

# QIP Strategic Plan Presentation c. August 1987<sup>©</sup>

by

Arthur M. Schneiderman

<b>Presentation date:</b>	<b>Venue:</b>	<b>Notes:</b>
c. August, 1987	Snapshot of the evolving QIP Plan presentation	Current

During the period of October 1986 to August of 1987, I continued to refine and expand the QIP presentation based on the progress we were making and the consensus that was emerging.

NOTES: I refer you to the notes for the October 1986 QIP presentation. I've added comments here on any relevant revisions and the new slides

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# QIP Strategic Plan Presentation c. August 1987

Arthur M. Schneiderman

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Slide 1

Title

## ADI QIP LONG RANGE PLAN

### OBJECTIVES

- to achieve widespread consensus on, and commitment to a set of QIP goals to be achieved by the end of our next strategic planning cycle (1992)
- to establish an approximate 6 year plan identifying key milestones and activities
- to agree on a detailed 1987 QIP Plan that will:
  - clarify our current QIP status
  - reaffirm to the entire organization the "why and what" of QIP
  - convincingly demonstrate top management's ongoing commitment to QIP
  - build widespread confidence in the effectiveness of a systematic QIP
  - generate the momentum that will be needed if we are to meet our goals

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**TEXAS INSTRUMENTS, HIJI, JAPAN**

**FACILITY:** 4" wafer fab and assembly of bipolar IC's  
built 1974, 1300 employees

**OVERALL GOAL:  
(1980)** "..to have our products rated #1 in quality by  
more than 50% of our customers by 1985.."

**RESULTS:** defect levels reduced to 20 PPM (WSJ, 10/3/86)  
average unit cost down by factor of 7  
% customers rating them #1 in 1985:

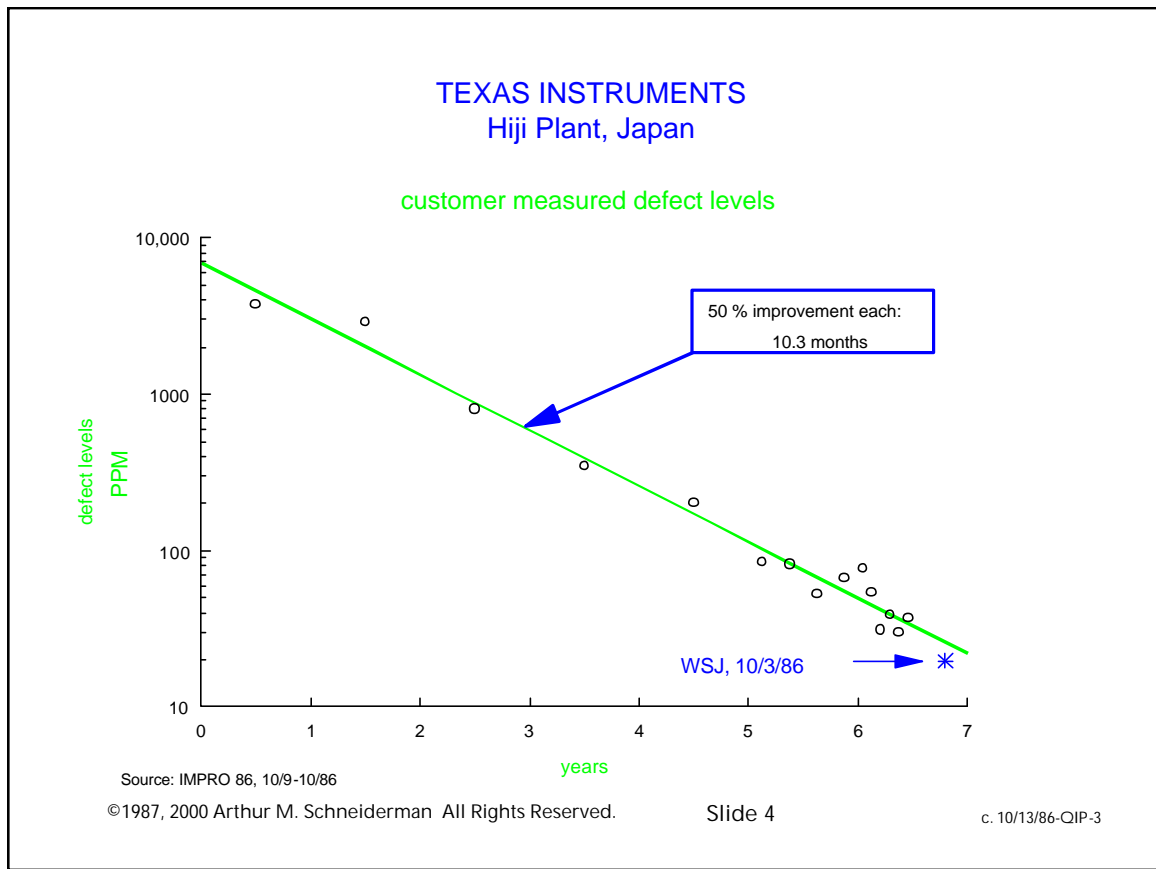
linear products	→	45%
TTL products	→	60%

**WINNERS OF 1985 DEMING PRIZE**

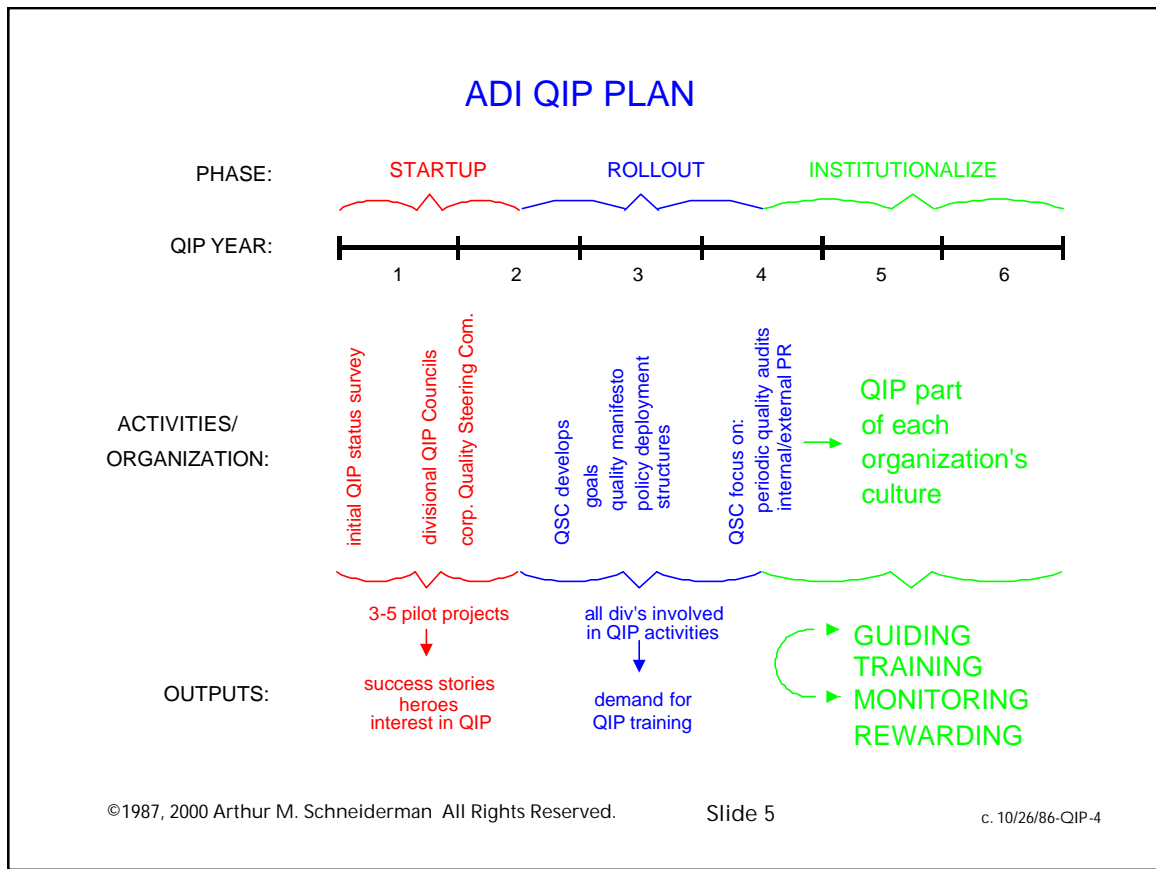
"We've gone as far as we can in manufacturing. We are  
focusing on IC design for further defect reduction."  
Kimio Nonaka, Manager of TQC

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rev. 10/26/86

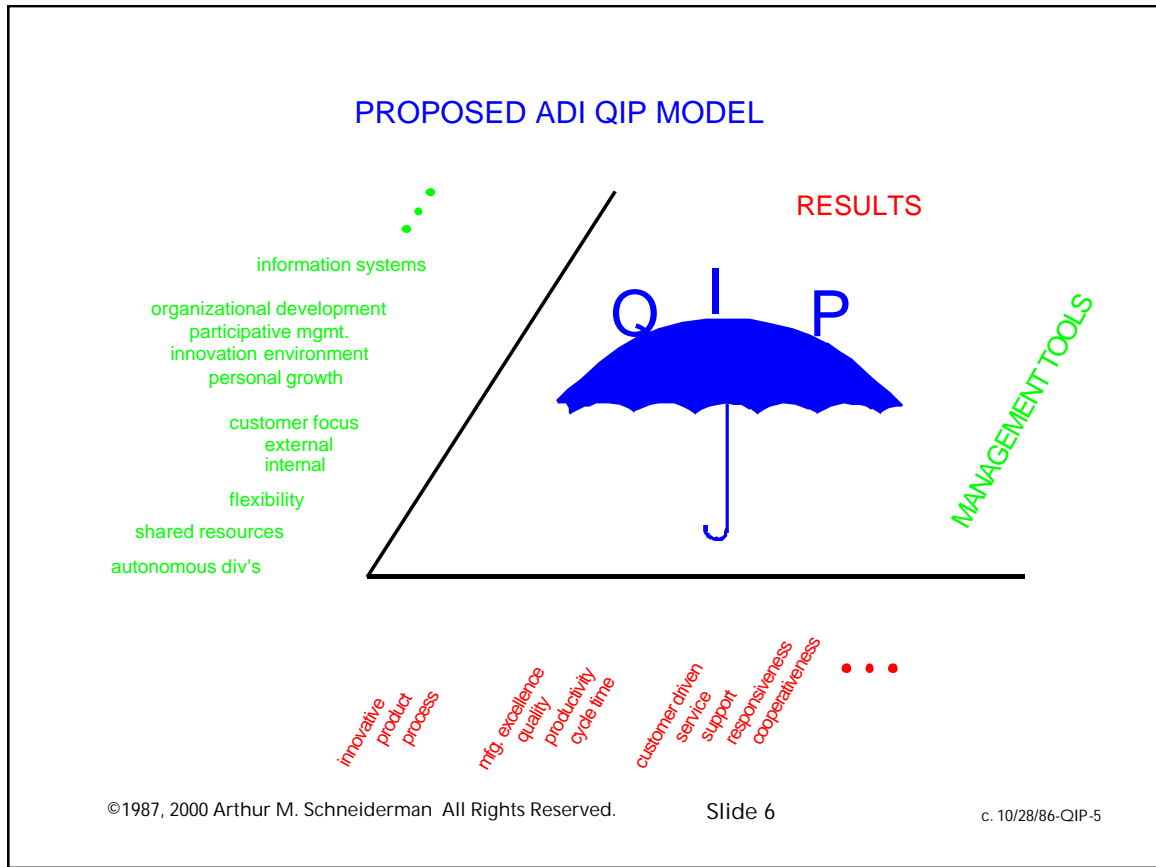
Slide 4



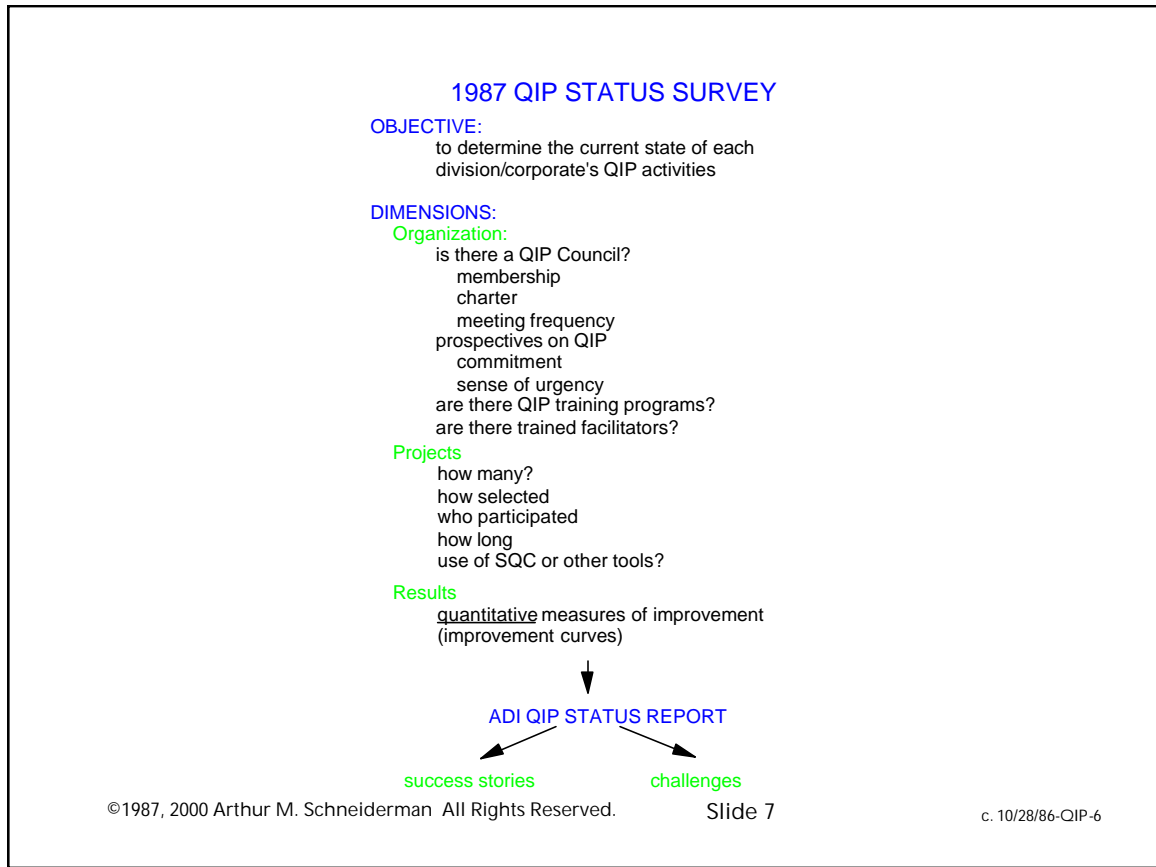
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ADI 1992 QIP GOALS

EXTERNAL PERSPECTIVE

To have our products rated #1 in

TOTAL VALUE

by more than 50% of our customers

based on:

right products	lead time
performance	delivery
features	support
price	responsiveness
quality/reliability	cooperativeness
willingness to form partnership	
safety	durability
operating cost	serviceability
maintenance cost	reputation
expected life	understanding
resale value	aesthetics

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•  
•

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rev. 7/31/87

Our continuing efforts to define “total value” led to this expansion of the list of contributing factors. The elements listed in the smaller font were viewed as of less current importance to customers. Our expectations were that as the major elements were satisfied, customers would turn to the minor ones in choosing between suppliers.

See “Analog’s version of the strategy map: 1987-1990” to see how this and the following slide evolved over time.

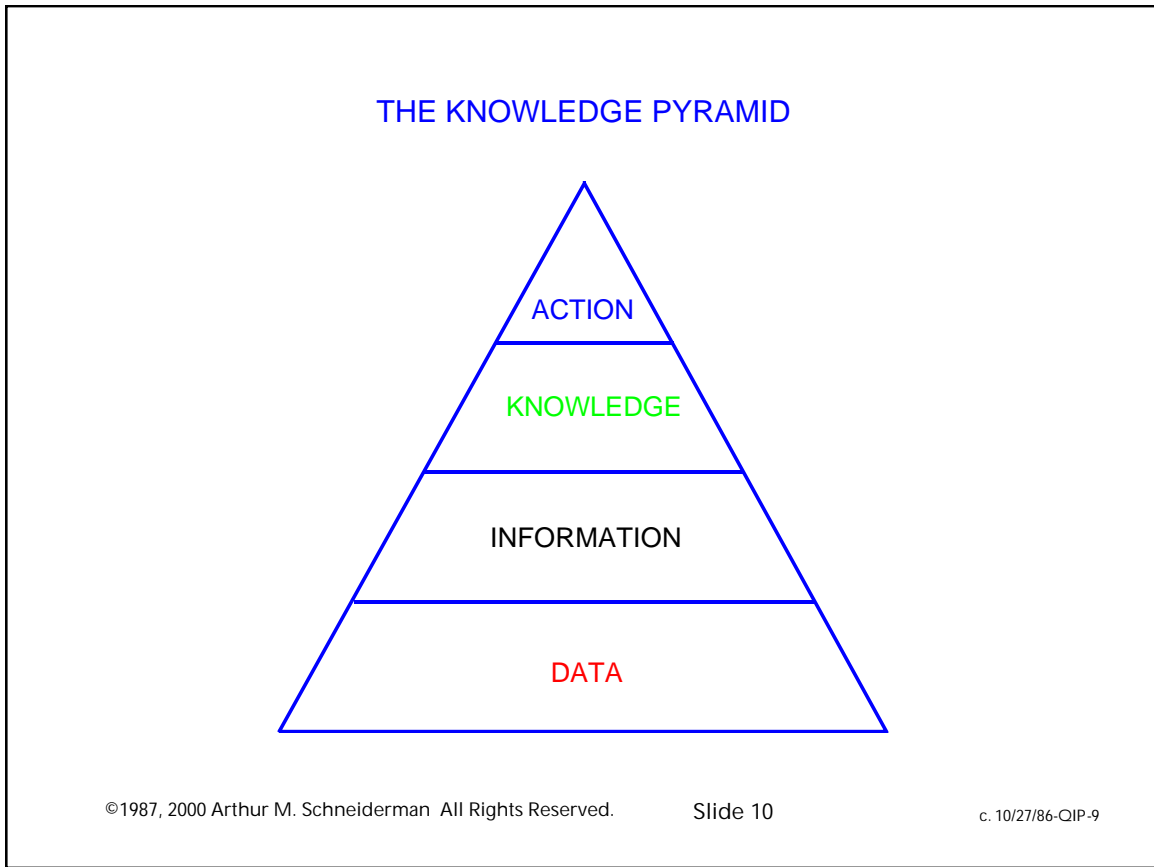
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**ADI 1992 QIP GOALS**  
INTERNAL PERSPECTIVE

To constantly strive for the elimination of all  
**FORMS OF WASTE**  
at all entities, functions and levels within ADI

<p><b>Manufacturing and Design</b></p> <ul style="list-style-type: none"><li>&lt; 10 PPM defect levels</li><li>&gt;99.8% on time delivery</li><li>&lt;3 weeks lead time</li><li>&lt;3 weeks mfg. cycle time</li><li>&lt;20 weeks design cycle</li><li>25X reduction in active WIP</li><li>250X reduction in changeover times</li></ul>	<p><b>Other Areas</b></p> <div style="border: 1px dashed red; padding: 5px;"><ul style="list-style-type: none"><li>timely financial reporting</li><li>reduced turnover</li><li>effective meetings</li><li>actionable information</li><li>perfect safety records</li><li style="text-align: center;">•</li><li style="text-align: center;">•</li><li style="text-align: center;">•</li></ul></div>
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FORMS OF WASTE

(MUDA)

Ryuzaburo Kaku, Canon

The Nine Wastes

- waste in rejects
- waste in parts inventory
- waste in indirect labor
- waste in equipment and facilities
- waste in expenses
- waste in design
- waste in human resources
- waste in operations
- waste in production startup of new products

Taiichi Ohno, Toyota

The Seven Wastes

- waste in processing itself
- waste of time
- waste of making defective parts
- waste of motion
- waste of overproduction
- waste of inventory
- waste of transportation

**TOP MANAGEMENT'S 1987 GOALS**

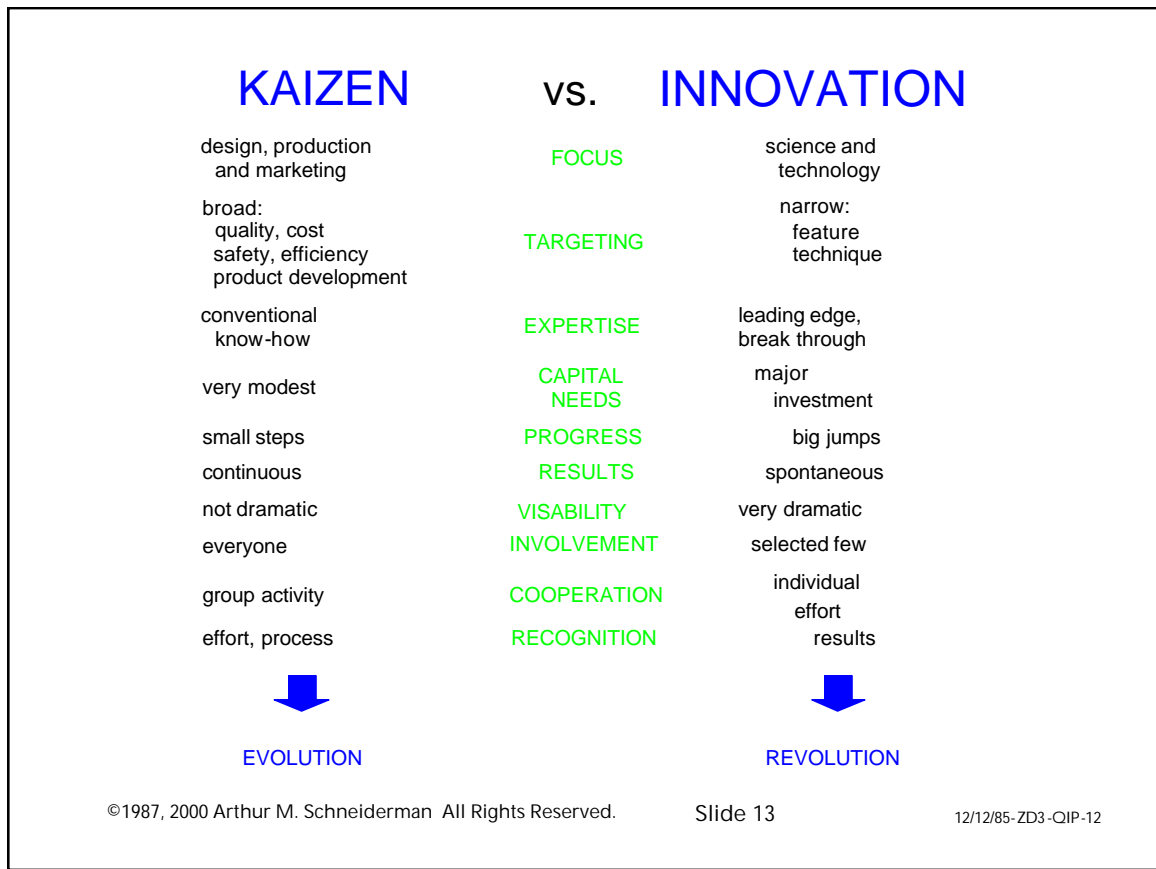
<b>Guide:</b>	quality manifesto overall goals (quantitative and measurable) steering committee charter incentives implications
<b>Get Trained: (on-going)</b>	Juran on Quality Improvement statistical methods quality literature
<b>Set Example:</b>	QIP projects (1-2 each) e.g.: information systems customer interviews
<b>Be Visible:</b>	regular "air time" to QIP periodic (semi-annual?) QIP Audits reward successes (non-financial) annual QIP award? integrate QIP into other activities strategic planning various Councils various Staffs

↓

**10-20% of their TIME spent on QIP activities**

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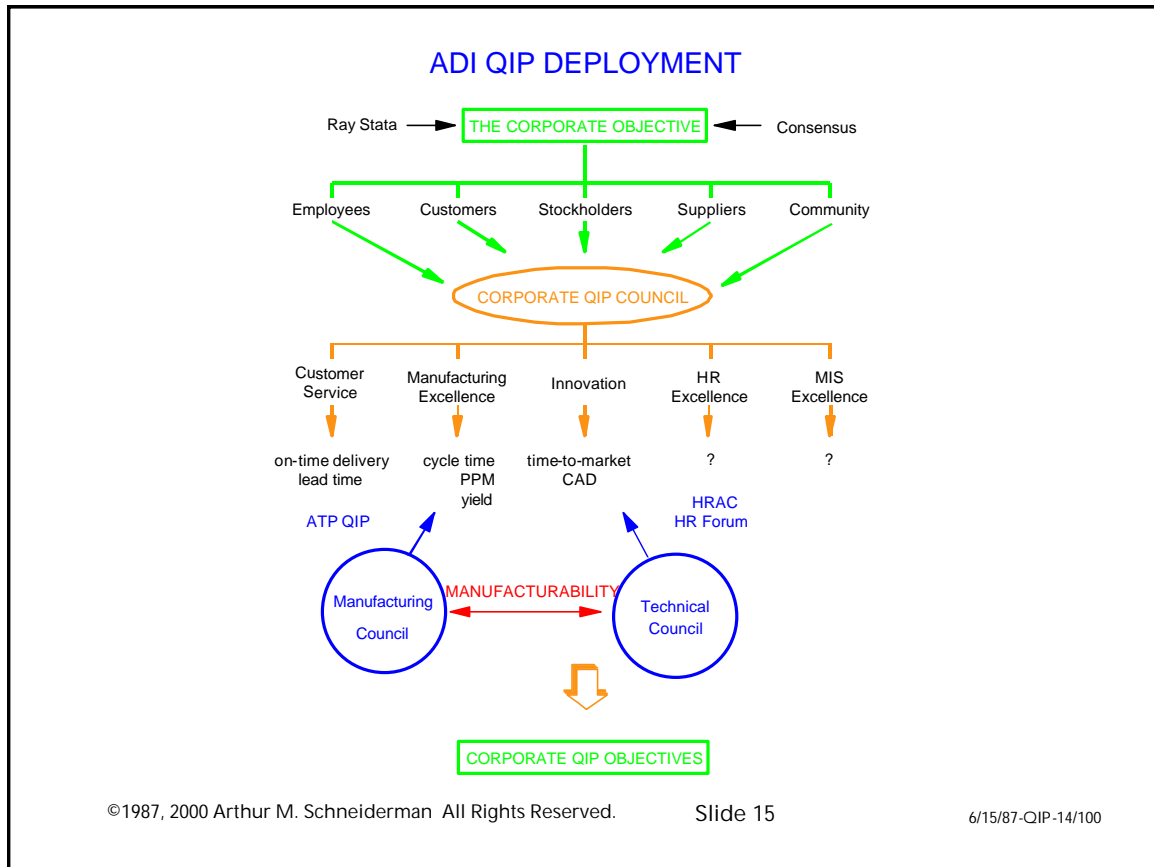
**ADI QIP HISTORIC OVERVIEW**

ADI CORPORATE GOALS	PRIMARY MEASURES	1987 PRIORITIES	
		ALL DIV's	LOCAL
CUSTOMER SERVICE	ON TIME DELIVERY	●	
INNOVATION	REDUCED DESIGN CYCLE TIME	●	
MANUFACTURING EXCELLENCE	REDUCED MFG. CYCLE TIME		
HUMAN RESOURCES	TURNOVER RATE		
BUSINESS SUCCESS	COST MANAGEMENT		

- CONTINUED QIP THRUSTS IN IMPROVED CUSTOMER SERVICE AND CYCLE TIMES
- DIVISIONAL PRIORITIZATION OF NEW QIP THRUSTS

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Setting priorities was the requisite countermeasure for resolving the tension between the tops-down and bottoms-up approaches. This slide was used to communicate that all divisions were required to participate in the tops-down priorities of delivery and cycle time improvement. They could select from the rest of the list based on criticality to their business and available resources.



This slide, created in June of 1987, depicted the relationship between the basic elements of Analog's QIP strategy. The starting point was the Corporate Objective, created by the vision of the CEO and tempered through the top-to-bottom consensus process. This statement of purpose was articulated in the voices of our five stakeholder groups. The Corporate QIP Council, serving as the interface between the stakeholders and the rest of the organization, was given the job of defining initiatives and metrics that would assure stakeholder delight in Analog. We gave these initiatives names like "Customer Service" (for the order fulfillment process), "Manufacturing Excellence" (for the manufacturing process), "Innovation" (for the product/process generation process), "HR Excellence" (for the many processes that assure recruitment and retention of the best people: e.g. recruiting process, training process, performance appraisal process, etc.), and "MIS Excellence" (for the processes associated with the timely collection and conversion of raw data into actionable information).

Many of our existing improvement efforts fit well into this framework. On-time delivery and leadtime reduction, for example, were the most leveraged elements of improved customer service. Cycle time reduction and product



quality and yield improvement were the key drivers for achieving manufacturing excellence. On time-to-market and automation (CAD, or computer aided design) were obvious enablers of innovation. The last two categories, HR and MIS excellence, lacked specific initiatives at that time, but were recognized as essential for the achievement of our corporate objective.

Analog had had a Technical Council for many years. Its primary purposes were to foster cross-divisional knowledge sharing and provide a forum for the introduction of new ideas from the broader, external technical community. In late 1986, I created and chaired Analog's first Manufacturing Council. In partnership with the Technical Council, chaired by the Chief Technology Officer, we took on the joint challenge of improving manufacturability of Analog's leading edge products in support of both our Manufacturing Excellence and Innovation initiatives. Our two HR committees: the HR Advisory Committee (a mixture of HR professionals and line managers) and the HR Forum (the HR managers from all business units) were assigned the task of operationalizing the concept of HR Excellence.

This cascading process, starting from the high level corporate objective, provided the proposed template for development of our Corporate QIP Objectives. The results of our mutual efforts was Analog's five-year QIP Goals (c. 7/12/87)




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**ADI CORPORATE QIP COUNCIL**

**MEMBERS:**

- Jerry Fishman
- Kozo Imai
- Larry LaFranchi
- Bill Manning
- Doug Newman
- Art Schneiderman, Chairman
- Ray Stata
- Graham Sterling
- Goodloe Suttler
- Sue Thomson
- Tom Urwin

**CHARTER:**

- QIP Organization
- QIP Goals Deployment  priorities
- Training  Juran
- Monitoring  metrics
- Incenting/Rewarding

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The importance of having broad based governance of Analog's TQM initiative was understood from the start. In addition to the CEO and COO, the Corporate QIP Council had balanced representation both geographically (Japan, US, Europe) and functionally (general managers, sales, finance, training and TQM).

Among its responsibilities was the deployment of QIP goals which later provided the content of the first balanced scorecard.

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<b>ADI QIP GOALS</b> (IC OPERATIONS)			
<u>METRIC</u>	<u>1987</u>	<u>HALF-LIFE</u>	<u>1992</u>
<b>EXTERNAL</b>			
On time delivery	85%	9	>99.8%
Outgoing defect levels	500 PPM	9	<10 PPM
Lead time*	10 wks	9	<3 wks
<b>INTERNAL</b>			
Manufacturing Cycle Time	15 wks	9	4-5wks
Process Defect Levels	5000 PPM	6	<10 PPM
Yield	20%	9	>50%
Time to Market	36 mths	24	6 mths

**WHILE AGGRESSIVELY PURSUING  
CORPORATE-WIDE COST MANAGEMENT**

\*at 95% level of service

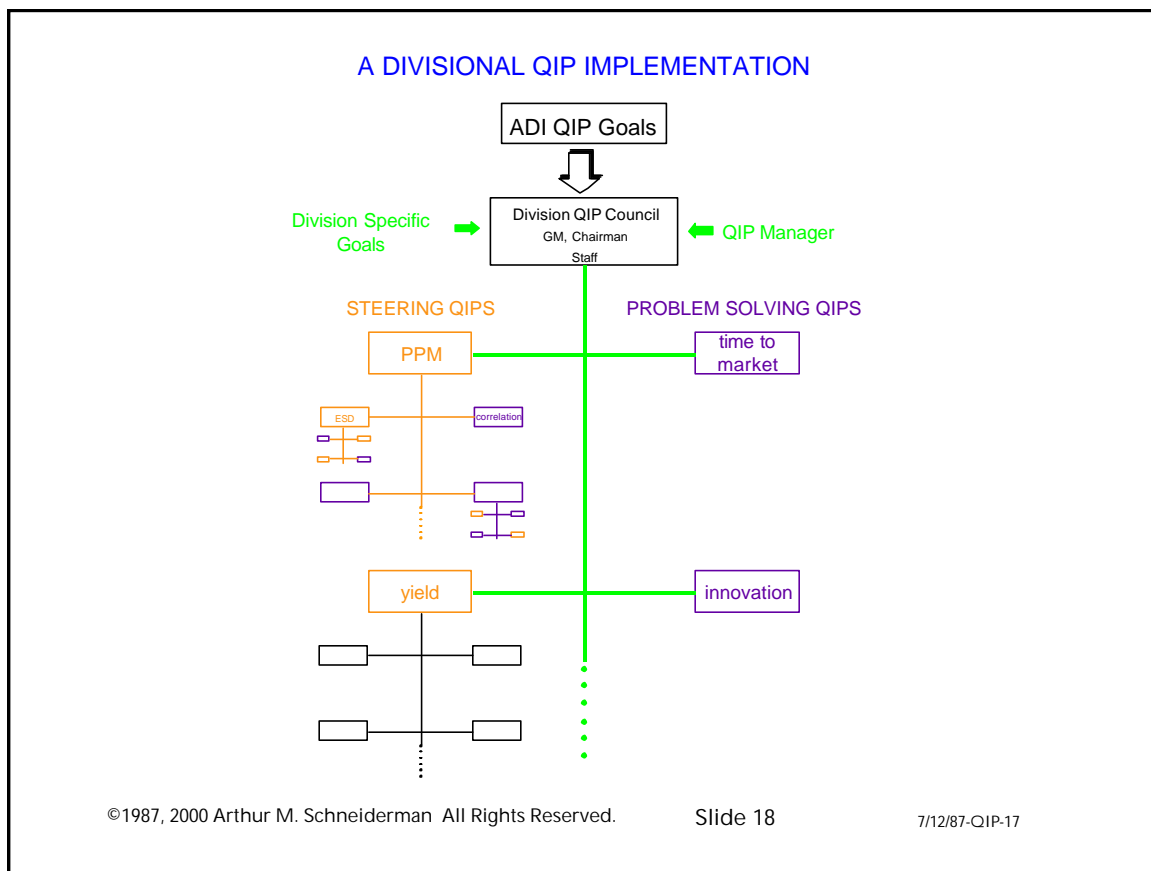
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From the start, I recognized the need to limit the number of goals to a manageable set. For several years, I had been a student of Hoshin Kanri, a Japanese approach to accelerated improvement, where careful analysis of organizational capacity leads to a realistic choice of at most two to three breakthrough initiatives. Also, Juran had taught us the importance of focusing on the vital few. So we chose the three most important stakeholder requirements as our externally focused metrics. Given that our customers were our least satisfied stakeholders, it should be no surprise that all three were customer related. Our internal focus was initially in the area manufacturing metrics: cycle time, pre-inspection quality and manufacturing yield, as well as product innovation as measured by time to market. The last sentence, concerning cost management, was added at the request of one of our general managers who was concerned that increased inventory and inspection might be substituted for real process improvement to achieve these goals.

Our first challenge was in defining the current (1987) state. I've written elsewhere about the many difficulties associated with this deceptively simple

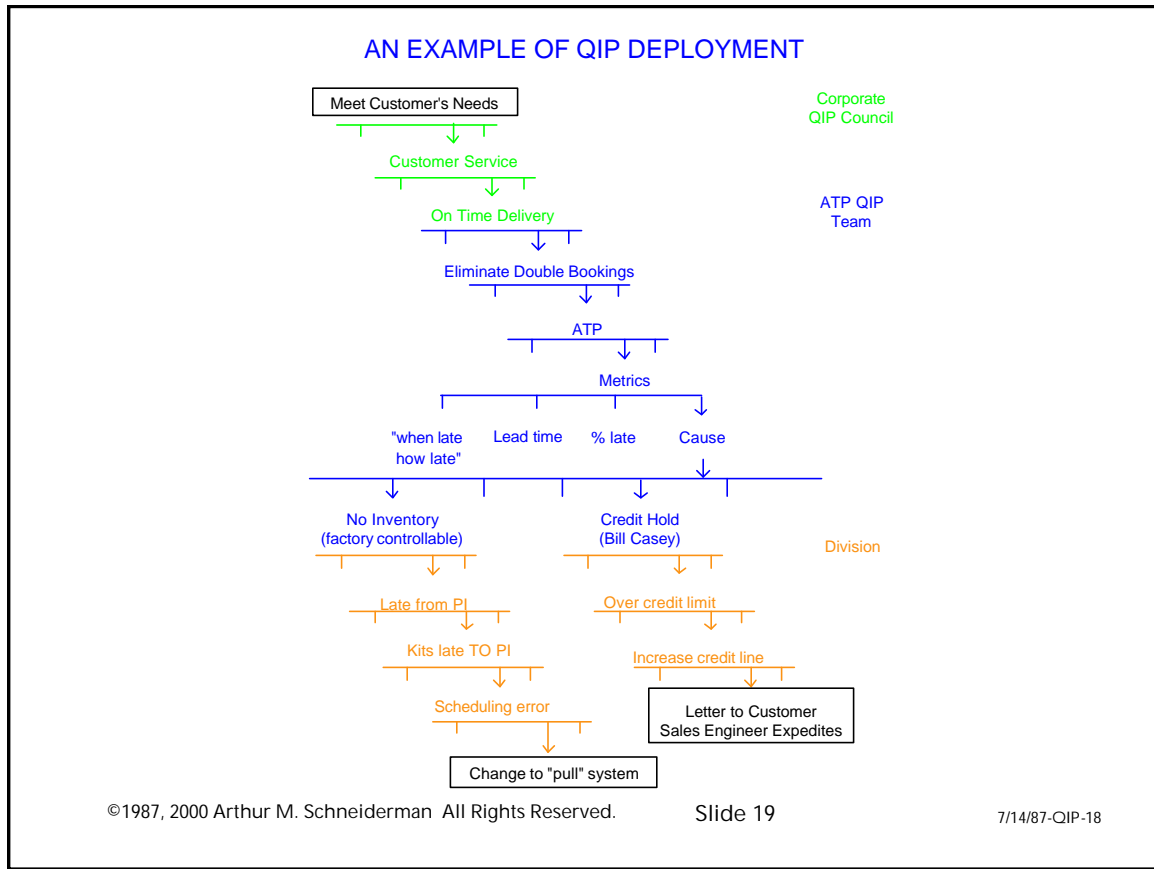
task. I also refer you to my contemporaneous description of this chart in my transcribed.

The next challenge was in determining our 1992 goals for these metrics. First, we used my half-life method to determine where we could be by the end of 1992 through the effective use of QIP's incremental improvement tools and methods. The middle column is the assumed half-life or number of months required to close the gap between current and potential performance by 50%. We then compared these projected performance levels against our customer's perceptions of their future requirements and our expectations of competitor's performance. Fortunately, incremental improvement could get us to where we needed to be: rated #1 by our customers in total value delivered. Had they not, we would have turned to other approaches (reengineering or outsourcing) or been forced to change our strategy.



We recognized the need to deploy our high level goals to the lower levels of the organization, where the actual improvements would occur. I created the above model for Divisional QIP implementation (7/12/87)

The model was straightforward. Corporate goals were disaggregated and deployed to the division level. Each division general manager formed a division QIP council that was modeled after the Corporate QIP Council. They used a combination of Steering and Problem Solving QIP teams to attack each of their deployed goals. Steering QIP teams had the job of chartering two or more problem solving QIP teams to address the largest root causes of the gap between current and potential performance. Membership on the various QIP teams was knowledge, not hierarchical or functionally based. In general, however, divisional staff members chaired Steering QIPs. Each deployed goal had one (or in a few cases two) owner(s) whose job it was to assure that sufficient progress was being made toward the established goal.



Our Corporate Objective committed us to “satisfying our customers' needs.” One of their important needs was an acceptable level of customer service. The major element of customer service is on time delivery. Our steering QIP team identified double bookings as a root cause of late shipments. To eliminate this cause, we needed a major revamp of our order entry system, which we called ATP or “available to promise.”

To dig deeper into the other root causes of late shipments, ATP included a comprehensive set of measures including the cause of each late shipment. One of the major causes was that the customer was on credit hold on the scheduled ship date because they had exceeded their credit limit; solution: arrange for an increase in their credit limit, if appropriate, in advance. Another root cause was late arrival of assemblies from our facility in The Philippines. Here the solution involved a change in the kitting process.

Both of these examples demonstrate the linkage between QIP team activities and Analog’s Corporate Objective.

Slide 20

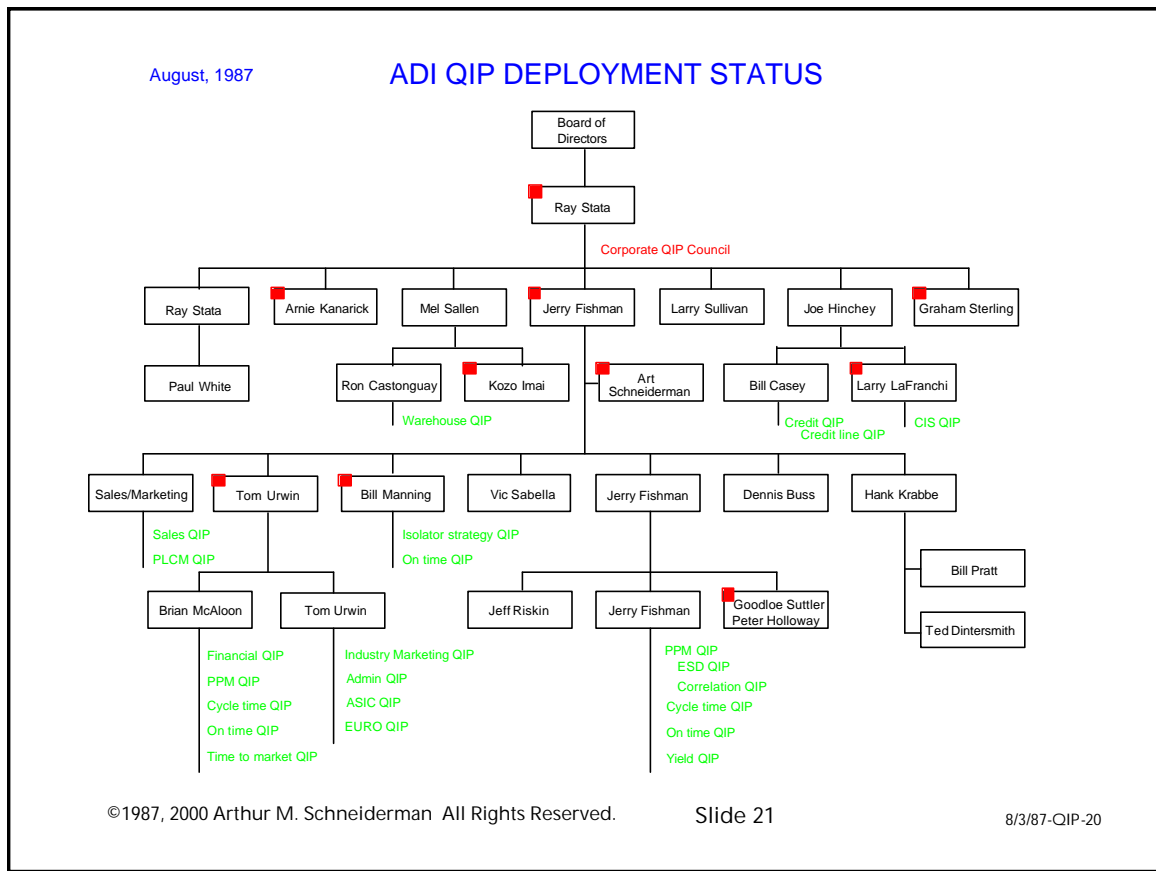
A COMPARISON:		
	TASK FORCE	vs QIP TEAM
objective/ problem statement	general/vague not agreed upon multiple/conflicting	specific
measure	soft	hard
goal: level time frame	unspecified/arbitrary trivial/impossible	clear achievable/stretch
constraints	unidentified unspecified	explicit
perspective	parochial	company -wide
tools	qualitative assertion/opinion horse trading politics/pressure	quantitative 7 tools/SQC 7 new tools experiment design
participation	narrow/exclusive assigned/involuntary	broad welcomed many volunteers
tone	confrontary finger pointing defensive	cooperative constructive
behavior	domination	teamwork
words used	l/your	we/our
stress level	high/shouting	low/laughing
attitude	chore	fun
priority	low	high
meetings	ad hoc	regular
attendance		>95%
personal growth	nil	significant
success	status quo zero sum few winners	improvement + sum many winners self sacrifice
solutions	un-owned un-implemented	owned implemented
RESULTS	SPORADIC	CONTINUOUS

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7/25/87-QIP-19

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Individual ownership is essential for the achievement of aggressive scorecard objectives. This slide showed the Sponsor/Owner of each of the QIP efforts as of August of 1987. The red squares identified members of the Corporate QIP Council. Not only did this slide identify the Sponsor/Owner for every QIP team, but it also showed which managers were not yet involved.