with all relevant policies, laws, and regulations?	Will the system satisfactorily meet its requirements?
Are tasks and activities performed effectively and efficiently?	Will the system be sufficiently integrated and interoperable with other systems when deployed?
Are activities within each team and across teams coordinated appropriately?	Will the system effectively support operations?
Will work products from suppliers, partners, or collaborators meet the program's quality and timeliness requirements?	Have barriers to customer/user adoption of the system been managed appropriately?
Is the program's information managed appropriately?	Will people be prepared to operate, use, and maintain the system?
Does the program team have the tools and technologies it needs to develop the system and transition it to operations?	Will the system be appropriately certified and accredited for operational use?

Standard Set of Drivers for Software/System Development and Deployment - Classification

Objectives

1. Program Objectives

Preparation

2. Plan
3. Process

Execution

4. Task Execution
5. Coordination
6. External Interfaces
7. Information Management
8. Technology
9. Facilities and Equipment

(Programmatic drivers)

Environment

10. Organizational Conditions
11. Compliance

Resilience

12. Event Management

Result

13. Requirements
14. Design and Architecture
15. System Capability
16. System Integration
17. Operational Support
18. Adoption Barriers
19. Operational Preparedness
20. Certification and Accreditation

Standard Set of Drivers 1

Driver Name	Success State	Failure State	Category
1. Program Objectives	Program objectives (product, cost, schedule) are realistic and achievable.	Program objectives (product, cost, schedule) are unrealistic or unachievable.	Objectives
2. Plan	The plan for developing and deploying the system is sufficient.	The plan for developing and deploying the system is insufficient.	Preparation
3. Process	The process being used to develop and deploy the system is sufficient.	The process being used to develop and deploy the system is insufficient.	Preparation
4. Task Execution	Tasks and activities are performed effectively and efficiently.	Tasks and activities are performed ineffectively and inefficiently.	Execution
5. Coordination	Activities within each team and across teams are coordinated appropriately.	Activities within each team and across teams are not coordinated appropriately.	Execution
6. External Interfaces	Work products from suppliers, partners, or collaborators will meet the program's quality and timeliness requirements.	Work products from suppliers, partners, or collaborators will not meet the program's quality and timeliness requirements.	Execution
7. Information Management	The program's information is managed appropriately.	The program's information is not managed appropriately.	Execution
8. Technology	The program team has the tools and technologies it needs to develop the system and transition it to operations.	The program team does not have the tools and technologies it needs to develop the system and transition it to operations.	Execution
9. Facilities and Equipment	Facilities and equipment are sufficient to support the program.	Facilities and equipment are insufficient to support the program.	Execution
10. Organizational Conditions	Enterprise, organizational, and political conditions are facilitating completion of program activities.	Enterprise, organizational, and political conditions are hindering completion of program activities.	Environment



Standard Set of Drivers 2

Driver Name	Success State	Failure State	Category
11. Compliance	The program complies with all relevant policies, laws, and regulations.	The program does not comply with all relevant policies, laws, and regulations.	Environment
12. Event Management	The program has sufficient capacity and capability to identify and manage potential events and changing circumstances.	The program has insufficient capacity and capability to identify and manage potential events and changing circumstances.	Resilience
13. Requirements	System requirements are well understood.	System requirements are not well understood.	Result
14. Design and Architecture	The design and architecture are sufficient to meet system requirements and provide the desired operational capability.	The design and architecture are insufficient to meet system requirements and provide the desired operational capability.	Result
15. System Capability	The system will satisfactorily meet its requirements.	The system will not satisfactorily meet its requirements.	Result
16. System Integration	The system will sufficiently integrate and interoperate with other systems when deployed.	The system will not sufficiently integrate and interoperate with other systems when deployed.	Result
17. Operational Support	The system will effectively support operations.	The system will not effectively support operations.	Result
18. Adoption Barriers	Barriers to customer/user adoption of the system have been managed appropriately.	Barriers to customer/user adoption of the system have not been managed appropriately.	Result
19. Operational Preparedness	People will be prepared to operate, use, and maintain the system.	People will not be prepared to operate, use, and maintain the system.	Result
20. Certification and Accreditation	The system will be appropriately certified and accredited for operational use.	The system will not be appropriately certified and accredited for operational use.	Result



Evaluating Drivers

Directions

Answer the questions using the criteria provided below. Make sure to provide the rationale for each answer in the space provided, using any relevant positive and negative points. If you are uncertain about a particular driver, make your best guess or check the box for "Equally Likely." If you have no idea at all what the answer could be, use Don't Know. There is an example on the next page.

Criteria

Answer	Definition
Yes	The answer is almost certainly "yes." Almost no uncertainty exists. There is little or no probability that the answer could be "no."
Likely yes	The answer is most likely "yes." There is some chance that the answer could be "no."
Equally likely	The answer is just as likely to be "yes" or "no."
Likely no	The answer is most likely "no." There is some chance that the answer could be "yes."
No	The answer is almost certainly "no." Almost no uncertainty exists. There is little or no probability that the answer could be "yes."
Don't Know	More information is needed to answer the question.

Excellent	The objective will almost certainly be achieved.
High	The objective will most likely be achieved.
Medium	The objective is just as likely to be achieved as not.
Low	The objective will most likely <u>not</u> be achieved.
Minimal	The objective will almost certainly <u>not</u> be achieved.

%	
95	Yes
75	Likely Yes
50	Equally Likely
25	Likely No
5	No

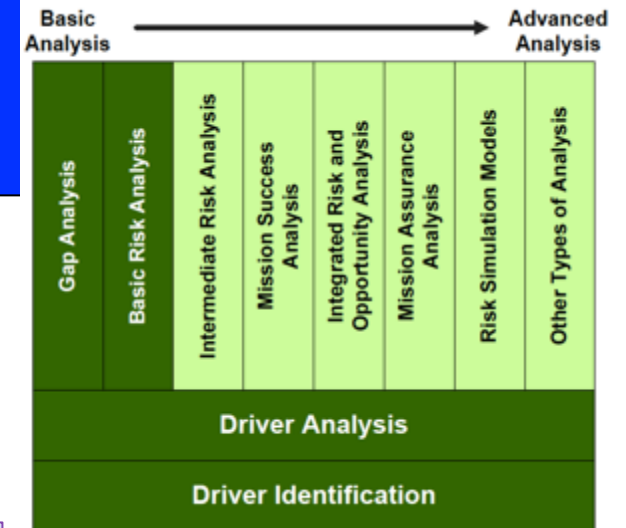
SDA - Questionnaire

- 20 Standard Success Drivers (SEI)
- Specific Success Drivers plus Strength / weaknesses can be recorded by Questions 21 – 23
- If You wish to change something in Your project/program You record it by Question 24.

Mission Drivers							
Driver Questions	Answer						Rationale
	No	Likely no	Equally likely	Likely yes	Yes	Don't Know	
1 Are program objectives (product, cost, schedule) realistic and achievable? Consider: Alignment of technical, cost, and schedule objectives; inherent technical risk; technology maturity; resources available	☐	☐	☐	☐	☐	☐	
2 Is the plan for developing and deploying the system sufficient? Consider: Acquisition or development strategy; program plan; resources; funding; schedule; roles and responsibilities	☐	☐	☐	☐	☐	☐	
3 Is the process being used to develop and deploy the system sufficient? Consider: Process design; measurements and controls; process efficiency and effectiveness; acquisition and development life cycles; training	☐	☐	☐	☐	☐	☐	
4 Are tasks and activities performed effectively and efficiently? Consider: Experience and expertise of management and staff; staffing levels; experience with the acquisition and development life cycles	☐	☐	☐	☐	☐	☐	

Approaches

- SEI defined different methods. Driver identification and analysis provide a common foundation for multiple back-end analyses
(e.g. Mission Success in Complex Environments (MSCE), RDM, SM, ...)



- We used
 - Top Down Analysis (Goal and objective) as well as Analysis of dependencies
 - SDA with all (holistic systemic view) and/or selected drivers (small set)
 - Evaluation of success drivers (SD) via workshops and/or questionnaires and from different views
 - SDA results to develop improvement actions immediately (below 50 %)
 - Use SDA results to further investigations (e.g. risks in supplier cooperation)



Resume Driver Analysis

You see very quickly:

- you are going in the right or wrong direction (risks)!
- where something is missing or failing (risks)
- SDA follow up actions:
 - Point out areas that need to be improved
 - Identify general areas that could benefit from detailed analyses or assessments (e.g., a security assessment)

A quick assessment of your current state can make you stop and think...and, sometimes, that's what you need the most



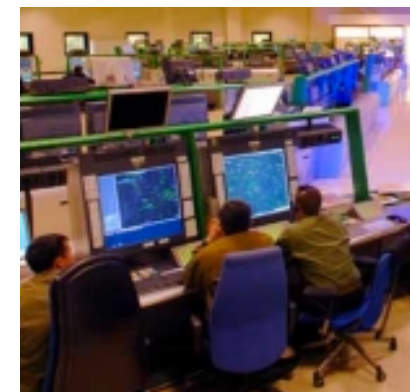
Experiences with 3 Projects / Programs I

Air Traffic Control

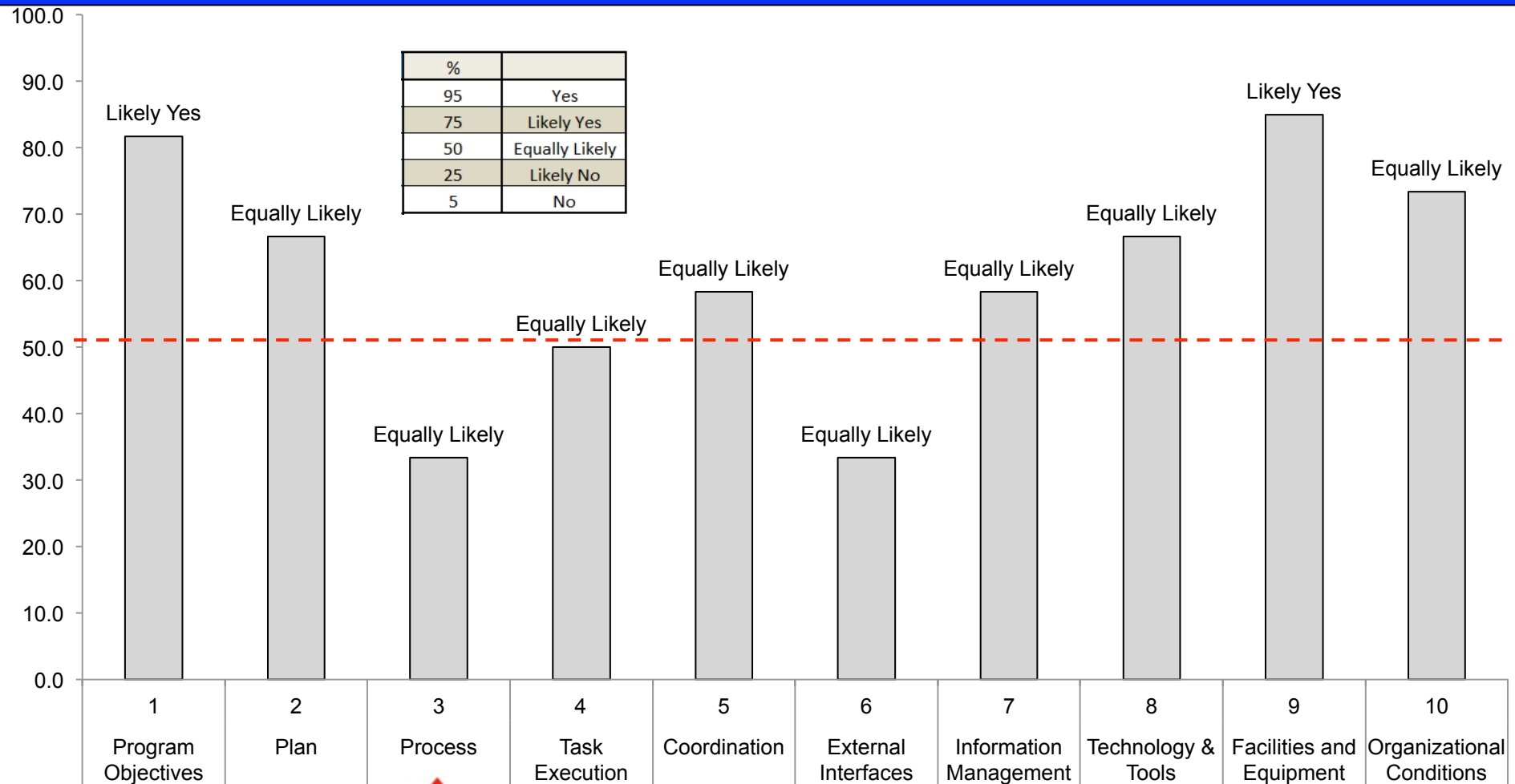
Program Goals (2011 to 2017)

- New product to link planes with the ATC to transmit all data available
- Virtualization of the ATC centers
- Better optimization of the airspace and air routes
- Safety increase

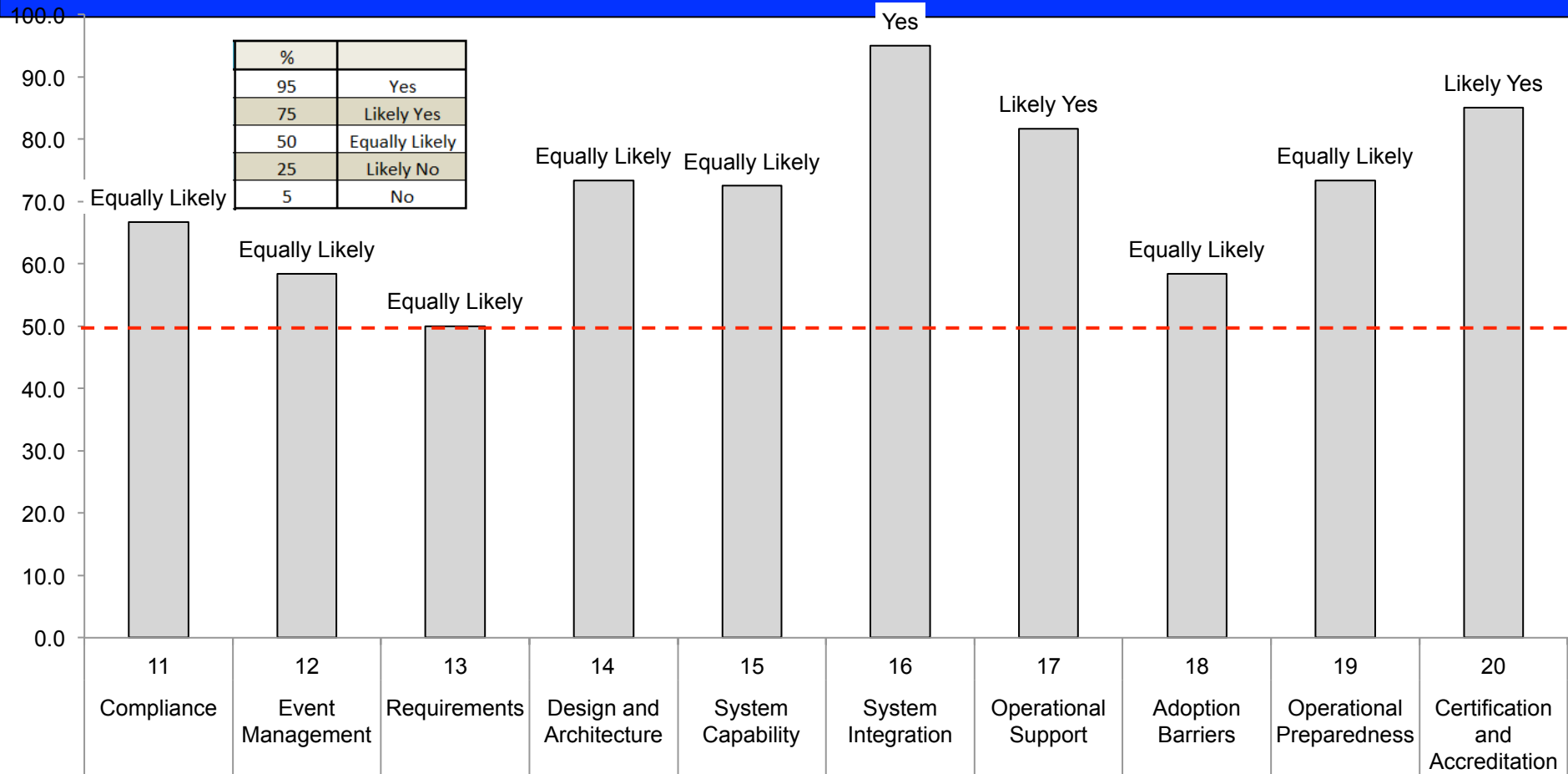
Usage of SDA, Risk Mgt and QM/QA to start up program and to increase effectiveness and efficiency program performance.



Success Driver Profile [Question 1 - 10]



Success Driver Profile [Question 11 - 20]



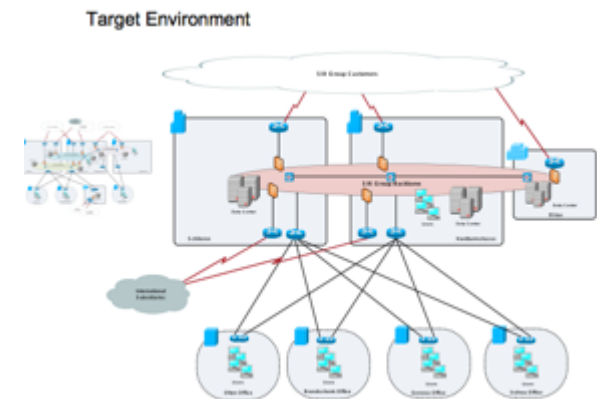
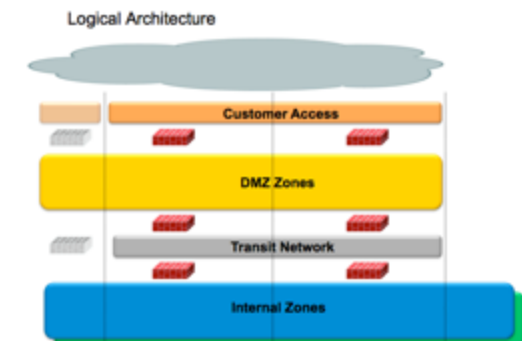
Experiences with 3 Projects / Programs II

Future Network Architecture (2009 - 2011)

Project Goals

- One network instead of 3 networks
- 3 security zones instead of 15
- XXX Group's Future Network Architecture (FNA) project increases system stability and performance for XXX services in Switzerland.
- More than 2000 server systems are affected and around 240 applications will be migrated.

Usage of SDA and Risk Mgt: to improve risk management and show up the project situation / progress to the STC (executive management, senior users and suppliers, etc.).



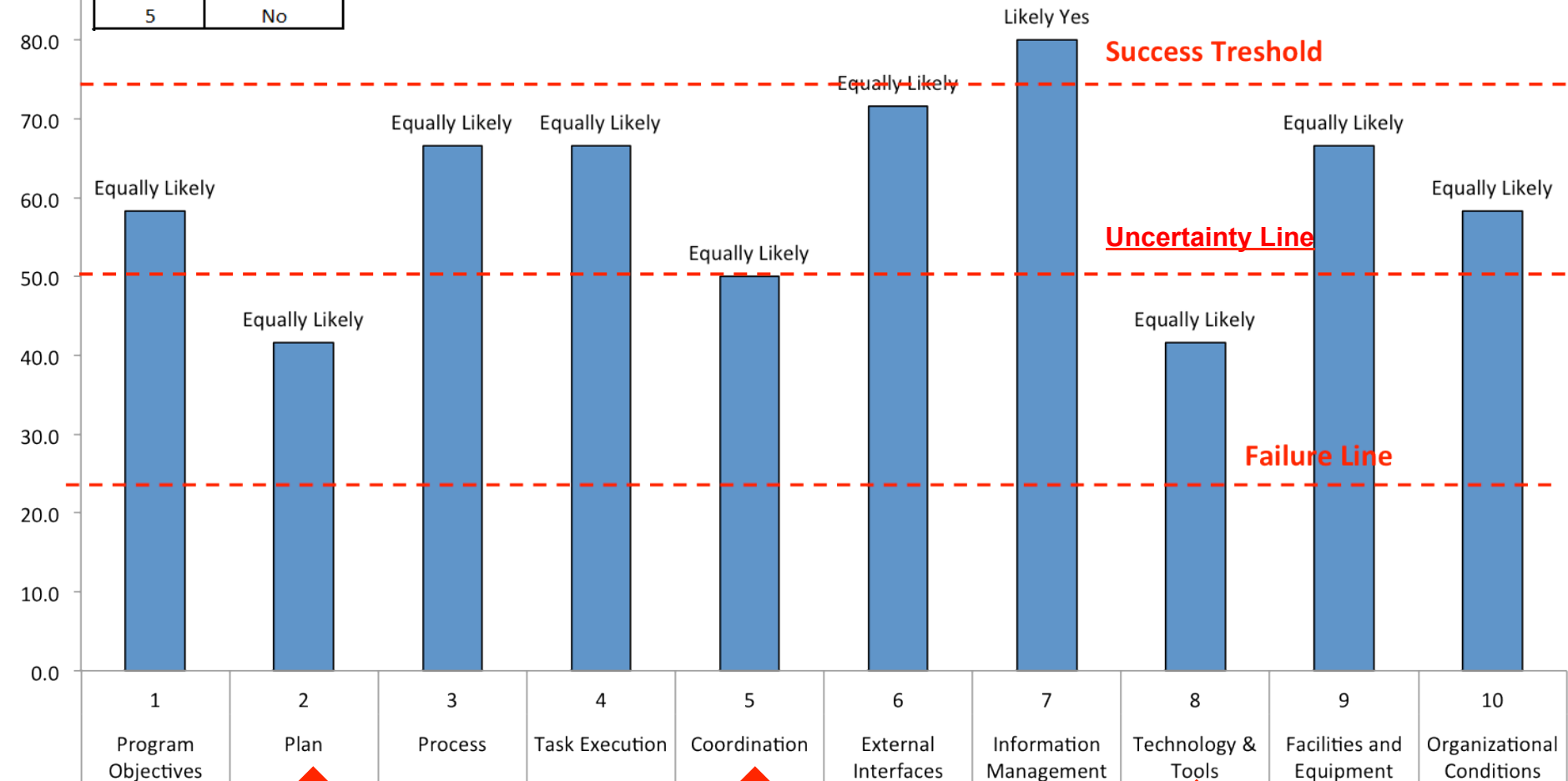
SDA - View 2009 (View 2009)

$\geq 75\%$ green
 $75 \text{ \& } > 50 \%$ blue
 $50 \text{ \& } > 25 \%$ yellow
 $< = 25\%$ red

Objectives		Execution		Result	
Preparation	Program Objectives	Task Execution	Coordination	Requirements	Design and Architecture
	Plan	External Interfaces	Information Management	System Capability	System Integration
	Process	Technology & Tools	Facilities and Equipment	Operational Support	Adoption Barriers
	Event Management	Organizational Conditions	Compliance	Operational Preparedness	Certification and Accreditation
Environment					

SDA - View 2009

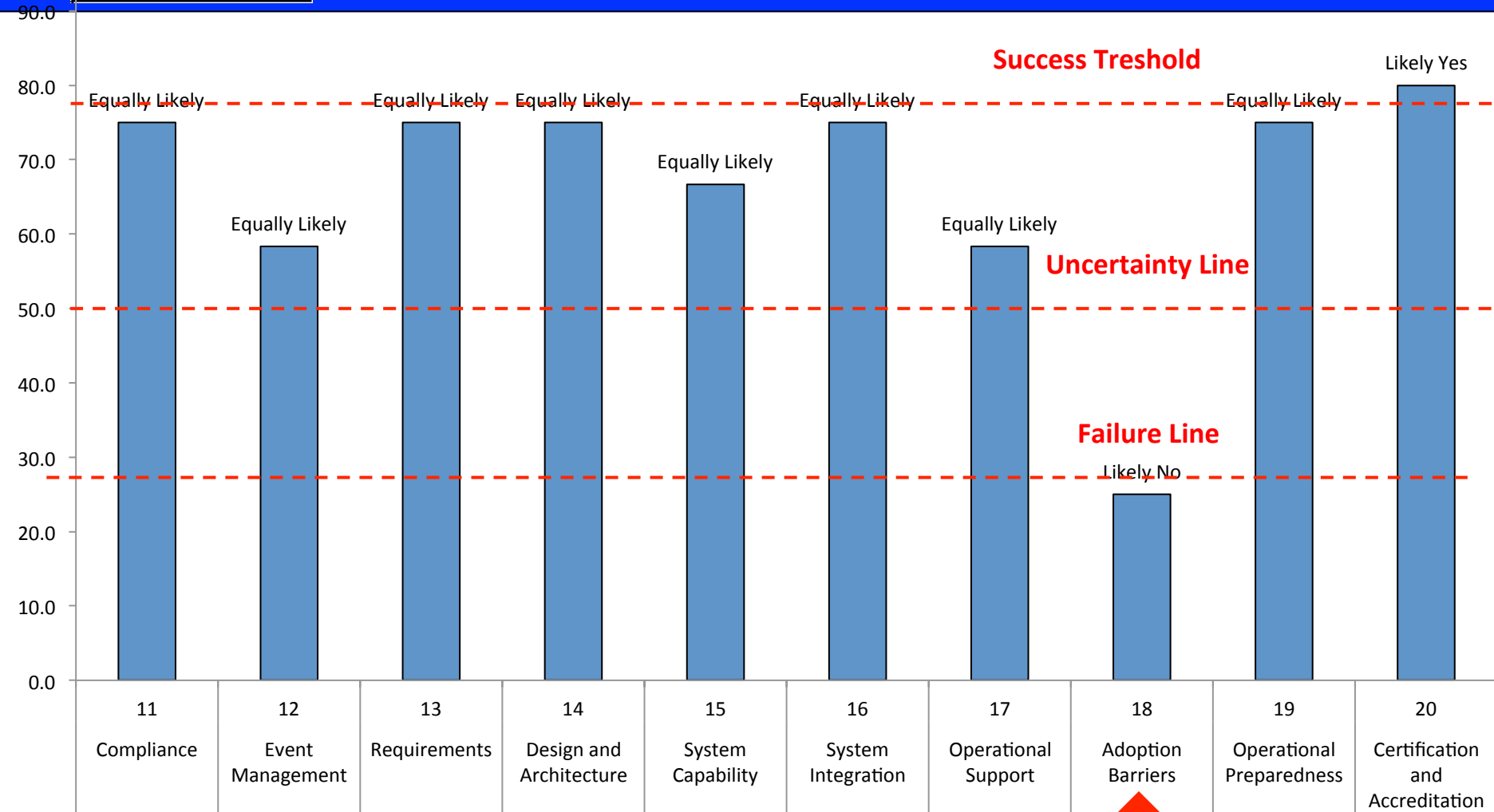
%	
95	Yes
75	Likely Yes
50	Equally Likely
25	Likely No
5	No



shortcomings

SDA - View 2009

%	
95	Yes
75	Likely Yes
50	Equally Likely
25	Likely No
5	No



shortcoming

SDA - View 2009 (View 3. Q 2011)

≥75% green
 75 & >50 % blue
 50 & >25 % yellow
 < = 25% red

Objectives		Execution		Result	
Preparation	Program Objectives	Task Execution	Coordination	Requirements	Design and Architecture
	Plan	External Interfaces	Information Management	System Capability	System Integration
	Process	Technology & Tools	Facilities and Equipment	Operational Support	Adoption Barriers
	Event Management	Organizational Conditions	Compliance	Operational Preparedness	Certification and Accreditation
Environment					

Experiences with 3 Projects / Programs III

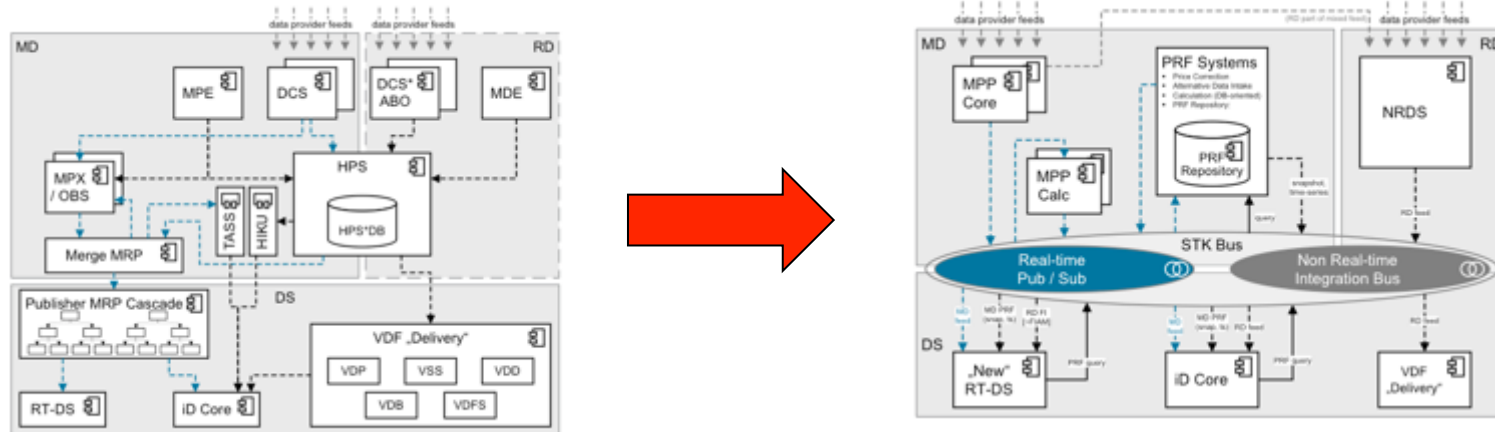
Business Sector: Finance Data

Program Goals to 2014

- Old systems will be replaced by new systems (factory)
- Better system performance, stability and higher data rates

Program organization with 4 streams MD, RD, DS, infrastructure with 16 projects and each has releases

Usage of SDA, risk management and program assurance to assure/stabilize as well as to increase effectiveness and efficiency



WP1: Audit on RSKM / Issue Mgt

N Not achieved 0 to 15 % achievement ("little or no evidence")

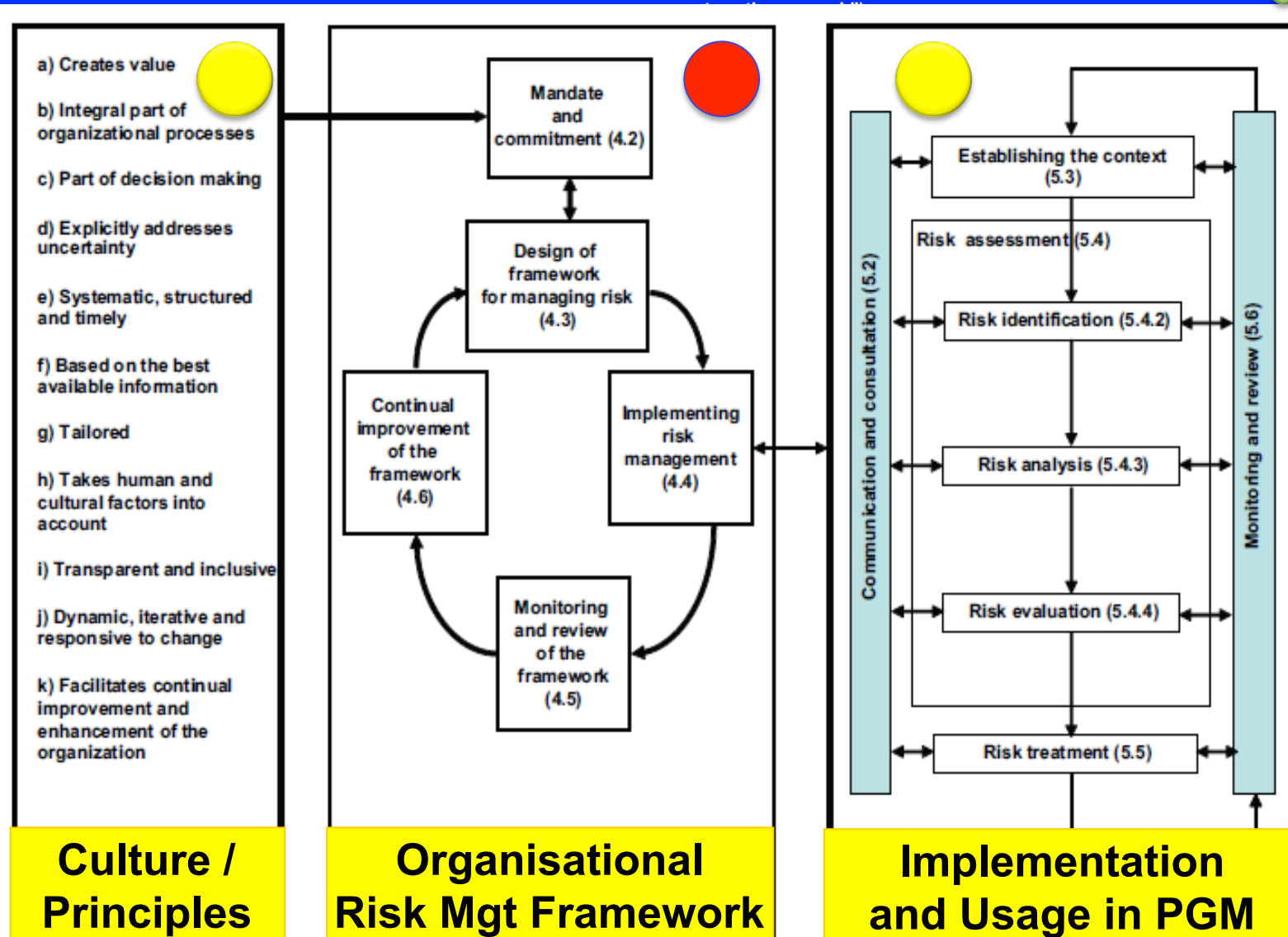
P Partially achieved > 15 % to 50 % achievement ("Some evidence")

L Largely achieved > 50 % to 85% achievement ("Evidence of systematic approach")

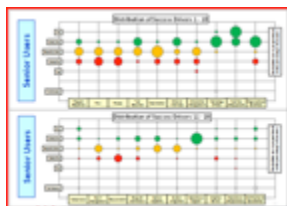
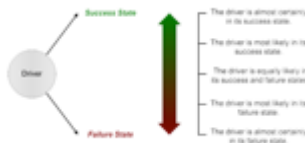
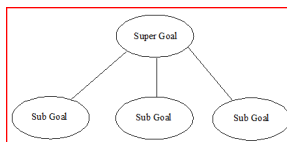
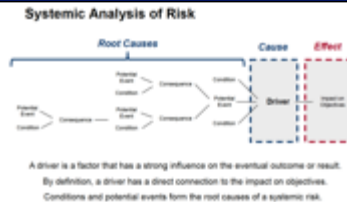
F Fully achieved > 85 % to 100 % achievement ("Evidence of a complete and effective approach")



based on
ISO 31000
and
ISO 15504



Work Package 2 - Success Driver Analysis Approach



1. Introducing the success driver analysis methodology.

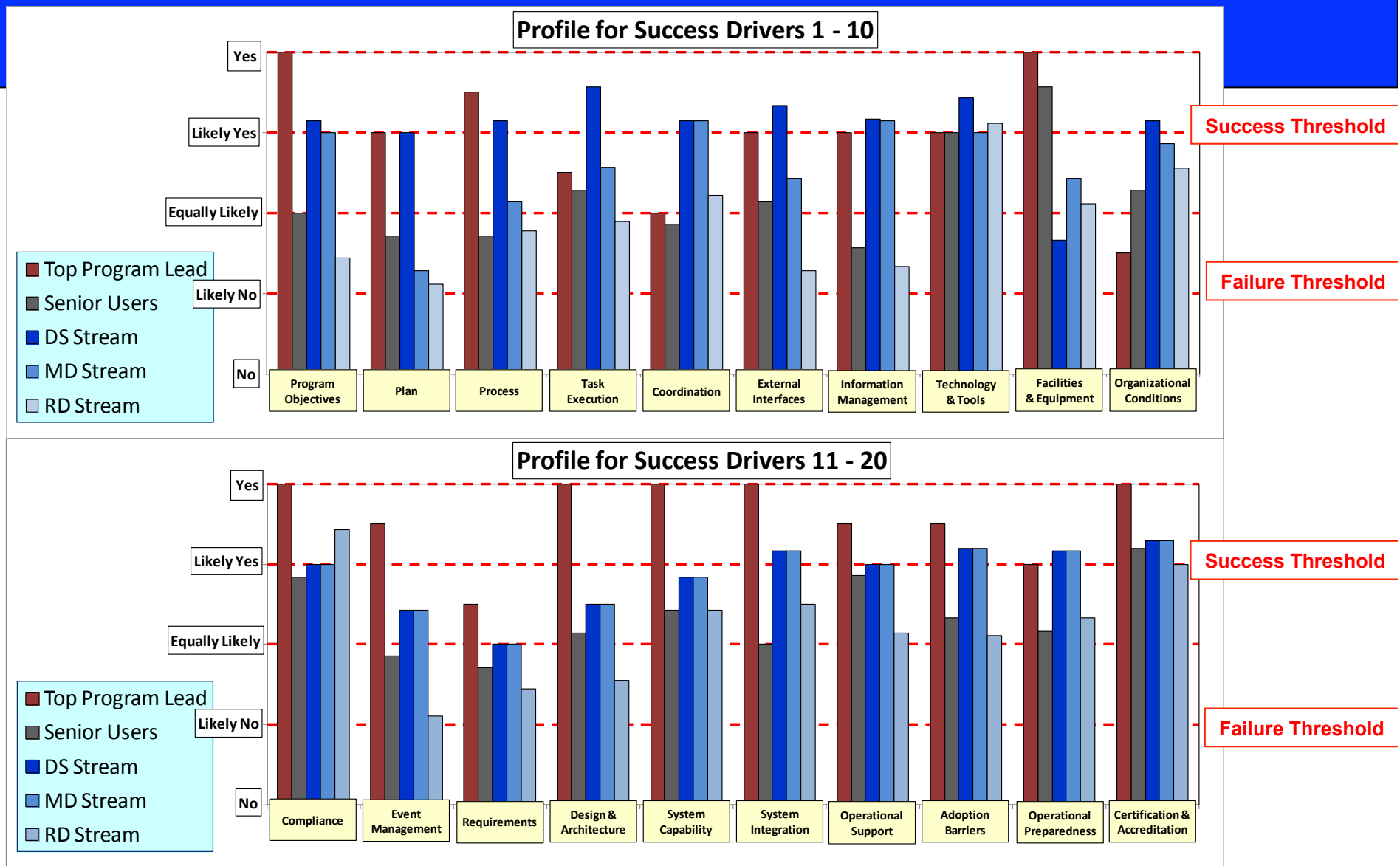
2. Review of over all program objectives and stream goals.

3. Every single standard driver was evaluated by selected program members to determine whether to be on the success side or rather on the failure side. Specific drivers and changes were identified.

4. Stream Teams discussed results to get a shared view on the current status of every single driver in the respective stream goals and dependencies.

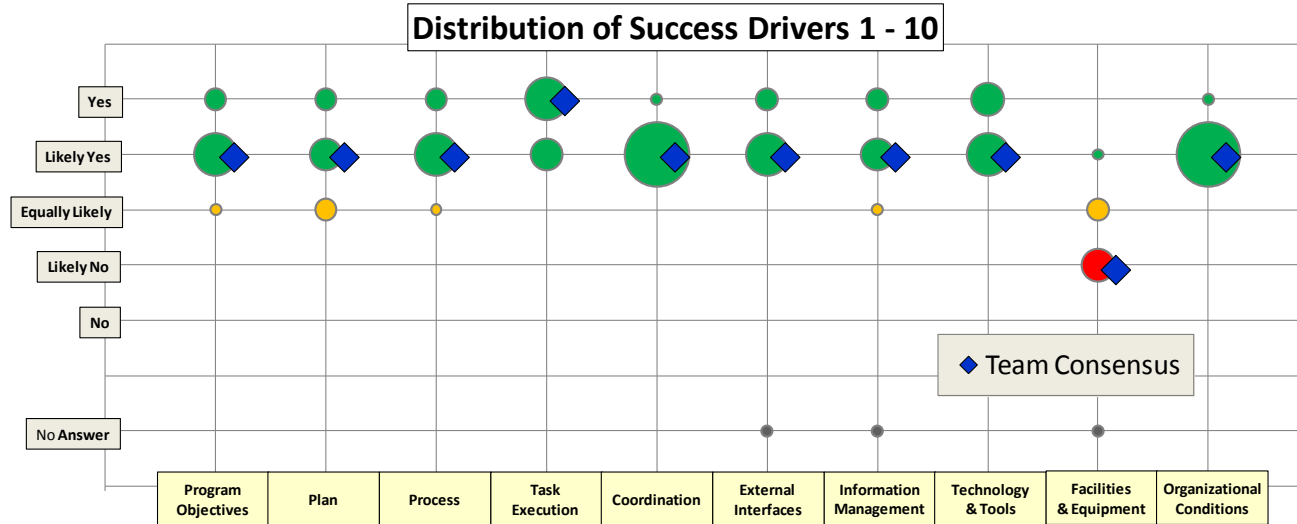
5. Results from Stream Teams, Program Management, STC & Senior User/Suppliers were analyzed and compared.

Comparison of all Success Driver Profiles (1st Round)

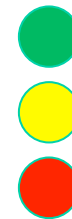


Stream Team DS: Success Driver Profile

Stream DS



The relative bubble sizes correspond to the percentage of answers given.

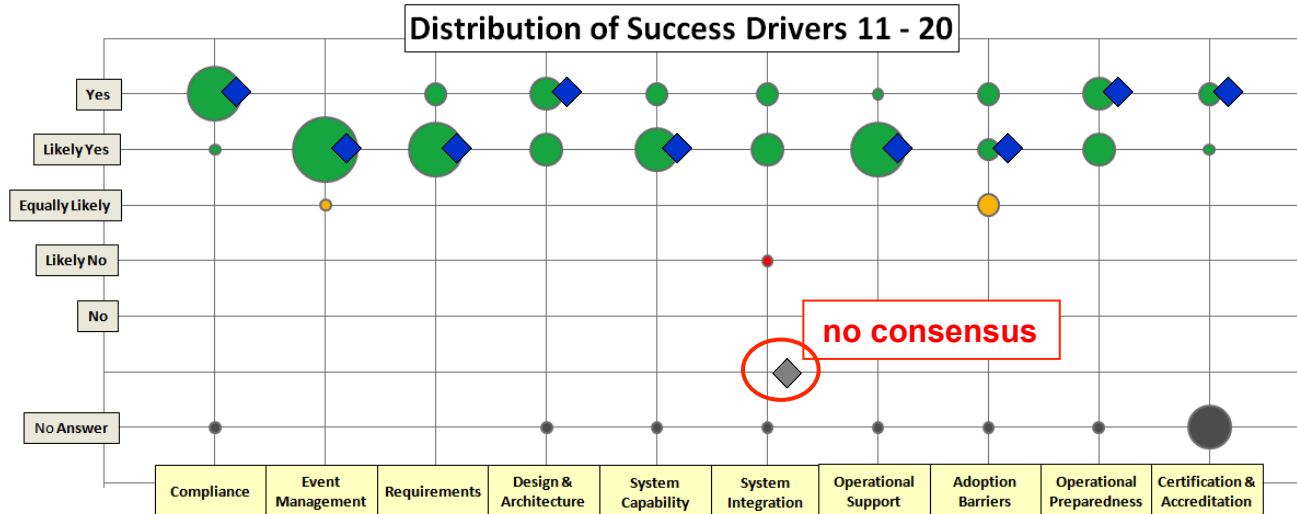


The traffic light colours show if the drivers rather indicate success or failure.



No colour means that no answer was given

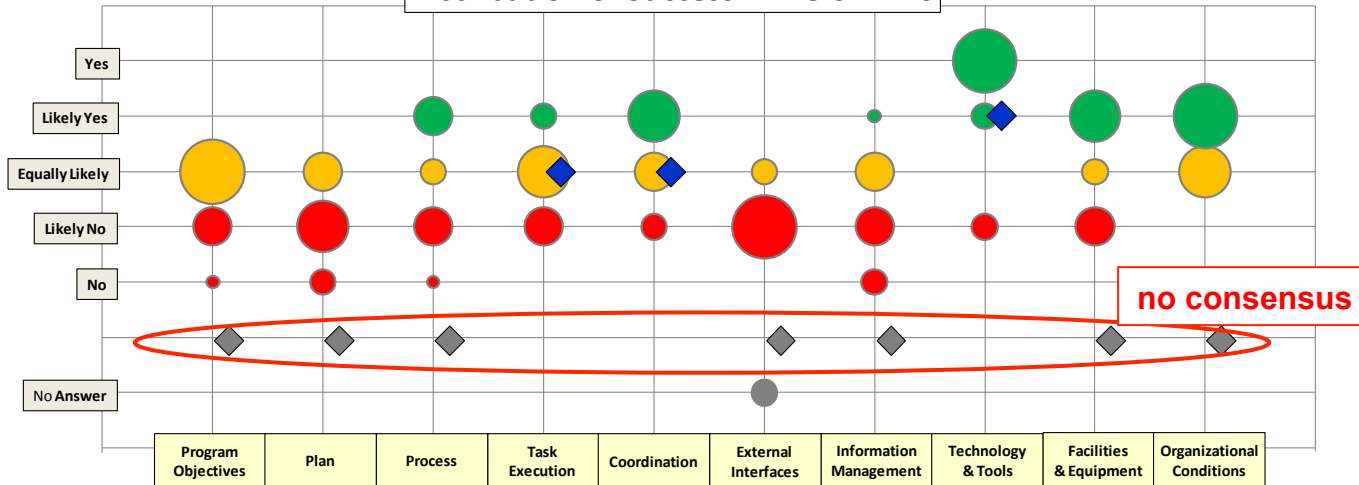
Stream DS



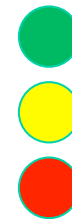
Success Driver Profile: Stream RD

Stream RD

Distribution of Success Drivers 1 - 10



The relative bubble sizes correspond to the percentage of answers given.



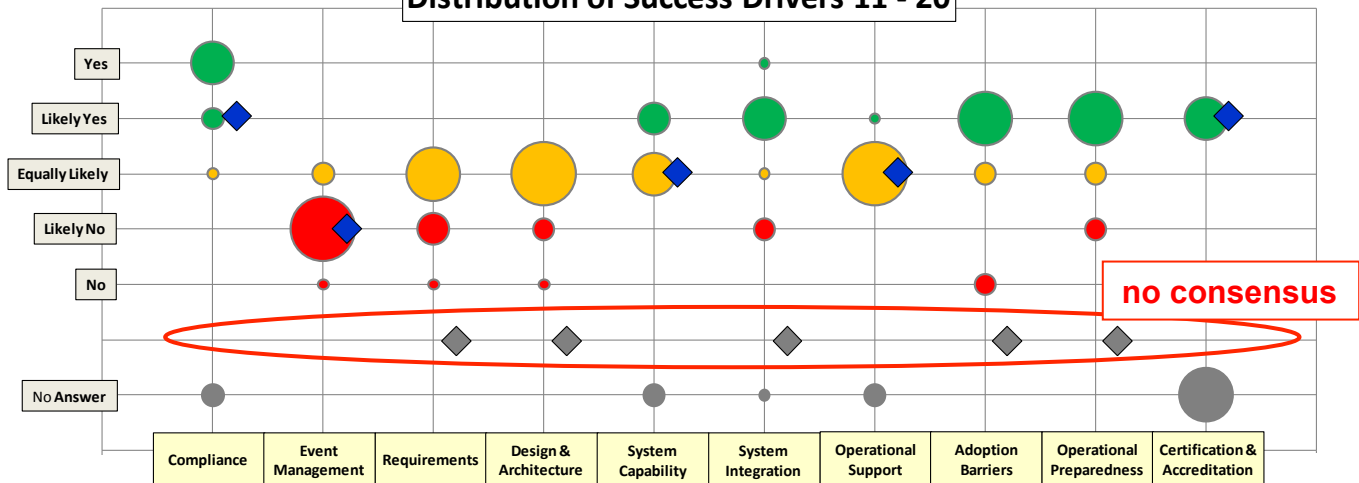
The traffic light colours show if the drivers rather indicate success or failure.



No colour means that no answer was given

Stream RD

Distribution of Success Drivers 11 - 20

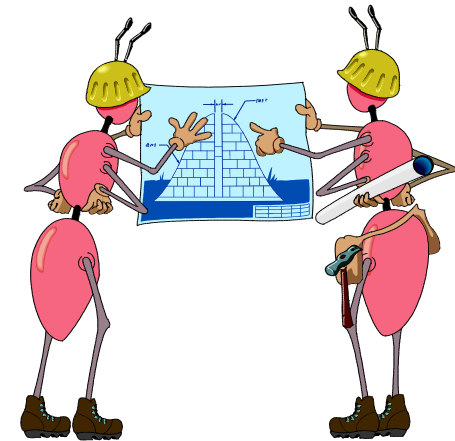


2. Success Driver Profile: Stream RD

SD Nr.	SD Title	Consolidated Rationale 1 - 10: Stream RD
1	Program Objectives	The minimal objective of "getting out of HPS" is agreed. Anything further is vague. There is no overall solution plan and business alignment is missing.
2	Plan	There is no overall plan or roadmap , not even for 2012. The dependency on supplier AC poses a high risk, there is a danger that complexity is underestimated.
3	Process	High level processes are missing or not adhered to. IT development has improved, testing at external partner WIPRO is improving.
4	Task Execution	Tasks are frequently ill defined , execution is not followed up and often delayed. Uncertainty and disagreement has caused a lot of discussion. Slowly improving.
5	Coordination	There have been continuous co-ordination and communication problems. The situation within the different teams has improved, not yet across teams.
6	External Interfaces	Supplier AC has still not delivered in time and quality , an end is not foreseeable. There is high uncertainty about the work results from Cognizant (HPS docu).
7	Information Management	Available documentation is often fragmentary and outdated (or cannot be located on Sharepoint). Decision are not communicated in time and to all stakeholders.
8	Technology & Tools	The project tools are considered state-of-the-art. The lack of a data modelling tool on business side could further delay the system specification.
9	Facilities & Equipment	The teams are dispersed over several offices and buildings. There are continuous problems with offshore access .
10	Organizational Conditions	Attention from senior management is good. There is too much interference from program management into stream internal details.

Summary

- ❑ Really good approach to find out very fast where your weaknesses are.
- ❑ If weaknesses are below “Equally Likely” you can already start with improvements
- ❑ Results should be used for deeper analysis
- ❑ It is not an assessment like CMMI or Automotive SPICE
- ❑ Supports risk management
- ❑ Be careful if you use SDA in Level 1 organizations (heroes!)



“Diejenigen, die nicht die Gefahren sehen wollen, müssen sich nicht wundern, über das, was sie erleben und erhalten.”

Q & A





Many Thanks for Your
Attention!

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