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Operational improvement of the service operations department at Honeywell Process Solutions

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*Operational improvement of
the Service Operations department
at Honeywell Process Solutions*

CENSORED VERSION

by

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dr. ir. I.M.M.J. Reymen

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*"Coming together is a beginning,
Staying together is progress, and
Working together is success."*

Henry Ford

Management Summary

This report concerns a graduation project within the Service Operations department of Honeywell Process Solutions in Amsterdam, The Netherlands. The report is limited to the Energy & Chemicals business and has excluded the Pulp, Paper and Printing business, but the conclusions could be used company wide as the fundamental core problems are primary at the management level. The report is in line with Honeywell's Initiatives, the HPS EMEA Operations Model, the Design for Growth program launched at EMEA level within HPS, and the local initiatives from the Management Team.

An aging workforce and boarding out of services by customers, a highly dynamic environment, the worldwide financial crisis, and hard to find (skilled) resources increases the pressure to deliver quality and safety in the Automation and Control Market. In the long term, the most important factor affecting business performance is the quality of goods and services offered by the organization, relative to its competitors. It costs about four times more to attract new customers, and six times more people hear about a negative customer service experience than hear about a positive one. Further we have seen that customers' service expectations are constantly rising, while their tolerance for poor service is declining. Improving customer satisfaction through "customer centric behavior" is crucial to survive in the long run and to remain and even better gain market share.

> *"What should be done to improve the Service Productivity of the Service Operations department, resulting in improved customer satisfaction".*

From internal and external research by means of attending meetings, personal interviews with Honeywell employees, analysis of Customer Action Request, and analysis of Voice of Customer surveys performed locally by Company X and globally by Global Service Operations it became clear that customer satisfaction is decreasing since Q3-2008.
We also noticed that the Service Productivity of HPS-SO is decreasing since 2006 year over year from xxx in 2006, to yyy in 2007 and zzz in 2008 besides the growth in revenue. Cost effects of internal and capacity efficiency have grown faster than the revenue effects of external and capacity efficiency.

The relative high in- and outflow of Field Service Engineers since 2006 brings that the advanced knowledge level of HPS-SO has decreased and that less billable hours are possible. Class and on-the-job training is crucial to narrow this knowledge gap. Resource planning for a longer period is favorable to balance the workforce with customer demand resulting in increased internal efficiency and so increased productivity and quality.

Another aspect is that the Common Processes and Systems (SAP and Siebel) do not work as anticipated and changed Honeywell's core business processes resulting in an increase of the administrative burden and rework. This aspect has a huge negative impact to employee satisfaction since the introduction of Siebel in 2003 and SAP in 2008. Management should raise concerns higher up in the organization to improve these systems within a specific time-frame.

From the exploratory research based on the VOC surveys and direct Corrective Action Requests, it became clear that customers have most complaints with regard to the "Staff" element of McKinsey (62%) comprising both hard and soft characteristics of employees.
From exploratory research based on attending meetings, interviews with internal employees and internal Corrective Action Requests it became clear that the "Staff" (33%) and "Systems" (59%) element of McKinsey showed off.

The Cause and Effect diagram based on the Stream Analysis Chart of Porras and the 7S-framework from McKinsey applied to HPS-SO showed that many issues reported by customers are symptoms or non-fundamental core problems. This can explain why isolated adjustments to HPS-SO in the past did not seem to work out.

The fundamental core problems are situated in the "Style" element of McKinsey and include Organizational Culture and Management Style, and we know that Culture and Performance are linked. At this moment the baseline on the base values are slipping. It is a combination of slipping of processes (procedures and work instructions), mismatches in present structure, and missing of people management and direct coaching. The management style should be adapted from a "loose delegation of responsibilities" towards a more "direct coaching" approach. The present style of "communicating the message" must be transformed into "securing the message has been understood". The Shared Values must include "customer centric behavior" and should be company wide. The service model should change from a passive or reactive approach to a more strategic or proactive approach in where quality plays a crucial role. The launch of such a "strategic quality management" program requires a clear understanding of the service quality vantage point (definition and vision), customers' expectations, measures of quality, perceived quality, and generic determinants of quality.

The translation of the Honeywell Vision and Strategy to Group and Individual G&Os can be improved and should be SMART. At this moment one has less feeling with the Honeywell Vision and Strategy. Clear G&Os derived from the Vision and Strategy should highlight how the department and individuals can help to achieve or contribute to the five Honeywell Initiatives Growth, Productivity, Cash, People, and Enablers. Judgment and Reward should be key to continuously improve employee behavior and performance as the willingness to change is low.

Other aspects such as poor hardware/software, long lead times with regard to spare parts and repairs, and the pricing model should be tackled at a higher level as these are out of control of the Dutch affiliate. As price is a perception, creating understanding and value for money are the key drivers to counterstrike this issue reported by customers.

Three scenarios, based on the 7S-framework of McKinsey, are illustrated how to improve the service productivity of HPS-SO resulting in increased customer satisfaction.

The *Ambiguous* scenario's primary objective for HPS-SO is to drive maximization of customer satisfaction by delivering "best in class service" to HPS customers through the optimal deployment of customer care skills and behavior of the workforce. Competence Development with respect to Personnel Development should be top priority, and from research it became clear that coaching will give the best result. Competencies which should be considered are technical (product values), economic (service values), behavior (relation values), and professional (service values). It provides a framework that clearly defines how to improve customer satisfaction. The shared values and beliefs that "customer should be central" including the quality and safety objective, will be company wide and does not only affect HPS-SO. A market-led strategy which meets the desire to be better than the competition must be presents. The present organizational structure does reflect this marketing strategy, but G&Os must be SMART. Implementation requires clear communication of strategy and involves people, incentives, communications and persuasion. Top-down management attention is a key issue to reach the desired goals. Managing Change should be provided through power (Direct Coaching and Performance and Development) and reeducation (Training). For all specific actions refer to Table 5 and Table 6 in chapter 9.

The *Realistic* scenario comprises adjustments in the Culture and Management Style and in two out of three Staff elements and a few aspects from the Systems (Processes and Procedures) element. As budget for training is limited, we will apply all aspect from the Ambiguous Scenario, but training will be limited to employees making part of the pilot project for a real customer to see if improvements occur.

The *Minimalistic* scenario comprises adjustments in Culture and Management Style and improvement of the Staff element "Poor communication and poor feedback" as these can be quick wins. For the specific actions refer to Table 7 in chapter 9.

Foreword

Honeywell Process Solutions, Service Operations department was the place I performed my graduation assignment to obtain the title of Master of Science (MSc. or Ir.) in Industrial Engineering and Management Science from the University of Technology in Eindhoven, The Netherlands. It is the result of a 9-10 months graduation period started at October 1st 2008 and ending July 23rd 2009.

I started the 5-year "shortened program" program in September 2003 as an evening student as I had already obtained a Bachelors Degree (Ing.) in Aeronautical Engineering at the Technical University for Professional Education in Amsterdam in July 2000. It was the challenge to get a better and deeper understanding of business processes from a research perspective with a technical touch. The many ups and downs in the last 6 years and the transformation to the Bachelor-Master Structure caused many problems to complete the course. Opposition of the Executive Board, the "Technology Management" Faculty and other institutions were conquered and the result of a MSc degree has been achieved.
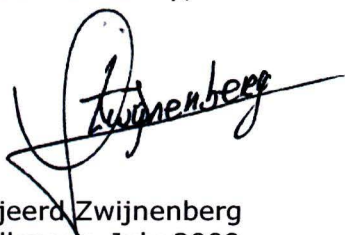
The choice for the Honeywell Process Solutions Service Operation department and more specific for the Chemicals & Energy business, resulted from the fact that I work for Honeywell Process Solutions since December 2001. I started as a Field Service Engineer in the Pulp, Paper and Printing business, performed the function of Sales Support Engineer for a few years and grow up to Account Manager in 2007. My professional background in various departments, interest for Organizational Science, and an existing management issue resulted in this graduation assignment.

I would like to thank all employees of Honeywell Process Solutions in The Netherlands who have co-operated with me, and especially the company tutor and Field Service Leader Mr. Robert Willems and Quality Leader Patrick van Klink for their time, interest and positive attitude towards my graduation assignment;
Dr. Allard Kastelein, TU/e supervisor, for giving me the opportunity to perform this research, his flexible approach and possibility to finish my study before the deadline of September 1st, 2009. Also I would like to thank Dr. Ir. Isabelle Reymen for being the second TU/e supervisor in a very short timeframe and advising me were needed;
Last but not least, I want to thank my girlfriend Nancy for her confidence and almost unlimited support to finish my study. I think she can sit back for the coming year ... and all I can say is "at your service".

Yours sincerely,

Tjeerd Zwijnenberg
Alkmaar, July 2009

Table of Contents

List of Abbreviations

a.o.	Among others
ACS	Automation and Control Solutions
AM	Americas
AM	Account Manager
AMS	After Market Service
AOP	Annual Operating Plan
AP	Asia Pacific
ASN	Antwoord Service Nederland
BU	Business Unit
C&E	Cause and Effect
CAR	Corrective Action Request
CEO	Chief Executive Officer
CP/S	Common Process and Systems
CRM	Customer Relationship Management
CSL	Continuous Support Lead
DL	Discipline Lead
E&C	Energy & Chemicals
ECC	Environmental and Combustion Controls
EMEA	Europe, Middle East and Africa
ERP	Enterprise Resource Planning
FSE	Field Service Engineers
FSL	Field Service Leader
FTI	Functional Transformation Initiative
G&O	Goal & Objective
GCCC	Global Customer Care Center
GSO	Global Service Operations
HBS	Honeywell Building Solutions
HOS	Honeywell Operating System
HPD	Honeywell Performance & Development
HPS	Honeywell Process Solutions
HPS-SO	HPS Service Operations
HR	Human Resources
HSDC	Honeywell Security and Data Collection
HSE	Health, Safety and Environment
HVAC	Heating Ventilation and Air Conditioning
ISC	Integrated Supply Chain
ISO	International Standardization Organization
IT	Information Technology
KPI	Key Performance Indicator
LMS	Learning Management System
MAC	Main Automation Contracting
MOC	Management of Change
MPA	Master Purchase Agreement
MRR	Management Resource Review
MSc.	Master of Science
MT	Management Team
NEC	Nippon Electric Company
NL01	HPS Affiliate Amsterdam
NL33	HPS Affiliate Den Bosch (SMS)
OEM	Original Equipment Manufacturer
OSU	Operational Support Unit
P&L	Profit & Loss

PAR	Product Anomaly Report
QA	Quality Assurance
QMS	Quality Management System
RCA	Root Cause Analysis
RFQ	Request for Quotation
ROI	Return on Investment
S&C	Sensing and Control
SBE	Strategic Business Group
SL	Service Lead
SM	Specialty Materials
SMART	Specific, Measurable, Agreed Upon, Realistic, and Time Based.
SMS	Safety Management Systems
SOL	Service Operations Leader
SR	Service Request
STRAP	Strategic Plan
T&E	Time & Expense
TS	Transportation Systems
TU/e	University of Technology in Eindhoven
USA	United States of America
VOC	Voice of the Customer
VPD	Velocity Product Development
w.r.t.	With regard to

Introduction

This report is the Master thesis which is the final step for obtaining the Master of Science degree in Industrial Engineering and Management Science at the University of Technology in Eindhoven, The Netherlands.

An aging workforce and boarding out of services by customers, a highly dynamic environment, the worldwide financial crisis, and hard to find (skilled) resources increases the pressure to deliver quality and safety in the Automation and Control Market. Last years it became clear from internal and external signals that the quality and efficiency of the After Market Services delivered by the HPS Service Operations department are decreasing and that valuable money is lost due to non-optimized service delivery. Isolated adjustments to the Service Operations department did not seem to work out and the Field Service Leader started an Operational Improvement Plan.

This report concerns the improvement of the Service Productivity of the Service Operations department at Honeywell Process Solutions and more specific the Energy & Chemicals business. The objective is to provide guidelines how to improve customer satisfaction based on a root cause analysis and the seven elements of the 7S- framework of McKinsey. The report can be used as a basis to support the Operational Improvement Plan.

The research project has been performed according to the Research Process of Kempen and Keizer (2000) in where the formulation of the Research Questions is based on the first steps of the Research Process from Cooper and Schindler (2003).

The report will start with an introduction of Honeywell Incorporated and more specific to the Business Group Automation and Control Solutions, and the Market and Industry Trends in the Automation & Control market (Chapter 1). The next chapter defines the Management Dilemma, Management Question, and Research Questions used in this report (Chapter 2) and the used Research Approach (Chapter 3). The next chapter describes concepts related to Service Quality obtained by literature research. These subjects include a.o. Customer Value and Satisfaction, Unique Characteristics of Services, Efficiency and Effectiveness, and Service Productivity according to Grönroos and Ojasalo (2004) and will be the end of the Orientation Phase (Chapter 4). The Research and Analysis Phase, starts with qualitative research in the form of group discussions and face-to-face interviews with key persons from the organization who work in or with the Service Operations department. The obtained information together with additional exploratory research resulted in input data for the description of the Service Operations department by means of the 7S-framework of McKinsey (Chapter 5).

Data collection by means of participation of meetings, personal interviews with key persons, internal and external Voice of Customer surveys, and internal and direct Customer Action Requests provided the primary (raw) information to conduct a Root Cause Analysis based on the seven elements of the McKinsey 7S-framework and the Stream Analysis method of Porras (Chapter 6). After all data has been analyzed, we can provide the Research Results based on all relevant and available information from chapter one till six (Chapter 7). In-depth literature research to Communication, Human Performance Indicators and Service Quality and Excellence has been performed to find solutions for the top two ranked priorities from the Staff element of McKinsey (Chapter 8). Finally the Conclusions and Recommendations will be presented to improve the Service Productivity of HPS-SO which should lead to improved Customer Satisfaction including guidelines for a pilot implementation plan for a real customer (Chapter 9).

1. Company Description

This chapter will give an introduction of Honeywell International Incorporated and its four strategic business groups and how it all begun (1.1 and 1.2). Deeper focus will be given to the strategic business group Automation and Control Solutions, in where the business unit Honeywell Process Solutions is located (1.2). Market and industry trends will be highlighted and finally focus is given to the Dutch Service Operations department within Honeywell Process Solutions in where the graduation will be done (1.3).

1.1 History

Honeywell's history originates from the year 1885, where Albert Butz invented and patented a furnace regulator and alarm. The company was born on April 23 in the year 1886 in Minneapolis (USA) and was named the Butz Thermo-Electric Regulator Co. The first invention was the "damper flapper", a kind of thermostat. Acquisitions by other companies changed the original naming of the company to Electric Heat Regulator Co. (1898) and Minneapolis Heat Regulator Company (1916).

Parallel to this in 1906 Mark Honeywell formed Honeywell Heating Specialty Co, incorporated, specialized in hot water heat generators.

In the year 1927 both companies merged to the Minneapolis-Honeywell Regulator Co., which became the largest producer of high-quality jeweled clocks. Acquisitions in the control area of e.g. the Brown Instrument Co. (a worldwide leader in the field of industrial controls and indicators, and inventor of the pyrometer) and Time-O-Stat Controls Corporation were the start for global expansion. In 1934, the first office outside the U.S. was established in Toronto (Canada), followed by the first European subsidiary established in the Netherlands the same year. Adaptation to changing environments resulted in a wide portfolio of aeronautical equipment during the 1940's. In 1953 the well-known T-86 "Round" thermostat was born.

Several other acquisitions and mergers made the company grow fast during the 70's, 80' and 90's. In 1970 Honeywell merged its computer business with General Electric's which resulted in Honeywell Information Systems. Honeywell Bull, a global joint venture with Compagnie des Machines Bull of France and NEC Corporation of Japan, was formed in 1986 and in 1991 Honeywell sold it's level of ownership.

To strengthen Honeywell's position in the aerospace industry, the company acquired Sperry Aerospace in 1986 and became the world's leading integrator of avionics systems.

Throughout the 90's, The CEO of AlliedSignal led a growth and productivity transformation that quintupled the market value of AlliedSignal shares and significantly outperformed the Dow Jones Industrial Average and the S&P 500. In 1999 Honeywell merged with AlliedSignal resulting in Honeywell Inc, which is nowadays one of the world's leading companies and still expanding.

1.2 Honeywell International Inc.

Honeywell International Inc., a diversified technology and manufacturing leader employs over 125,000 employees in more than 100 countries worldwide and is a Fortune 100 company. It is a global leader in advanced technology products, services and solutions resulting in over 11.000 active patents.

Figure 1 outlines the 2007 sales in $Billions for the different Strategic Business Groups (SBEs) of Honeywell International.
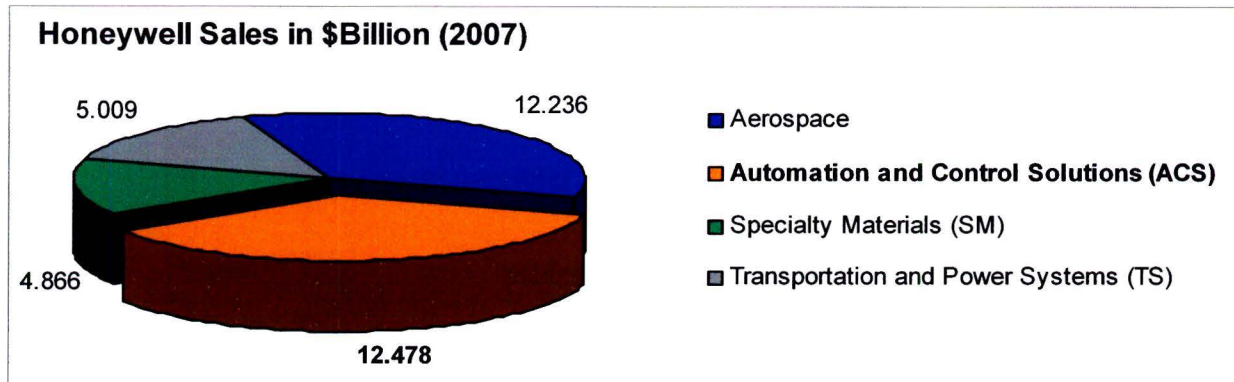
Honeywell Sales in $Billion (2007)

- Aerospace
- **Automation and Control Solutions (ACS)**
- Specialty Materials (SM)
- Transportation and Power Systems (TS)

5.009   12.236

4.866

12.478

Figure 1 - Honeywell Inc 2007 Sales

Honeywell International has four Strategic Business Groups:

1. *Aerospace:* A $12.2 billion strategic business group and leading global provider of integrated avionics, engines, systems and service solutions for aircraft manufacturers, airlines, business and general aviation, military, space and airport operations. Some customers are Boeing, Lockheed Martin, U.S. Dept. of Defense, NASA, Sikorsky, and others.
2. *Automation and Control Solutions (ACS)*: A $12.5 billion strategic business group applying sensing and control expertise that helps create safer, more comfortable, more secure and more productive environments.
3. *Specialty Materials (SM)*: A $4.9 billion strategic business group and world-leader in high performance materials such as Fluorocarbons, specialty films, and advanced fibers.
4. *Transportation Systems (TS)*: A $5.0 billion strategic business group and leading innovator of automotive turbochargers with key aspects in engine downsizing, emissions, and fuel efficiency. Also producer of consumer automotive product brands.

As the graduation assignment will be done within Honeywell Process Solutions (HPS), the focus will be on this Business Group of Honeywell Automation and Control Solutions (ACS), applying sensing and control expertise.

1.2.1 Honeywell Automation and Control Solutions

Honeywell Automation and Control Solutions (ACS) is one of the four SBEs, and is applying sensing and control expertise that helps create safer, more comfortable, more secure and more productive environments. ACS has around 70.000 employees worldwide.

The ACS business has growth from $7B in 2002 to $12B in 2007, contained over 35 acquisitions, tripled new product introductions and geographically expanded to the Middle East, Asia, and Eastern Europe.

ACS's primary areas of focus for 2008 included:

- Extending technology leadership: lowest total installed cost and integrated product solutions.
- Defending and extending the installed base through customer productivity and globalization.
- Sustaining strong brand recognition through brand and channel management.
- Centralization and standardization of global software development capabilities.
- Acquisition execution and integration.
- Continuing to establish emerging markets presence and capability.

Figure 2 outlines the 2007 ACS Business Groups percentage of sales for ACS as total.
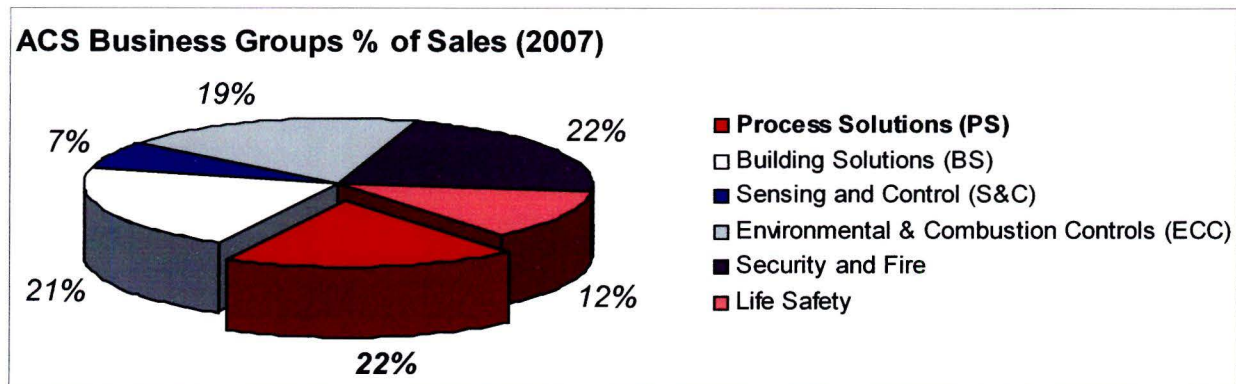
ACS Business Groups % of Sales (2007)

- ■ Process Solutions (PS)
- □ Building Solutions (BS)
- ■ Sensing and Control (S&C)
- ▨ Environmental & Combustion Controls (ECC)
- ■ Security and Fire
- ▨ Life Safety

Figure 2 - ACS Business Groups % of 2007 Sales

The 6 Business Units (BU) of ACS are:

1. *Environmental and Combustion Controls*: Honeywell Environmental and Combustion Controls (ECC) provides integrated product solutions in heating, ventilation, cooling and refrigeration, air purification, zoning, humidification, air conditioning, water controls and processes, electrical devices and systems, lighting control, buildings and industrial controls, switches, sensors and controllers. Customers include Original Equipment Manufacturers (OEM), commercial customers, homeowners, contractors, retail, building managers, consulting Engineers and distributors.
2. *Sensing and Control*: Honeywell Sensing and Control (S&C) is a leading supplier of sensors, switches, machine safeguarding and other devices for OEM applications. Customers can be found in commercial, medical, aerospace, industrial, and consumer appliances.
3. *Security and Data Management*: Honeywell Security and Data Collection (HSDC) is a leading supplier and distributor of electronic security systems and solutions such as Security & Custom Electronics, Video Systems, Access Systems and Distribution.
4. *Life Safety*: Honeywell Life Safety (HLS) has a global leadership position in many industries containing personal protective equipment, fire and smoke detection, and gas detection.
5. *Building Solutions*: Honeywell Building Solutions (HBS) installs, integrates and maintains systems that keep buildings and facilities safe, secure, comfortable, productive and energy-efficient. HBS services critical building systems e.g. Heating Ventilation and Air Conditioning (HVAC), building automation, fire, security, and energy management. Facilities and buildings can be government, education, airport, commercial, and industrial.
6. *Process Solutions*: Honeywell Process Solutions (HPS) provides a full range of automation and control solutions for industrial plants, offering advanced software and automation systems that integrate, control and monitor complex processes in many types of industrial settings.

The three main vertical markets for ACS including driving trends favoring ACS are displayed in Table 1 below.

Table 1 - Macro trends in vertical ACS markets

Vertical market	Macro trends
1. Buildings	- Energy Costs - Safety/Security - Regulation/Codes
2. Homes	- Energy Efficiency - Convenience/Control - Technology
3. Industrial	- Productivity - Safety/Security - Monitor/Control

1.2.2 Honeywell Process Solutions

HPS provides automation industry solutions, equipment and services to improve customers' business performance. The offerings range from up-front consulting and front-end loading, to life-cycle management and outsourcing, to Main Automation Contracting (MAC), to construction and project startup services, to advanced application software and project Engineering services, to control and safety platforms, to instrument measurement & control products and parts management.
Industries vary from Oil & Gas to Refining, and from Petrochemicals to Power, Mining, Minerals & Metals, Pharmaceuticals, Life Sciences, and Pulp, Paper, Printing, & CWS.
For more information about HPS, refer to chapter 2, which describes the Dutch HPS organization with use of the 7S-framework of McKinsey.

Honeywell's competitors for HPS are among others ABB, Siemens, Emerson Process Management, Rockwell Automation, Invensys, Yokogawa and Yamatake.

1.3 Market and Industry Trends

The Global Automation & Control market is worth around $160B, in which Honeywell ACS is the largest player with $12.5B (YR2007). The overall market has been growing in the 4 to 5% range, but will be less or even negative due to the worldwide economic financial crisis in 2009 and probably coming years. Macro economic trends in the Automation & Control market are Safety, Energy, Productivity, Comfort and Security.

Some import economic and other factors are a.o. the growth of global commercial construction, the demand for residential security and environmental control retrofits and upgrades, industrial production, U.S. and European economic conditions, economic growth rates in emerging markets, the strength of capital spending on process (including petrochemical and refining) and building automation, and changes to energy, fire, security, health care, safety and environmental concerns and regulations.

Industry and economic conditions may adversely affect the market and operating conditions of customers, which in turn can affect demand for products and services. At this moment the worldwide financial crisis has a huge negative effect to the level of global residential and commercial construction (including retrofits and upgrades), capital spending on building and process automation, industrial plant capacity utilization and expansion, and global economic growth rates.
Raw material price fluctuations and the ability of key suppliers to meet quality and delivery requirements can increase the cost of products and services and impact the ability to meet commitments to customers. This includes failure of suppliers, as well as external events e.g. natural disasters, terrorist actions, governmental actions, etc.

Future growth is largely dependent upon the ability to develop new technologies that achieve market acceptance with acceptable margins. The ACS businesses operate in global markets that are characterized by rapidly changing technologies and evolving industry standards.

Risks related to international operations include exchange control regulations, wage and price controls, employment regulations, foreign investment laws, import and trade restrictions (including embargoes), changes in regulations regarding transactions with state-owned enterprises, nationalization of private enterprises, government instability and the ability to hire and maintain qualified staff in these regions. The cost of compliance with increasingly complex and often conflicting regulations worldwide can also impair the flexibility in modifying product, marketing, pricing or other strategies for growing the businesses, as well as the ability to improve productivity and maintain acceptable operating margins.

Completed acquisitions may not perform as anticipated or be integrated as planned, and divestitures may not occur as planned. Results of operations and cash flows may be adversely impacted by:

1. The failure of acquired businesses to meet or exceed expected returns.
2. The discovery of unanticipated issues or liabilities.
3. The failure to integrate acquired businesses into Honeywell on schedule and/or to achieve synergies in the planned amount or within the expected timeframe.
4. The inability to dispose of non-core assets and businesses on satisfactory terms and conditions and within the expected timeframe.

Volatility of credit markets and macro-economic factors may increase the cost of financing changes in U.S. and global financial and equity markets, including market disruptions, limited liquidity and interest rate fluctuations, may increase the cost of financing. In addition, the borrowing costs can be affected by short and long-term ratings assigned by independent rating agencies.

As graduation is done within HPS, The Netherlands a more detailed focus is given to this local Industrial market, in which Productivity, Safety & Security, and Monitor & Control are the macro trends.

The environment for manufacturing within Western Europe is experiencing slower growth, but the long-term trend for both new orders and industrial production remains positive. Future growth rate depends upon a number of factors, including the ability to:

1. Identify emerging technological trends in target end-markets.
2. Develop and maintain competitive products.
3. Enhance products by adding innovative features that differentiate products from those of competitors.
4. Develop, manufacture and bring products to market quickly and cost-effectively.
5. Develop and retain individuals with the requisite expertise.

A general conclusions of the issues and trends shaping the Process Industry (Honeywell's customers) is that:

> *"Fewer skilled people must respond faster, handle more complex processes, make better decisions, with bigger consequences."*

2. Research Assignment

For formulating the Research Questions, the first part of the Research Process from Cooper and Schindler (2003) will be used. This chapter will discuss the formulating of the research questions according to the flow chart in Figure 3.

Figure 3 - Research Process from Cooper and Schindler
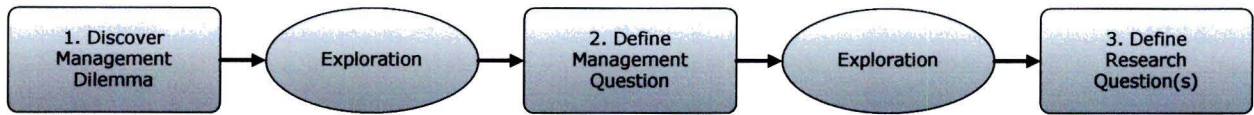
Starting with the Management Dilemma (2.1), we will perform some basic research to be able to define the initial Management Question (2.2). The Management Question will finally lead to the Research Questions for the different phases of the Research Process (2.3).

2.1 Management Dilemma

Last years it became clear from internal and external signals that the quality and efficiency of the After Market Services (AMS) delivered by the HPS Service Operations (HPS-SO) department is decreasing and that valuable money is lost due to refunds of poor delivered services. Adjustments to the Service Operations department structure did not work and the Field Service Leader decided to work out an Operational Improvement Plan for 2009.

An aging workforce and boarding out of services by customers, a highly dynamic environment, and hard to find (skilled) resources increases the pressure to deliver quality and safety by Honeywell to retain customers in the future, to outperform the competition, and to improve operational results. Honeywell Common Process and Systems (CP/S) forced the Dutch affiliate to work with a new Customer Relationship Management Tool (Siebel) in 2003 and with a new global Enterprise Resource Planning system (SAP) and new global Expense Reporting Tool (Concur) since Q3 2008. This led to a higher workload as generating input has partly shifted from the back-office to the field and the desired advantages are not as anticipated increasing the administrative burden and leading to rework.

As a start of the operational improvement plan, end of 2008, Cluster Leads were transformed to Service Leads with extended operational responsibilities and an Operational Improvement Plan was introduced with a focus to quality. Parallel to this more focus was given by the Management Team (MT) to HSE[1] and Quality by creating an additional quality function.

As actions in the past did not lead to the desired quality improvements, management is looking to another approach to raise the feasibility for success of this Operational Improvement Plan. Besides this, a lack of time due to daily business, management promotions, and a focus to cost savings due to global economic downturns slows down the Operational Improvement Plan. Finding the Root Causes and providing guidelines will increase the change for a successful Operational Improvement Plan.

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[1] HSE stands for Health, Safety and Environment

2.2 Management Question

The initial management or main question is as follows:

> *"What should be done to improve the operational efficiency of the Service Operations department, resulting in improved customer satisfaction and a shorter lead-time concerning service requests."*

2.3 Research Questions

Based on the Management Question in paragraph 2.2, a number of Research Questions have to be formulated for the different phases of the Research Process according to Kempen and Keizer (2000).

2.3.1 Orientation Phase

Research Questions for the Orientating Phase are:

1. How is Customer Value and Satisfaction defined?
2. What are the characteristics of services?
3. What major determinants do affect operational efficiency and how do we measure this?

After the Orientating Phase the Main Management Question has been changed to:

> *"What should be done to improve the Service Productivity of the Service Operations department, resulting in improved customer satisfaction".*

2.3.2 Research and Analysis Phase

Research Questions for Research and Analysis Phase are:

4. Which elements of the 7S-framework of McKinsey cause most problems?
5. What are the Root Causes for the quality decrease?
6. What can be done to eliminate or reduce the Root Causes?

2.3.3 Implementation Phase

As time is limited we will not take care of the implementation itself. Providing Guidelines to improve the operational efficiency of the Service Operations department resulting in improved customer satisfaction and a pilot plan for a real customer should prove the suitability of this graduation assignment.

3. Research Approach

The Research Approach presented in this chapter will be based on the Research Process according to Kempen and Keizer (2000).

In the first step, *The Orientating Phase*, exploratory research is used, to get a better understanding of Honeywell Process Solutions and the Market and Industry Trends in the Automation & Control market (Chapter 1). We make use of secondary research via examination of internal records and reports previously carried out within Honeywell and external sources such as internet. Chapter one provides the basis to define the Research Assignment, consisting out of the Management Dilemma, Management Question, and Research Questions (Chapter 2). From the Research Assignment, the Research Approach will be decided according to Figure 4 (Chapter 3). Exploratory Research to concepts related to the Management Question provides us the basis (Chapter 4) for step 2, the Research and Analysis Phase. The *Research and Analysis Phase*, starts with qualitative research in the form of group discussions and face-to-face interviews with key persons from the organization who work in or with the Service Operations department. Information from the open question interviews results in primary information input for a more detailed analysis of the Service Operations department with help of the 7S-framework of McKinsey (Chapter 5). In-depth explorative research consisting out of participation to the service kickoff meeting w.r.t. operational restructure, personal interviews with key persons, internal and external Voice of Customer (VOC) surveys, and Customer Action Requests (CAR) provides primary (raw) information to conduct a Root Cause Analysis based on the seven elements of the McKinsey 7S-framework (Chapter 6 and 7). From analysis of the findings, the problem elements of the 7S-framework of McKinsey will become clear and in-depth research will be performed for a better understanding of the summarized issues (Chapter 8). Finally the conclusions and guidelines based on information collected and analyzed in Chapter 1 till 8 will be presented to support the Operational Improvement Plan including a Pilot Implementation Plan for a real customer (Chapter 9).

Company Description (CH1)
History
Honeywell Inc.
Market and Industry Trends

Research Assignment (CH2)
Management Dilemma
Management Question
Research Questions

Research Approach (CH3)
Research Model

Service Quality (CH4)
Customer Value and Satisfaction
Unique Characteristics of Services
Efficiency and Effectiveness
Service Productivity

Explorative Research (CH6)
Personal Interviews
& Meetings

Analysis of HPS-SO (CH5)
Description of HPS by
7S-Framework of McKinsey

Voice of the Customer
Customer Action Requests
Stream Analysis of Porras

Research Results (CH7)
Research Results

Additional Literature Research (CH8)
Communication Model
Human Performance Indicators
Service Quality and Excellence

Guidelines & Recommendations (CH9)
Ambiguous, Realistic and Minimalistic
Scenario

Implementation Phase
(Out of scope)

Improved Service Productivity of the Service Operations department, resulting in improved customer satisfaction

Orientating Phase

Research and Analysis Phase
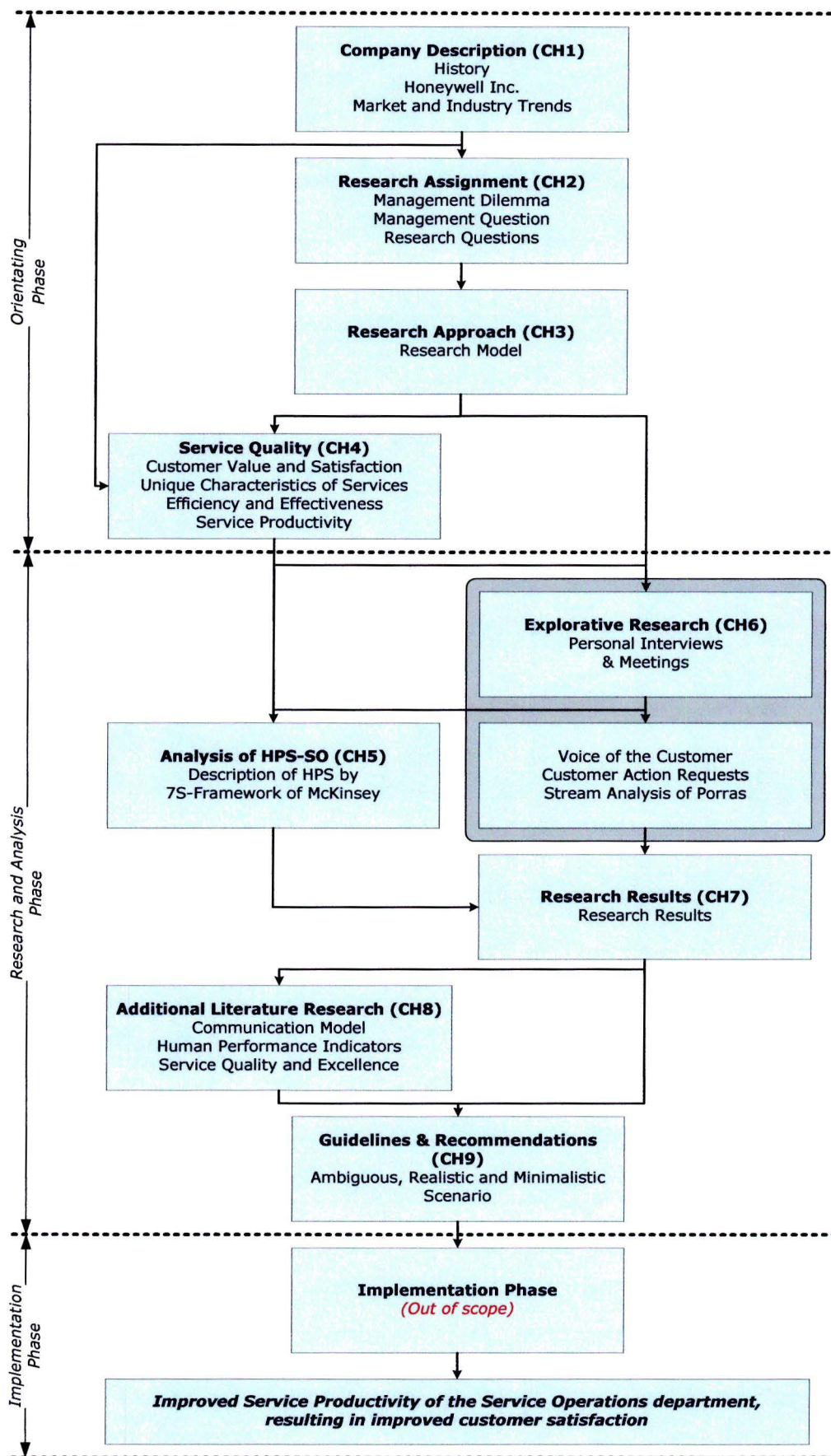
Implementation Phase

Figure 4 - Research Approach

4. Service Quality

Service quality is considered a critical determinant of competitiveness (Lewis, 1989). Attention to service quality can differentiate Honeywell from its competitors and through it gain a lasting competitive advantage. High quality of service is considered an essential determinant of the long-term profitability for both service and manufacturing organizations, which applies to Honeywell Process Solutions. To retain and expand the installed base, both service and product quality are key aspects. Within this report we will only focus on service quality as we can assume product quality as a given which is out of control for the local Dutch affiliate.

Before we will start to answer the Research Questions, we have to get a better understanding of the theory related to:

- Customer Value and Satisfaction   (4.1)
- Unique Characteristics of Services   (4.2)
- Efficiency and Effectiveness   (4.3)
- Service Productivity   (4.4)

4.1 Customer Value and satisfaction

For long term commercial success of HPS, profitability is one of the most important factors and is directly related to revenue minus cost. Revenue on the other hand is based on sales volume times price in where price is the price level customers are willing to pay. Sheridan (1994) and Gale (1994) say that both sales volume as price level are mostly determined by customer value. Customer value is of great importance to attract and retain customers, and the goal is to meet and exceed customer needs better than the competition.

> *Customer value = perceived benefits – perceived sacrifice*

Perceived benefits can be derived from the product, the associated service, and the image of the company. In contrast, perceived sacrifice is the total cost associated with buying the product, such as monetary costs, time, and energy involved in the purchase.

Kai Yang (2007) defines three types of perceived benefits and liabilities. With regard to *"perceived benefits"* we can make distinction between (1) functional, (2) psychological, and (3) service and convenience benefits. *Functional benefits* are the actual benefits of the product/service delivered to the customer; what it does. Reliability, quality and durability are also part of these functional benefits. At the other hand *psychological benefits* include a.o. emotional benefits, self-expression benefits, and brand image. At last *service and convenience benefits* include availability, the ease of accessing a product or service, and the ease of getting help in case of product problems or failure.
With regard to the *"perceived liabilities"*, we can make distinction between (1) economic, (2) psychological, and (3) service and convenience liabilities. The *economic liabilities* include the price, acquisition cost, usage cost, maintenance cost, ownership cost, and disposal cost. The *psychological liabilities* comprise a.o. the uncertainty about the dependability of the product or service, self esteem liability of using an unknown brand, and the change of poor performance. At last the *service and convenience liabilities* deal with liabilities due to a lack of service, due to poor services, and due to poor availability such as long delivery time.

One has to be aware that management focuses at functional aspects and economical factors, such as cost and Return on Investment (ROI). At the other side, the end users look also to the other aspect mentioned above.

Customer satisfaction occurs when perceived performance matches or exceeds expectations and therefore perception is of great importance. Expectations are based on suppliers' marketing activities, pre-buying experiences, and discussions with others. According to the Kano model of Kano (1984), illustrated in Figure 5 at the right, we see that there is a minimum level in customer satisfaction that is taken for granted, the so called "threshold" characteristic. At the other end we have the "excitement" characteristics, which are the unexpected characteristics that surprise customers. A competitive product (or service) for example should meet basic attributes, should maximize performances attributes, and should include as many "excitement" attributes as possible at a competitive cost.
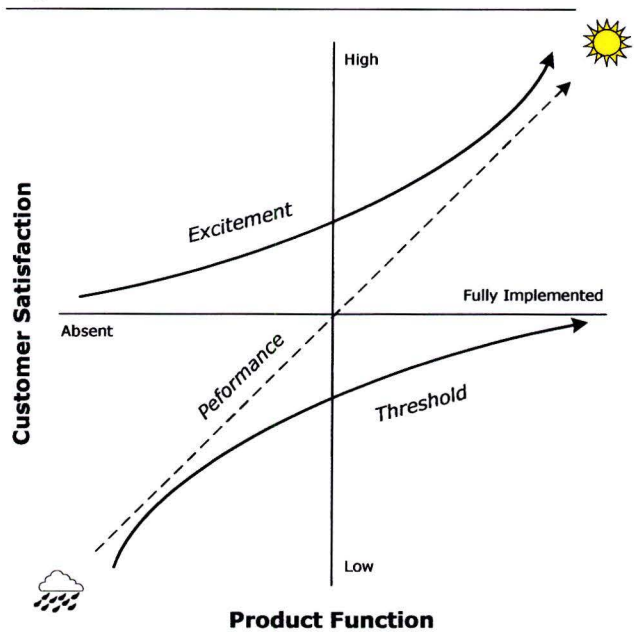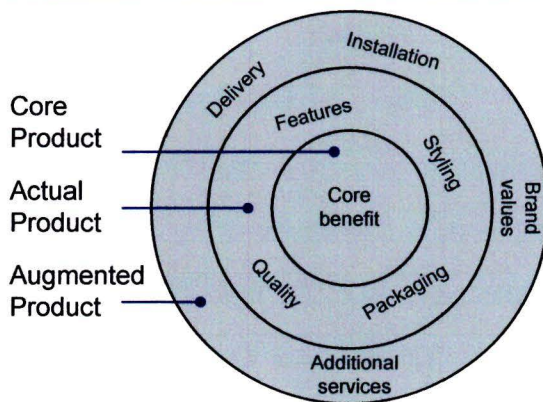
Figure 5 - Kano Model

Figure 6–
Three levels of product or service

What we see from Figure 6 is that one can think in terms of different levels of product/service (Jobber and Fahy, 2003). The most basic level is the core benefit of the product/service and provides the basic functionality to be delivered. Understanding the core product/service means understanding potential sources of competition. Around the core product, one can find the actual product the customer buys, containing certain features, styling, packaging, etc. designed to meet the needs of the market. The third level of the product/service is called the augmented product/service and comprises an additional bundle of benefits, such as brand values, delivery time, installation, and additional services such as guarantees and warranty.

As Technical / brand dominance is difficult against the biggest competitors, Honeywell should focus to customer-centric innovation according to Kai Young (2007).

From research (Ghobadian et all, 1994) it became clear that companies with perceived high quality goods and services typically had higher market share, higher return on investment and asset turnover than companies with perceived low quality. In the long term, the most important factor affecting business performance is the quality of goods and services offered by the organization, relative to its competitors.

4.2 Unique characteristics of services

Before we will start to investigate the concepts or determinants which are key to this graduation assignment, we will start with the characteristics of services. One can distinguish four key features of services:

1. *Intangibility:* Pure services are intangible and cannot be noted before they are bought. A service is a deed, performance, or effort. Evaluation is very difficult, even if the service has been performed. The challenge for Honeywell is to use tangible cues for service quality.
2. *Inseparability:* Inseparability means that services have simultaneous production and consumption. The service must be provided at the right time, the right place, and in the right way. Customer perception plays an important role. Relationship marketing and internal marketing are crucial to counterpart this issue. Relationship marketing leads to increased purchases, customer referrals, and brand loyalty. Internal marketing at the other hand, refers to the training of, communications with and motivation of employees.
3. *Variability:* Services are conducted at multiple locations, by people who vary in attitude, and are subject to simultaneous production and consumption. This makes it difficult to compare and to control quality. A way to reduce this issue, is to standardize services within a certain framework.
4. *Perishability:* Services cannot be stored and therefore matching supply and demand is important. Part-time staff and multi-skilled (supply flexibility) staff are solutions to match peak demands.

4.3 Efficiency and effectiveness

An important perspective to understand customer orientation is the distinction between efficiency and effectiveness. *Efficiency* is concerned with inputs and outputs. *Effectiveness* at the other hand means doing the right thing, such as operating in attractive markets and providing services the customer wants.

The Figure in Appendix I sets out where HPS-SO stands at this moment, and where it should go to deliver high quality with a cost focus, so it will be competitive in the process automation market. At this moment the company "*survives*", but should be more customer and cost focused, so it "*does well or thrives*". An efficient en effective approach is key to expand the installed base and to meet the expectations of the customers.

It is the combination of both efficiency and effectiveness that leads to an optimum. Taking a closer look to effectiveness, one must be aware that there are three perspectives on effectiveness (Gibson et all, 2003).

1. Individual effectiveness: This is the most basic level and includes the task performance (parts of jobs or positions) of specific employees of the organization. Judgment is done by means of the yearly performance evaluation which results in salary increases, promotions, and other rewards, such as the bronze, silver and gold star award.
2. Group effectiveness: Employees seldom work alone, but work in groups. Group effectiveness is simply the sum of the contributions of all the group members. As there are many disciplines within HPS-SO, we have to strive to synergy, as this increases the group effectiveness to a level above the sum of the individuals.
3. Organizational effectiveness: Organizational effectiveness consists of group and individual effectiveness. Again synergistic effects, could lead to a higher level of effectiveness than the sum of the individuals.

Figure 7 illustrates the variables for effectiveness which should be taken into account to improve the different types of effectiveness.

Figure 7 - Variables of effectiveness
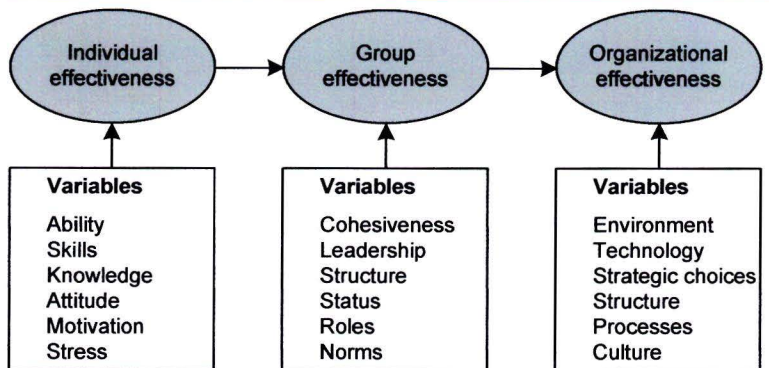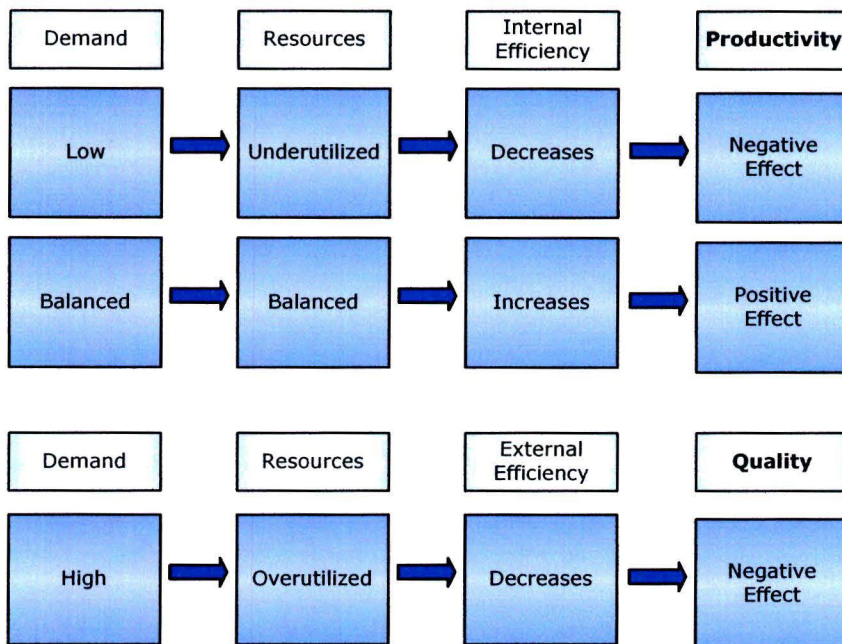

4.4 Service productivity

The productivity of a process is related to how effectively input resources are transformed into economic results for the service provider and value for customers. For services the constant quality assumption does not apply and therefore changes in production resources and production systems do affect the perceived quality of services (Grönroos and Ojasalo, 2004). A reason for this is that for services it is seldom possible to clearly identify "one unit of a service". Another reason is that in a service operation a changed set of inputs easily alters the perceived quality of the output including both its outcome or technical quality and its process or functional quality dimensions. One has to be aware of the impact on quality and perceived customer value when improving the efficient use of resources. Therefore the interrelationship between internal and external efficiency is crucial for understanding and managing service productivity.

A change in the resource structure could cut costs, while produce as much as earlier on condition that the perceived value to customers will remain at least the same. Being an effective service organization brings that productivity and perceived quality are inseparable phenomena. Improving productivity may have a neutral or positive effect on quality, but equally well it may also reduce perceived quality.

In the service context we deal with open systems in where customers participate through inputs such as information, self-service activities, inquiries and complaints resulting in influencing the progress and outcome of the service processes. Besides this customers will also influence fellow customers. Customers contribute to both the internal and external efficiency of the service process (*customer-induced contribution*). At the other hand the service provider e.g. Honeywell uses a set of resources in the service process (*provider induced contribution*). Both customers' and service provider's action influence the way the employees and technologies and the customers do perform (*interaction-induced contribution*).

Besides the interrelationships mentioned above, productivity is also influenced by demand. The following figure describes the interrelationships between productivity, quality, interaction and demand.

Figure 8: Interrelationships productivity, quality, interaction and demand

Demand	Resources	Internal Efficiency	Productivity
Low →	Underutilized →	Decreases →	Negative Effect
Balanced →	Balanced →	Increases →	Positive Effect

Demand	Resources	External Efficiency	Quality
High →	Overutilized →	Decreases →	Negative Effect

According to Chase and Haynes (2000) managing service productivity is to balance effectiveness with efficiency and ideally move into a domain of high service quality and productivity. In their study productivity and quality are just like Grönroos and Ojasalo (2004) treated as separate concepts. Grönroos and Ojasalo add a third element to the service productivity model, which is the management of demand or capacity efficiency and therefore service productivity, according to the model of Grönroos and Ojasalo (2004), can be defined as:

> *Service productivity =*
> *f (internal efficiency, external efficiency, capacity efficiency)*

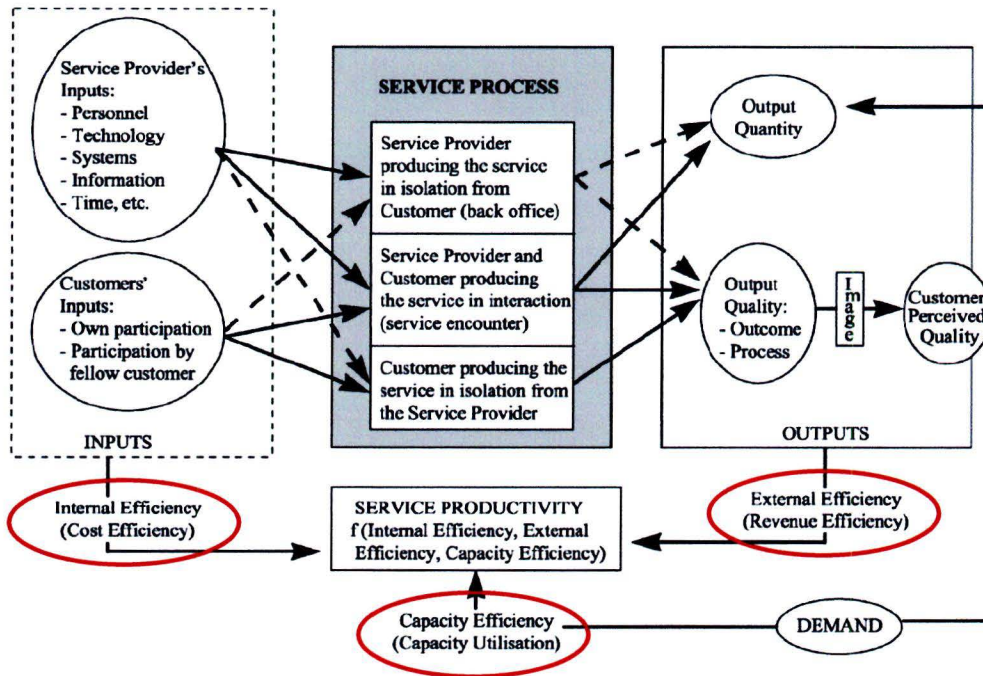| **Internal efficiency**	**External efficiency or effectiveness**	**capacity efficiency**
describes how effectively input resources into the service process are transformed to outputs in the form of services.	can be defined as how well the quality of the service process and its outcome is perceived.	describes how effectively the capacity of the service process is utilized.

Based on the perceived service quality model of Grönroos (1983), customers experience quality as the *functional* quality of the services process and the *technical* quality of the outcome, and filter the experiences of these two quality dimensions through the image of the company, resulting in customer perceived quality. In Figure 9 at the next page one can find the service productivity model developed by Grönroos and Ojasalo (2004).

Figure 9: Service productivity model of Grönroos and Ojasalo (2004)

From this model we can say that internal efficiency and the cost-effective use of resources is one side of service productivity. External efficiency and the revenue generating capability following the use of resources is the other side of service productivity.

In addition, efficient utilization of resources so that demand and supply meet as well as possible also has an impact on service productivity. At last we mention that for service productivity it is important to realize that customer relationships are learning relationships (Peppers et al, 1999) where both parties learn about each other, and that they last over a long period of time. Back-office operations and service encounters should be managed in such a way that the competency gap between the service provider and customer becomes narrower and productivity gradually improves.

A practically relevant approach to measure service productivity according to Grönroos and Ojasalo (2004) is to base productivity calculations on financial measures. A correct way of measuring service productivity as a function of cost effects of internal efficiency, revenue effects of external efficiency and cost and revenue effects of capacity efficiency is:

> *Service productivity =*
> *Total Revenues HPS-SO / Total Costs HPS-SO*

This measure is independent of price fluctuations and currency factors and it is possible to compare the indices with a base year. For example if the resource structure is changed (number of employees), the cost level changes and so do the perceived quality and the revenue-generating capability of the service provider.

One has to be aware that cost reductions may lead to a bigger drop in revenues in the long run than savings on the cost side in the short run parallel to a decline of the long run service productivity. At last one has to be aware that revenues are not always a good measure of output, since price does not always reflect perceived service quality. Besides this it may be difficult to assign capital costs correctly to each type of revenues respectively.

5. Description of HPS by 7S-framework of McKinsey

To describe the local Honeywell Process Solutions organization and its activities with specific attention to the Service Operations department, we will make use of the 7S-framework of McKinsey, which is a framework to analyze and improve organizational effectiveness. The choice for this framework comes from the fact that it is able to describe organizations with an increasing focus on the service businesses and is has been used as an effective instrument by many consulting firms. Input for this "model" is obtained by secondary and qualitative research. Secondary research data is found via examination of internal records and reports previously carried out within Honeywell, and external sources. The qualitative research data is obtained by means of group discussion and depth interviews with key persons within or related to HPS-SO and will lead to primary research information such as customer's attitudes, values, behaviors and beliefs.

Before starting to explain the organization, we will give a brief introduction to the general process from sales opportunity to support & enhancement for a specific customer within HPS. Distinction is made between four types of jobs, in which we will focus on the jobs executed by HPS-SO. Large (type A) and Small Projects (type B) will be executed by the Project Operations department. Small Projects (type B) w.r.t. systems migrations or with less project management hours, the so called *mini-projects*, are performed by HPS-SO. System Orders (type C) and Parts Orders (type D) are also executed by HPS-SO.

The overview below in Figure 10 describes the Request for Quotation (RFQ) from a customer which normally results in a proposal. When there is agreement between Honeywell and the customer (scope, price, terms & conditions, etc.) an order will settle the deal (contract) and the project can formally start. The delivery phase comprises the moment from kick-off until acceptance of the project by the customer and includes input from project operations, service operations, procurement & logistics and several other support activities. When the project has been accepted by the customer, the project will be transferred to the After Market Service (AMS) phase.
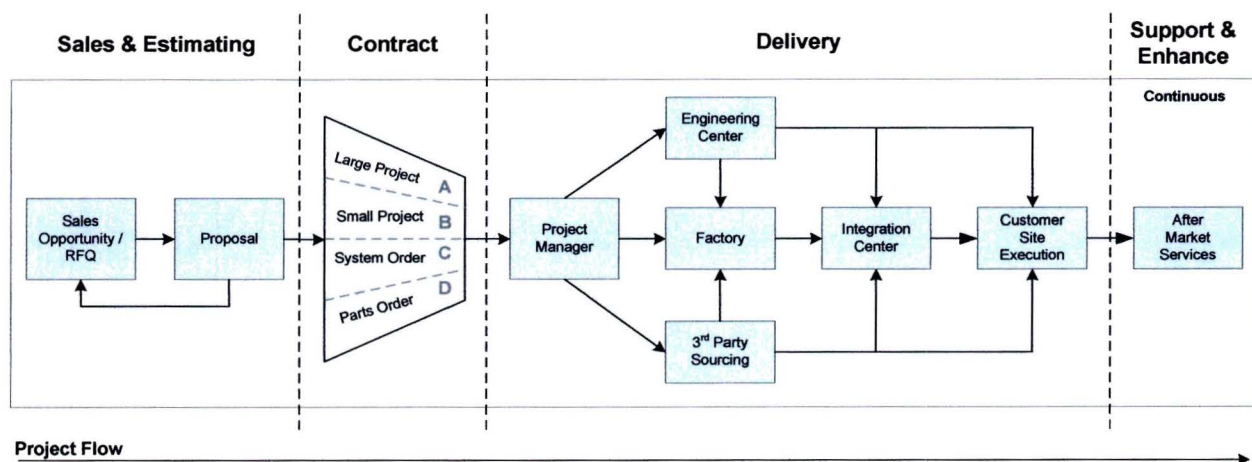
Figure 10 - From RFQ to AMS

The 7S-framework starts on the premise that an organization is not just structure, but consists of 6 other elements which are all connected to each-other. The model makes distinction between the so called hard and soft Ss. Balance[2], connectivity[3] and heterogeneity[4] for these elements are key for success.

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[2] Balance: the importance of all seven elements is equal.
[3] Connectivity: changing one element, will have effect on the other element.
[4] Heterogeneity: all elements are identified as stand-alone elements, but all act together as water & oil in a bottle.

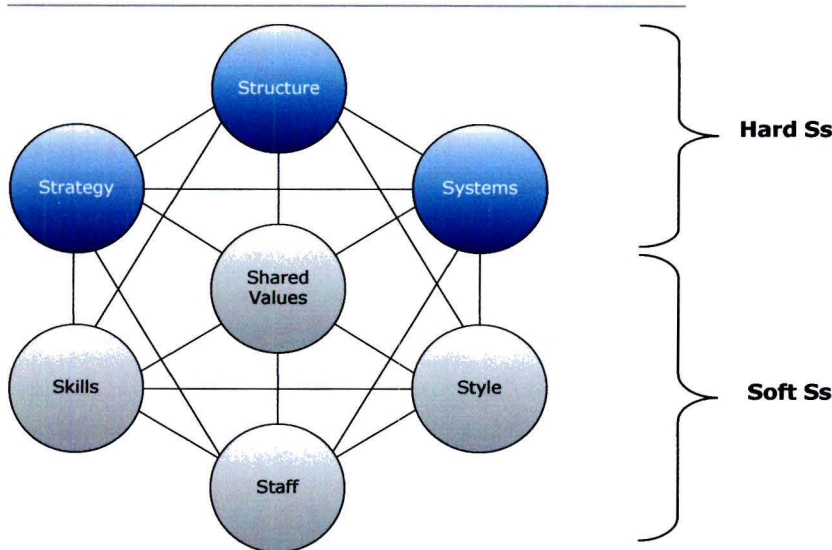HPS is a market-driven BU and to obtain the best out of this strategy, we have to be aware of all involved dimensions. Refer to Figure 11 below for an overview of the McKinsey Framework.

Figure 11 - 7S-Framework of McKinsey

The hard Ss, Strategy (5.1), Structure (5.2), and Systems (5.3) are situated across the top of the model. The soft Ss, Skills (5.4), Shared Values (5.5), Staff (5.6), and Style/Culture (5.7), which are less tangible and more cultural in nature, are situated across the bottom of the model.
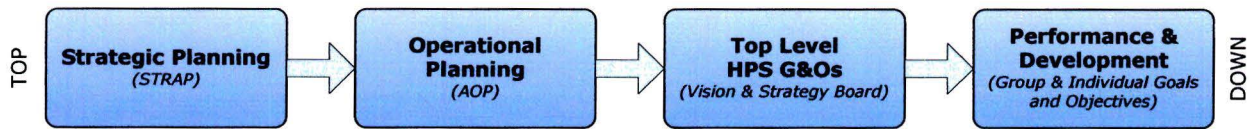
The soft elements can make or break a successful change process, since new structures and strategies are difficult to build upon inappropriate cultures and values. Therefore it is important to take all elements in consideration when changes have to be applied with regard to HPS-SO. If not, blockades within the organization can occur easily. For all Ss mentioned above we will highlight the present blockades within the organization, and later on we will take appropriate actions to remove the blockades where possible. We mention "where possible", because some blockades are due to global initiatives (top-down) which in some cases are non-mature.

5.1 Strategy

This part contains the direction and scope of HPS over the long term in response to or anticipation of changes in its external environment[5] and has been set out by the senior management. Honeywell's Strategic Plan (STRAP) is a five year business roadmap, which is revalidated every year and has been translated top-down to create understanding and explains what people can do to reach the desired Goals and Objectives as illustrated in Figure 12. HPS' key strategies are (1) growth, (2) achieve financial objectives, (3) satisfy customer expectations, and (4) secure the future, for the company and employees. HPS uses the razor-blade business model, which means that profit is made by means of the After Market Service (AMS) business, in where expanding and retaining installed base is a key issue. The core processes STRAP, Annual Operating Plan (AOP), and Management Resource Review (MRR) together define the way how the HPS business runs.

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[5] Includes customer markets, macro-economic factors, and competitor information.

Figure 12 - From STRAP to G&Os

| TOP | Strategic Planning (STRAP) | → | Operational Planning (AOP) | → | Top Level HPS G&Os (Vision & Strategy Board) | → | Performance & Development (Group & Individual Goals and Objectives) | DOWN |

HPS' Strategic intent is to: "improve customers' business performance on safety, reliability, and efficiency through competitive solutions that profitably grow the ACS industrial channel to $5B in sales by the end of 2012". Strategy within HPS is promoted by means of the HPS Vision & Strategy Board, Town Hall Meetings, and Quarterly/Monthly updates by e-mail. The HPS Vision & Strategy Board for 2009 can be found in Appendix II.

The affiliate Management Team (MT) translates the Top Level Goals & Objectives (G&Os) into Group and Individual G&Os. In this case it will be possible to give people a feeling with Honeywell's vision and how a particular person can help to reach the desired G&Os. At this moment one has less feeling with the companies overall vision and strategies and the Group and Individuals G&Os should be more clear and aligned to the Vision & Strategy.

5.1.1 Honeywell Initiatives

Starting point for this graduation assignment will be the HPS Vision and Strategy for 2009 based on Honeywell's five initiatives: Growth, Productivity, Cash, People and Enablers.

1. Growth: Growth will be accomplished by a combination of organic growth and acquisitions. The four pillars of growth are: (a) Doing a superb job each and every day for customers, (b) Building a superior sales and marketing organization, (c) Globalization, and (d) Creating a set of robust, funded technology roadmaps for new products and services.
2. Productivity: Honeywell has an outstanding track record in driving continuous improvement in support of improved productivity. To maintain a high level of performance parallel to the growth objective, (local) quality improvement actions are needed as quality is slipping at this moment.
   Honeywell's Quality & Productivity Policy is *"Right the First Time in All Aspects of Business"*. Honeywell strives to do a superb job for its customers by exhibiting *"customer-centric"* behavior and continuously improving its business processes through execution of the Honeywell Operating System and utilization of Six Sigma Tools.
3. Cash: This initiative focuses on driving improvements in working capital, payables, receivables, and inventory. In these economic circumstances cash is even more king. Cash means reinvestments in the business by strategic acquisitions, technology roadmaps, and stock buybacks. Cash has a huge positive impact on both employees as share-owners. Customers take every opportunity to delay payments, and e.g. every small error in an invoice is used to not pay the bill. If the payment term has expired, Honeywell takes action, but it takes weeks to months to correct the error and to receive the money on the Honeywell account.
4. People: Honeywell's overall philosophy is to differentiate great performers through a strong talent management system, link pay to performance, and ensure the right developmental opportunities are made available to the most talented people.
   The Management Resource Reviews discuss the performance and teamwork of individuals and businesses throughout the company, and have become more rigorous, candid, and open. Honeywell's behaviors aid this process, focusing people not just on results but also on how to get them.

5. <u>Enablers</u>: The Honeywell Operating System (HOS), Functional Transformation Initiative (FTI) and Velocity Product Development (VPD) initiative will improve Honeywell's ability to execute the other four initiatives.

HOS is a comprehensive, integrated approach to manage the Integrated Supply Chain (ISC). It is based on the Toyota Production System and builds on the use of Six Sigma Plus (Six Sigma and Lean) tools in eliminating variation and improving the work processes on a rapid and continuous basis. The system changes the way one currently acts, works and leads. Key elements of the system include (a) standardized work, (b) direct and visible product flows, (c) continuous improvement through rapid and low-cost experimentation, (d) immediate problem-solving, and (5) having leaders act as mentors and coaches to enable shop-floor success. Honeywell expects the system to drive exceptional performance in safety, quality, value and delivery.

To streamline and improve work done within the core support functions, Honeywell has launched the Functional Transformation Initiative, a multi-year program that will drive process improvements while delivering significant cost savings. The functions will eliminate non-value-added work, and standardize, consolidate and digitize processes. They also will explore ways to co-source repetitive and transactional activities. When fully implemented, FTI will allow employees to focus on more strategic, high-impact work and enable business leadership to focus primarily on operational performance and satisfying customer requirements. FTI together with HOS, will transform the way people work at Honeywell.

Velocity Product Development™ is Honeywell's approach for getting better new products and services faster in all the businesses. Through VPD™, Honeywell is looking for ways to improve the processes that support new product introductions so they can extend the benefits across multiple product lines.

The enablers will affect the way one thinks about customer requirements, the way one structures the work environment, and the way how success is measured. These enablers have tremendous potential to make the company more competitive and to better achieve the other four initiatives. What we see at this moment is that the Enablers do not function as anticipated and many hiccups are still present, de-motivating the people who work with it, and creating double and additional work and training on top of daily business.

5.2 Structure

Structure comprises the basic organization of the company, its departments, reporting lines, areas of expertise, and responsibility and how they inter-relate. HPS is structured with its headquarter in Phoenix (Arizona), and three regional poles: (1) Americas – AM, (2) Europe, Middle East and Africa – EMEA, and (3) Asia Pacific – AP, as is illustrated in Appendix III.

HPS within The Netherlands is part of a matrix organization, in where many support functions are situated per pole, region or global. The functional support teams report to a manager with profit and loss (P&L) functionality. Besides this, these teams also report to a Functional Manager, who is responsible for quality matters and daily operations.

If we take a closer look to HPS within the Netherlands, we can set out the primary and supporting activities. The primary activities are Project Operations, Service Operations including the Training Department, Sales, and Procurement & Logistics. The support activities comprise among others Human Resources (HR), Information Technology (IT), Quality Assurance (QA), Health, Safety and Environment (HSE), Marketing, Laws and Contracts, and Finance. What we see is that there are many layers, which makes the organization less flexible and adaptive to the changing environment.

As the main organization structure and its relationships are clear for know, we can have a closer look to HPS-SO and the Quality/HSE department.

5.2.1 HPS-SO Structure

Last five years, HPS-SO organizational structure has changed several times without considering the other elements of the McKinsey framework. Reasons for changes in "Structure" were the dynamic environment, fast growing and changing solutions portfolio, aging of the workforce, and changing customer demands. Since beginning of 2009, the adjusted organizational structure for HPS-SO is illustrated in Figure 13 resulting from improvements due to the Operational Improvement Plan.

Figure 13 - Organigram HPS-SO

CENSORED

If we take a closer look to the highlighted area, one can see that the Field Service Leader (FSL) or Operational Lead has reporting lines to two other Hierarchical Managers (Operational and Profit & Loss). Below the FSL level we have an Operational Support Unit[6] (BB), a Service Leads (SL) & Field Operations Group, and two Discipline Groups. The Continuous Support Lead (CSL) is in charge of the Operational Support Unit consisting out of Customer Service Engineers (CSE). The Service Leads & Field Operations Group consist out of the Service Leads and a Project Manager Service Operations. Finally the Discipline Groups are two knowledge domains and consist out of three levels of Field Service Engineers (FSE), and each group is led by a Discipline Lead (DL).

Table 2 gives an overview of the in- and outflow of HPS-SO employees from beginning of 2006 till May 2009. Besides this, two experienced Engineers have moved within this timeframe from the P3 business to the E&C business.

Table 2 - Inflow and Outflow HPS-SO (E&C) January 2006 - May 2009

CENSORED

If we look at the interactions of the service department with other department, the overview illustrated in Appendix IV gives a good understanding. In here we can see that HPS-SO has interactions (inputs and/or outputs) with the Sales & Estimating department, the Projects department, the Logistics department and finally with the Customer. The interactions between HPS-SO and the other departments and especially with Project Operations must be improved. Projects are not transferred in a proper way to the Service Operations department and so a conflict can arise about internal cash flows.

5.2.2 HPS Quality Structure

HPS-Netherlands has established, documented and implemented a Quality Management System (QMS) in accordance with the requirements of ISO 9001:2000 and the HPS Global QMS. The system is maintained and continually improved through the use of the quality policy, quality objectives, audit results, analysis of data, corrective and preventive action and management reviews. Quality within the Dutch HPS affiliate is arranged by departments. Every department has an own Quality Officer, who reports to the Quality / HSE Leader[7] and Coordinator.

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[6] Called "*Bedrijfsbureau*" in Dutch language; the abbreviation used in the report will be BB.

[7] Before 2009 NL01 has only a Quality Coordinator and Quality Officers.

Figure 14 - Organigram Quality / HSE
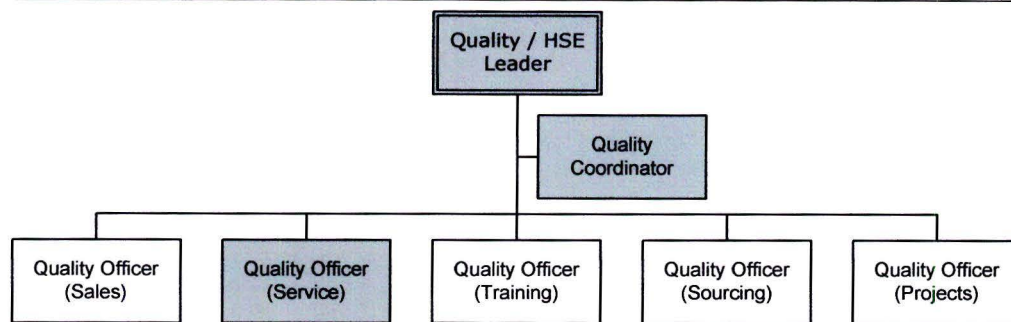
The Quality Officer is responsible for all QA activities on a single department or function and takes control of the department processes, procedures and improvement initiatives. The Quality Coordinator is responsible for all QA improvements and Voice of Customer (VOC) complaints in NL01 and reports to the Quality Leader who is overall responsible and guides the internal and external audits. The Quality / HSE Leader is also part of the Management Team (MT).

Quality audits are executed by (1) local QA, (2) Global QA, and (3) External Institute/Organization. VOC questionnaires are carried out by Global QA and an External local organization. More information about VOC can be found in paragraph 6.1.

Honeywell employees have the ability to raise an *Internal* Corrective Action Request[8] (*Internal* CAR) to improve a Honeywell Process. Customers can raise a *Direct* CAR[9] in case expectations are not met regarding a *non-technical* issue. Technical issues will be taken care of via a Service Request (SR) or via a Product Anomaly Report (PAR) within HPS. A *Survey* CAR will be raised by GSO, in case of a below performance or complaint resulting from the VOC performed by GSO.

The trend what we see within Honeywell is that employees are reluctant to issue a CAR, as they have the experience and feeling that nothing has been done with it in the past, and so it makes no sense to spend time on it. Besides this, people have a negative feeling when raising a CAR, as it is can be seen as management criticism, while continuous improvement is key for a healthy and effective organization. The Quality Leader should correct the wrong allocation of CARs and PARs.

5.3 Systems

Systems comprise the formal and informal procedures that govern everyday activity, covering everything from management information systems, through to the systems at the point of contact with the customer. At this moment HPS-SO makes use of the following administrative systems:

Lotus Notes: Used to create customer specific Maintenance Plans, for track & trace of tools (Tool Management), and for the Skill Matrix of the HPS-SO Engineers.

SAP: The brand name for an Enterprise Resource Planning (ERP) system, is ACS's standard global technology platform for the common global business processes ranging from finance and IT, to order management, projects and services, and Integrated Supply Chain (ISC) operations. SAP enables the development of "common processes" across regions and businesses to drive profitable growth and functional excellence across all ACS businesses. Before the Honeywell SAP go-live-date for the Dutch affiliate in July 2008, Honeywell used over 200 different ERP systems worldwide.

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[8] Two types are possible for an internal CAR: (1) Internal or (2) Feedback (general).
[9] Two types are possible for an external CAR: (1) Customer or (2) Feedback (general).

Siebel: HPS-SO makes use of Siebel, a Customer Relationship Management (CRM) Tool, as front-end application for SAP. Siebel was introduced within HPS-SO beginning of 2003. The functions used in Siebel are among others:

- Weekly Time, Expense, and Allowance
- Employee Skills Profile
- Administrative functions such as adding new accounts, moving SR to correct account, adding contacts to accounts, etc.
- Contracts, Service Agreements, Entitlements, Planned Activities
- Master Purchase Agreements (MPA)
- Assets / Installed base
- Service Dispatch (SR's, Calendar for Planning)
- Product Anomaly Reports (PAR)
- Voice of the Customer (VOC)
- eQuality – Customer Action Request (CAR)

Concur: Beside the above mentioned tools, HPS-SO makes use of Concur, which is Honeywell's Common Process and Systems (CP/S) expense reporting system used for claiming business related travel and entertaining expenses with a centrally based support team in India. Concur go-live-date for the Dutch affiliate was in June 2008 and this tool is considered to be a success by both management and employees.

The transition to Siebel and SAP has changed Honeywell's core business processes, and most employees have experienced a negative change in their job as a result of this. The main purpose by the introduction and roll-out common processes and systems is gaining the efficiency of the employees. As mentioned in the initiatives paragraph, SAP and Siebel do not function as anticipated at this moment and there are still structural problems, creating rework (increase of the administrative burden) and additional training on top of daily business. This results in a negative gain w.r.t. efficiency, de-motivating the people who work with these systems.
Siebel and SAP have been introduced top-down by ACS CP/S within the HPS organization last years without the proper evaluation of the (local) processes and supporting organization. The processes have not been adopted to the present way one works and the support activities are not in line with these changes and adoptions. The systems become more and more a blockade within the present organization as systems are not integrated. Besides this, we have seen many examples that the data coming out of the CP/S systems is not correct. What goes in, comes out! Data cleaning and ownership is missing at this moment.

HPS in The Netherlands is in many cases a pilot country due to the culture and pro-active thinking, which means that more work has to be done with less people, with tools who do not function well at this moment. Besides this, many support functions are centrally located in lower cost countries, which means that problems are not solved immediately and that changes take longer than before. At last we can mention that a shift has occurred in the administrative tasks from the back-office to the field, which increased the workload of the service Engineers and decreased the flexibility as an online connection is a must.

5.3.1 HPS-SO Activities

Honeywell Process Solutions Service Operations (HPS-SO) distinguishes four primary activities:

1. Jobs from customer: Normally these are activities a customer wants to be done separate to an existing service contract or activities for a non-contract customer, such as small modifications, expansions, upgrades or migrations from the process automation systems and/or installed process equipment. Jobs should be initiated via the (Service) Sales department and follow the regular flow chart for job completion as is illustrated in Appendix V.

2. Incident Handling: Incident Handling or Corrective Maintenance should always go via the Call Center[10]. The Call Center will check if a contract is present, will create a Service Request (SR), chooses the right contract entitlement if present, arranges an order if needed, and transfers the incident to the dispatcher[11]. The dispatcher will contact the customer for a first analysis and tries to solve the problem by phone and/or by remote connection. If the problem cannot be fixed from a distance, a standby Field Service Engineer (FSE) will visit the customer attended with or without spare parts. If the FSE cannot solve the problem, assistance of the global Technical Assistance Center (TAC) is required. If the problem has been solved, a Service Report will be made and signed by the customer, the SR can be closed, and the hours and materials will be booked against a contract entitlement or customer order.

3. Contract Management: This comprises the so called planned contract entitlements and include a.o. Preventive Maintenance, System Maintenance, Open System Services, Parts Replacement etc. The Operational Support Unit plans the site visits in agreement with the customer for the coming contract period and service is performed as per flow chart in Appendix V.

4. Internal department related activities: Internal department related activities or also called Service Sales Support, comprises assistance of an HPS-SO Engineer to the Sales department such as input for a proposal (number of hours, technical compatibility, etc.). Sales Support should obtain a SR via the Operational Support Unit on which the service Engineer can book his internal hours.

Before we will continue with the procedures and work instructions, we have to know the relationships between a model, process, procedure, and work instruction, which can be found in Figure 15.

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[10] Global Customer Care Center (GCCC) during and Antwoord Service Nederland (ASN) outside office hours.

[11] During office hours this is the Operational Support Unit, and outside office hours this will be an experienced FSE.

Figure 15 - Relationship between model, process, procedure and work instruction
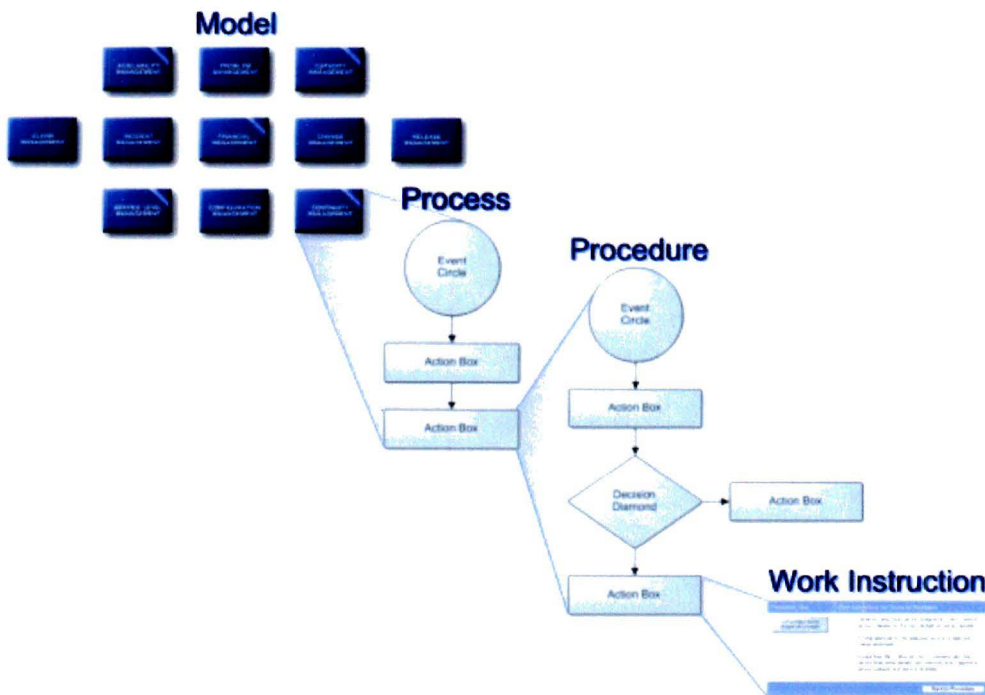
The following HPS-SO procedures are existing for HPS-SO and do support the four HPS-SO activities mentioned above:

- HPS Service Operations Nederland (Rev 3.0)[12]
- Siebel – Oracle PA User Guide (Rev 2.0)
- Work instruction "SR Registration"
- Work instruction "T&E Instruction for Siebel"
- Procedure "Call Management Process GCCC"

What we see at this moment is that Work Instructions are not completed and up-to-date. A daily growing portfolio makes this even more difficult and it should be wise to have standard work instructions as a basis.

5.3.2 Design for Growth Program

At this moment a high-level initiative called "Design for Growth" is rolled out at EMEA level which handles both strategic and financial benefits. Objectives are:

- *Easier to serve customers*: make it easier for our organization (teams) to serve out customers.
- *More efficient. Reduce complexity*: based on current state assessment of processes followed by future state design & deployment requirements, continuously improve our efficiency and thus enable profitable growth (design for growth).
- *Productivity improvement*: A dedicated team will brings process, industry and methodological expertise to the business, in order to build the runway for our planned growth in the future.

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[12] Revision 4 is in the pipeline according to some introduced changes in 2009.

The Design for Growth program is split-up into different phases: (a) Set course, (b) Assess current state, (c) Design future state, (d) Define business case, and (e) Implementation & roll-out, which is currently set for completion at xxx. One must be aware that the results of this graduation assignment are in line with this high-level plan, and that this can be seen as a framework in which the local affiliates should work. The local affiliate should translate the high level processes into procedures and work instructions to adopt needed detail level and local texture. Besides this one must execute the last three steps of the Circle of Deming, which are "Do", "Check" and "Act", based on the "Plan" step from the EMEA level.

5.4 Skills

The capabilities and competencies that exist within the company; what it does best. According to the ISO 9001 certificate for NL01, HPS sells measurement and control systems and products, performs functional design studies and Engineering studies for plant automation from "sensor to boardroom" and executes "turnkey" control automation projects with full maintenance services and operational support services.
Key differentiators are global presence, and innovative and state-of-the-art solutions from the field to integration with the ERP systems, which can be fully integrated in one common system concept. Honeywell supports the Growth, Live and Support principle, which means that systems can always be migrated to a successor and that investments from the past are not wasted. Besides these aspects Honeywell has an industry-leading safety record.

For HPS-SO the primary objective is to drive maximization of customer satisfaction by delivering "*best in class service*" to the customers. "*Right the First Time in All Aspects of the Business*", "*customer-centric*" behavior and continuously improving the business processes should help to achieve this parallel to the Safety objective. The service model should change from a passive or reactive approach to a more strategic or proactive approach in where quality plays a crucial role (Ghobadian et all, 1994).

The launch of a "strategic quality management" program requires a clear understanding of the service quality vantage point (definition and vision), customers' expectations, perceived quality, measures of quality, and generic determinants of quality.

5.5 Shared values

Shared values are the values and beliefs of the company. Ultimately they guide employees towards "valued" behavior. These shared values must be simple, stated at abstract level, and have meaning inside the organization. It defines what the company wants and where it stands for. HPS shared values should result in "*Quality*" and "*Safety*". Honeywell Behaviors emanate directly from Honeywell's five initiatives and are reflected in every project, process and product of the company. Integrity is the bedrock principle of each of these 12 behaviors and this has been covered by Honeywell's Code of Business Conduct. Honeywell's behaviors comprise (1) Growth and Customer Focus, (2) Leadership Impact, (3) Get Results, (4) Makes People Better, (5) Champions Change, (6) Fosters Teamwork and Diversity, (7) Global Mindset, (8) Intelligent Risk Taking, (9) Self-Aware/Learner, (10) Effective Communicator, (11) Integrative Thinker, and (12) Technical or Functional Excellence. For more background information refer to Appendix VI. The 12 Honeywell behaviors are part of an individuals assessment.

To be successful, this research assignment must be in line with the HPS EMEA Operations Model, as mentioned in Figure 16. Quality can be delivered from both a people (Staff element of McKinsey) perspective and from a process (System element of McKinsey) perspective. This is clearly addressed within the overall objectives of the operational improvement plan and comes back in all initiatives within the HPS organization.

Figure 16 - HPS EMEA Operations Model
CENSORED

Securing the message has been understood and direct coaching of these shared values and twelve behaviors is lacking at this moment within HPS-SO and should be improved.

5.6 Staff

Staff comprises the company's people resources and how they are developed, trained, and motivated. Distinction can be made between hard and soft characteristics as illustrated in Figure 17.

Figure 17 - Hard and soft elements of "Staff"
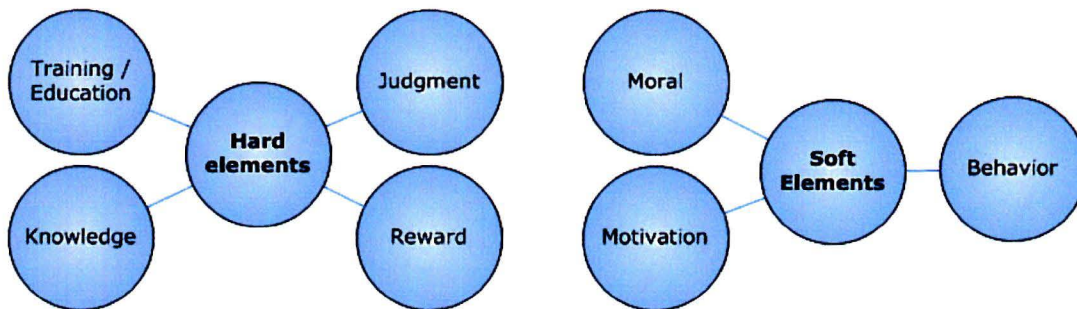
As mentioned before in the five initiatives of Honeywell, Honeywell's overall philosophy is to differentiate great performers through a strong talent management system, link pay to performance, and ensure the right developmental opportunities are made available to the most talented people. Continuous learning is for Honeywell an important aspect of development, and several learning offerings are available such as traditional classroom learning, e-learning, on-the-job-training, and self paced training. In general one must secure that one make use of the potential capabilities of the employees in such a manner that this will lead to productive behavior for both themselves as for the Honeywell organization.

As HPS-SO business is growing yearly, new employees have entered Honeywell and others have left the company due to e.g. retirement, sickness/death, and opportunities within or without the company. This natural process has the disadvantage that new employees cannot make the same amount of billable hours as the more experienced employees who left the HPS-SO department and that the work pressure of the more experienced Engineers has grown last years. What we see at HPS is that in good times there is less time to train and in less economic times there is less budget to train. Narrowing the knowledge gap between the most talented and other Engineers is crucial to survive in the long run and to keep customer satisfaction at a pre-defined quality level.

Since beginning of 2009 Engineers are clustered within knowledge domains (Legacy Systems and Experion PKS). This clustering of potential capabilities makes coaching and guidance through supervisors more effective.

The soft elements include among others an increase of administrative failures (wrong closing and filling in of SR's) and a decrease of motivation as the willingness to change is low as improvement initiatives have not worked out last years. Motivation, moral and behavior should get more attention, as both Honeywell and customers see this as a problem at this moment. The "Family feeling" has decreased after the reorganizations in the last decade. Increasing ones awareness of responsibilities and judgment (performance measurement) is crucial to improve the soft elements.

5.7 Style / Culture

The leadership approach of top management and the company's overall operating approach. It consists out of (a) the organizational culture, and (b) the management style.

Organizational culture contains the dominant values and beliefs, and norms, which develop over time and become relatively enduring features of organizational life. It is part of organizational life and influences the behavior, attitudes, and overall effectiveness of employees and includes symbols, language, ideologies, rituals, and myths. What we see in Honeywell is a *"Control Culture"* according to Schneider (1994), which means the company is structured in a hierarchical fashion and is bureaucratic, the roles and functions are clearly defined and the culture breeds functional specialists in where power and control are prime motivators. Disadvantage of this culture is that the culture is not attractive to individualists and innovators. Breakthrough changes requiring paradigm shifts are hard to obtain and there is a high resistance to change. To improve Quality and Safety, the Soft elements of the "Staff" element of McKinsey should get more attention.

Management should coordinate the work of individuals, groups, and the organization by performing the management functions[13] planning, organizing, leading, and controlling. *Planning* means where the organization is going and how to get there. What we see is that the economic downturn places cost restrictions to the made plans e.g. for training budgets, while the Honeywell portfolio is growing daily. *Organizing* include all managerial activities that translate required planned activities into a structure of tasks and authority e.g. job descriptions, organization charts, policies etc. At this moment the job descriptions are being finalized to meet the current situation with Service Leads and the changes in the organizational structure as described in paragraph 5.2. Normally job descriptions should be created before changing the organizational structure, as the outcome of the functions, result in the organization structure and management is responsible to devise integrating methods and processes.

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[13] According to the Classical School of Management.

Leading involves the manager in close day-to-day contact with individuals and groups, and so is uniquely personal and interpersonal. Leading is the most human oriented and therefore knowledge of human psychology can lead to more effective performance. In times of high workload and changing processes, people management and direct coaching should get more attention. From interviews it became clear that management was not able to provide this successfully last years. Finally *controlling* includes activities that managers undertake to ensure that actual outcomes are consistent with planned outcomes. Performance evaluations (SMART[14] and not only financial) should be done at individual, group, and organizational level. For HPS-SO it is difficult to control, as there are no meaningful Key Performance Indicators (KPIs) with exception of financial ones.

Management should be driving quality, where Engineers are delivering quality. There are three layers of management that must be considered from a quality improvement perspective. Each layer has his specific role and responsibility and must be clearly assigned within the organization. These three layers are:

1. *Hierarchical management*: Are inventive and transmit a clear message in which direction the organization has to move in the coming period. Provides an alternative in case a problem occurs, and they create an atmosphere of confidence in the organization. Emphasis on the organizational aspects of the business, and not with the content. Delegation of hierarchical management layer is present within the Field Service Leader (FSL) and Service Operations Leader (SOL) level.
2. *Functional management*: Give directions - points out - the details concerning the content of the technical expertise needed within the organization to secure services to our customers can be delivered. Control if the execution is conformably the standards and rules on quality. Coaches the Engineers on a daily bases. Delegation of hierarchical functional layer is present within the Discipline Leads (DL) function.
3. *Operational management*: Are within the "frontline" responsible for the results of the organization. They give directions to the vision and strategy of the hierarchical management and make use of the infrastructure created by the functional management. Must act towards the organization from a strong customer perspective. The HPS organization must be open for criticism coming from the operational management. If the organization refuses to listen and conformably act on the feedback from the operational management, next in line will be the customer to criticize the organization. Delegation of hierarchical functional layer is present within the Service Lead (SL) functions.

At this moment the baseline on the base values are slipping. It is a combination of slipping of processes (procedures and work instructions), mismatches in present structure, and missing of direct coaching. Coaching and guidance should be SMART and appropriate action should be taken if deviations are present. Management should decide what quality level to deliver both internal as external. We also see that people have a low tendency to change, the behavior still is *"why change, as we do it this way for many years"* and *"we tried doing this in the past, but it didn't work"*. The management style at this moment can be described as *"loose delegation of responsibilities"* and should be adapted towards a more *"direct coaching"* approach. Also the present style of *"communicating the message"* must be transformed into *"securing the message has been understood"*. It should not be a snapshot, but it should be extended throughout the lifecycle of the specific message (repetition aspect of communication).

From research[15] it became clear that Culture and Performance are linked.

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[14] SMART: Specific, Measurable, Agreed Upon, Realistic, and Time Based.

[15] Sources: Ouchi (1981), Pascale (1981), Deal (1982), Peters (1982), Kotter (1992), and Kinni (1996)

6. Data Collection and Analysis

This chapter will describe the data collection and analysis conducted in the exploratory research phase based on Honeywell data from Voice of the Customer surveys performed by the Global Service Organization and the local affiliate (Paragraph 6.1), Corrective Action Request from Honeywell's administrative systems (Paragraph 6.2), and Meetings and Interviews with key persons (Paragraph 6.3). Figure 18 at the right gives an overview of the used data sources for the Root Cause Analysis (RCA). As it is a mistake to act upon barriers without checking on root causes first, finding the roots is essential for success of this graduation assignment. Acting upon barriers without knowing the root causes, may even yield additional barriers. For this reason, Paragraph 6.4 will use some steps of the Stream Analysis technique of Porras (1987) to successfully identify the root causes for the Research questions in paragraph 2.3.
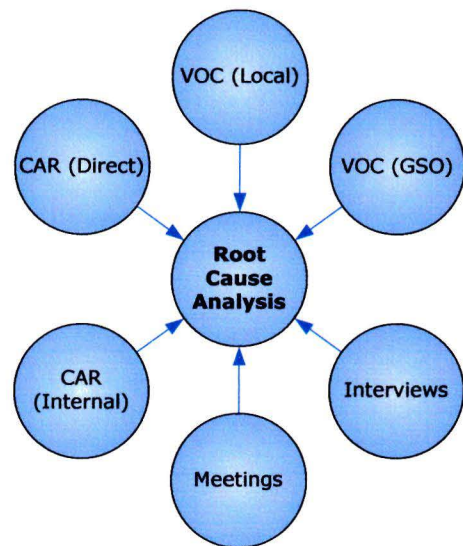

Figure 18 - Data Collection Sources

6.1 Voice of the Customer

As value is a measure how much a customer appreciates a product or service and defines how much a customer wants to offer to obtain this product or service, Voice of the Customer (VOC) surveys are indispensable. Concerning the VOC for HPS-SO in The Netherlands, an internally and externally performed survey is available. The internal survey is performed by HPS Global Service Operations (GSO) and the external survey by Moerdijk & Van Oosten (Company X) by order of the local HPS-SO department.

The respondents include managers, Engineers, technicians, and purchasing agents in various industry verticals. The objective is to understand and analyze the customer's experience with Honeywell Process Solutions' after-market services and should lead to improve Honeywell's ability to better serve its customers. This in fact should lead to actions to be taken to provide more value to the customers and to improve customer satisfaction.

6.1.1 Customer Satisfaction Survey from GSO

This part concerns the After Market Service (AMS) input data from 2007 until Q1-2009 performed by HPS GSO for the Global HPS Organization. The reason that we use only data from the year 2007 till nowadays is that no raw data from before 2007 is available anymore for the local Dutch HPS-SO business. We use end of Q1-2009 as a data freeze period, as the graduation assignment is time restricted. All surveys were performed by e-mail and phone.

As the survey questions (Appendix VII) have changed since the beginning of 2008 and again in 2009 we will not make quantitative comparisons over the years w.r.t. quality improvement. We have chosen to calculate the ratios against a base year and to highlight the key areas which need attention by means of a subjective analysis and rationale thinking as this is good enough for a RCA by the Stream Analysis method of Porras. A benchmark[16] for the local Dutch HPS-SO business against EMEA and Global HPS-SO for 2007 and 2008 can be found in Appendix VIII.

In 2007 sixty-four (64), in 2008 sixteen (16) and in Q1-2009 one (1) customer surveys were returned. As in 2009 only one survey was returned, we will exclude this data point.

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[16] One has to be aware that customer region demographic factors differ for the benchmark.

As the chance for a negative remark or below level score is higher in case more questions are asked, we have used a correction factor in the ratio by means of a base year. The base year for the VOC survey performed by GSO is 2007. Customers with several negative remarks or more than one below level performance score have been counted as one. As the response rate is unknown, we have not incorporated this aspect in the formula below.

$$\text{Ratio} = \frac{(\text{number of questions})_{\text{base year}}}{(\text{number of questions})_{\text{year x}}} \times \frac{(\text{number of customers having a remark or below level score})_{\text{year x}}}{(\text{number of customers})_{\text{year x}}}$$

The ratio of the customers with a negative remark or below level score, is illustrated by the left side of Figure 19 and increases from 2007 to 2008, which indicates that customer satisfaction has decreased.

Figure 19 – Ratio of customers with a negative remark or below level score
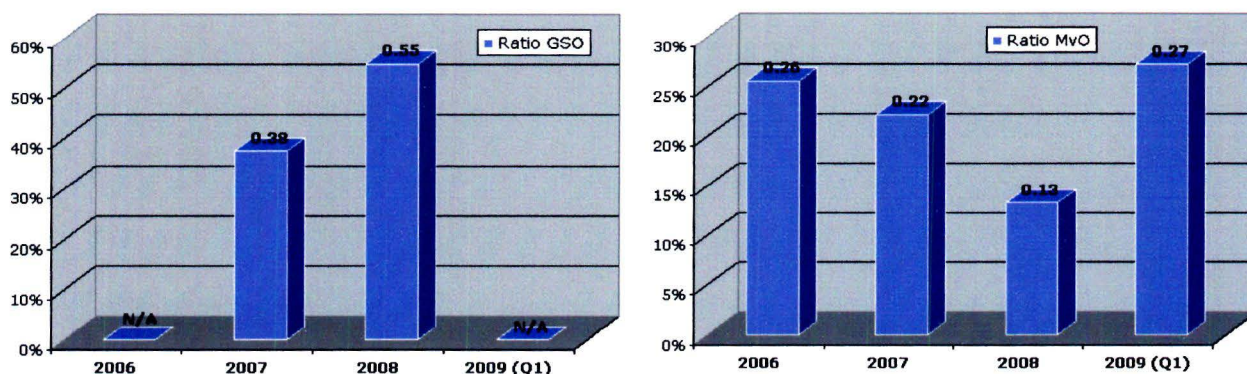
6.1.2 Customer Satisfaction Survey from Company X

This part concerns the After Market Service input data from beginning of 2006 till Q1-2009 performed by an external party, called Moerdijk & Van Oosten (Company X) by order of HPS-SO. Reason that we use data from beginning of 2006, is that per 2006 Service Request are handled by a global corporate system and so are visible and that data from the last three year is enough to create a trend and to filter out the key issues. The last reason is that data from before 2006 has less value, as the local HPS-SO organization and local market have changed over the last few years. We use end of Q1-2009 as a data freeze period, as the graduation assignment is time restricted. Ninety (90) surveys are performed by phone each year. The response rate of this local survey is 100% and the survey questions can be found in Appendix IX.

In 2006, 2007, and 2008 ninety (90) and in Q1-2009 twenty-two (22) customer interviews were performed. The ratio of the customers with a negative remark or below level score, is illustrated by the right side of Figure 19. We can see that customer satisfaction has increased (lower ratio) from 2006 until 2008 and decreased in 2009 (higher ratio).

The 6-months moving average, displayed in Appendix X, shows in general an upward positive trend since 2006, but is slightly declining since Q4 2008. The benchmark analysis against the competition, displayed in Appendix XI, indicates that HPS-SO has slightly improved its Service Operations business and passed the competition in 2008, but is also decreasing since Q4 2008.
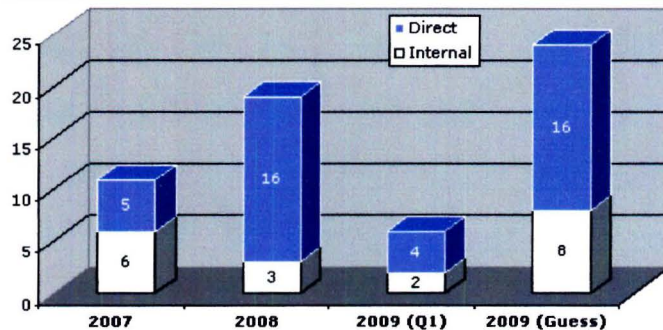
The Stream Analysis Chart and resulting Bar Chart can be found in respectively Appendix XIII and Figure 1 of Appendix XIV.

What we see is that the elements "Staff" and "Slow responsiveness w.r.t. shipments and global processes" contains the most complaints from the customers (respectively 63 and 12 of a total of 97).

6.2 Corrective Action Request

As mentioned before in paragraph 5.2.2, customers and employees can raise a Corrective Action Request. The data analysis w.r.t. a CAR does not include the Survey type CAR, as this data has already been covered within the VOC data analysis. The data listed does only include HPS-SO related items for E&C business and contains the data from beginning of 2007 till 2009 Q1. The number of CARs (Direct and Internal) is illustrated in Figure 20.

Figure 20 - Number of Internal and Direct CAR

What we see is an increase in the number of CARs since 2007. The Stream Analysis Chart and resulting Bar Chart can be found in respectively Appendix XIII and Figure 2 of Appendix XIV. From the Stream Analysis we see that almost all Direct CAR relate to the "Staff" element or "Poor hardware and/or software". This seems logical, as customers deal in the first place with the service Engineers and the delivered HPS portfolio consisting out of hardware and software solutions. At the other hand, the Internal type CAR relate almost all to damaged, missing or wrong delivered parts. It is not clear if damaged parts have to deal with proper packaging or with e.g. imprudent handling. At last we noticed that a few other Internal type CAR relate to CP/S processes and tools.

6.3 Personal Interviews

For exploratory research and to describe HPS-SO by means of the 7S-framework of McKinsey, we have chosen to use the communication approach, and more specific by

Interviews

Honeywell ACS
Honeywell Process Solution
EMEA, Northern Europe, NL
Service Operations Department
Chemicals & Energy

Country Business Leader
Service Operations Leader
Discipline Leads (2x)
Project Manager Service
Service Leads (3x)
Team Lead BB (1x)
Field Service Engineers (3x)
Sales Department (2x)
Quality Leader (1x)

Attendees

attending a few meetings and to conduct personal interviews. A great strength of this approach is its versatility, and that we can stop if no new information becomes available anymore. The research question comprise the Dutch HPS-SO department, but we also considered the interactions with the interconnected departments as illustrated in Appendix IV. Face-to-face interviews will be used as survey method, as responsiveness, use-of open questions and ability to probe (details) are key to obtain the proper information. Another reason for the chosen survey method is that I work within Honeywell since 2001 and know most of the involved employees and therefore the ability and willingness of the chosen participants to cooperate could be high despite the high workload. To obtain a true response from the used questionnaire design, three conditions are necessary. The questions have to be clear, the respondents have to be able to provide the information, and the respondents must be willing to provide the required information.

The Stream Analysis Chart and resulting Bar Chart can be found in respectively Appendix XIII and Figure 3 of Appendix XIV. What we see is that most of the issues which came from the meetings and personal interviews are related to the "Systems" element of McKinsey (26 of a total of 43). We have made difference between "Systems and Tools" and "Processes and Procedures". Another important element which came up during the interviews is the "Staff" element of McKinsey (13 of a total of 43) in where both hard and soft elements were mentioned.
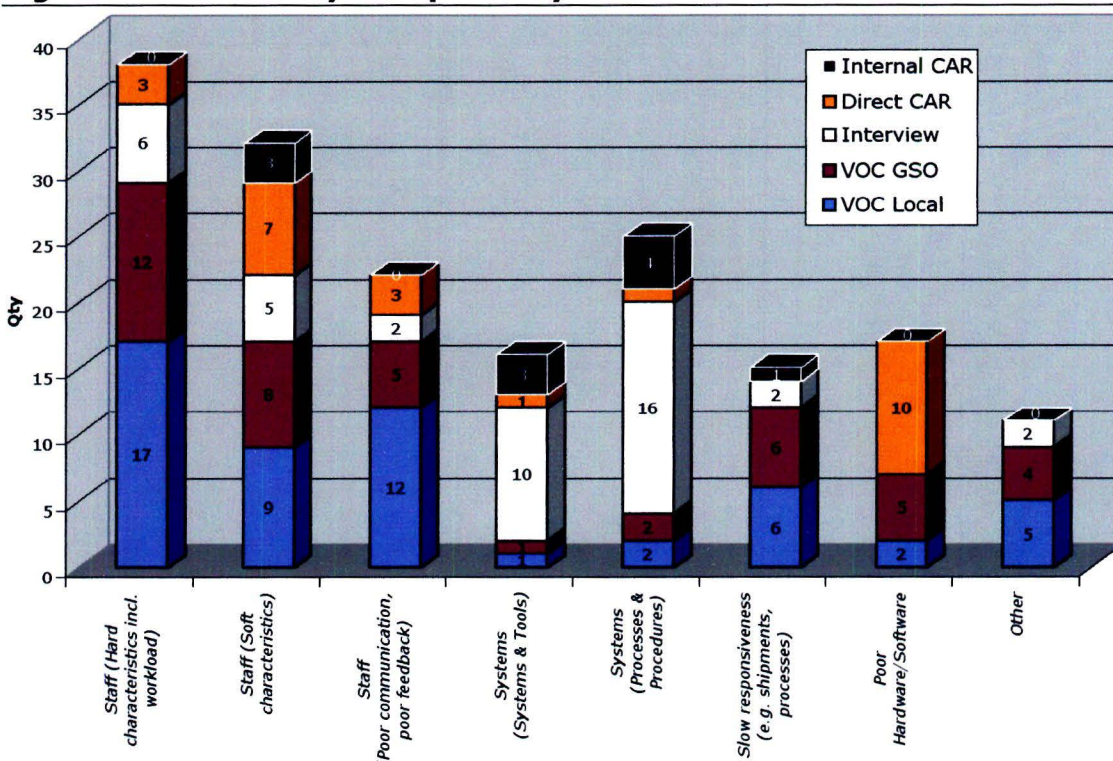
6.4 Stream Analysis of Porras

As mentioned in the intro of this chapter we will use three steps of the Stream Analysis Method of Porras to discover the Root Causes of the problems. The first step includes the Classification of Problems into Streams and is used to reach consensus over the meaning of each problem from the exploratory research. For the streams we have initially set out all HPS-SO problems against the 7S's of the 7S-framework of McKinsey from Chapter 5 resulting in a Stream Analysis Chart (6.4.1). The second step tries to establish interconnections among the problems from the different streams resulting in a Stream Diagnostic Chart (6.4.2). Finally, the last step will highlight the Core Problem and includes among others the Story Analysis (6.4.3).

6.4.1 Classification of Problems into Streams

This step is used to reach consensus over the meaning of each problem from the exploratory research and to classify each problem into a particular stream. As about 80% of all items including the data from the other exploratory research methods (138 of 176) fall within the elements "Systems" and "Staff", we have decided to adjust the categories to show more detailed information. After careful analysis of all aspects, as illustrated in Appendix XII, we have changed from the 7S's of McKinsey to the following categories: (a) Staff - Hard characteristics including workload, (b) Staff - Soft characteristics, (c) Staff - Poor communication and feedback, (d) Systems & Tools, (e) Processes & Procedures, (f) Slow responsiveness w.r.t. shipments and global processes, (g) Poor Hardware and/or Software, and (h) Other.

Figure 21 - Data Analysis Exploratory Research

From a Stream Analysis of all Data Collection Sources mentioned in Paragraph 6.1 till 6.3, we have obtained the Bar Chart in Figure 21. What we see is that the element "*Staff*" and "*Systems*" of McKinsey contains the most issues (respectively 92 and 41 of 176). As we have a long list with 176 issues, we will group the problems into related issues, as this will ease the "Establishing Interconnections among Problems" step of Porras. Refer to Appendix XIII for the Stream Analysis Chart.

The following grouped issues have been found:

1. **Staff (Hard characteristics incl. workload)**
   - Insufficient technical skills of Engineers.
   - Bad availability of (skilled) Engineers: lack of resources, only few specialists for specific knowledge domains, response time for jobs too long, workload specialists high, send wrong Engineer onsite.
   - Too many times a follow-up visit is needed; no "Do it right the first time".

2. **Staff (Soft characteristics)**
   - Behavior of Engineers not appropriate: not service oriented, not service complicit and not customer focused, no value for money.
   - Slipping of existing processes and procedures.
   - No follow up and guarding of contract entitlements; pro-active approach missing.
   - No One Honeywell; departments don't work well together.

3. **Staff (Poor communication, poor feedback)**
   - Questions not answered or slow response by Engineers and helpdesk.
   - Non frequent and effective communication; applies also for internal Honeywell departments.
   - Pro-active approach missing: changes not communicated, customer not kept informed (feedback, new product launches and upgrades)

4. **Systems (Systems & Tools)**
   - Increase of administrative burden and rework.
   - Difficult to get data out of the Honeywell systems e.g. overview of delivered services and parts, maintenance contracts etc. in Siebel and SAP.
   - Poor availability and speed of CP/S (e.g. Siebel).
   - Skill matrix in Siebel not user friendly.
   - CAR system not functioning well.

5. **Systems (Processes & Procedures)**
   - Follow-up assessments to ensure corrective actions have been fully implemented in accordance with commitments made to the customers are not performed.
   - Escalation processes missing or not up-to-date.
   - Lack of standardization of approach due to varying customer requirements and "perceptions" resulting in higher implementation time & associated costs.
   - Too many forms use; no standardization.
   - Contract entitlements unclear and not standardized.
   - Information on invoices send to the customer not clear and missing relevant information.
   - Spares parts process lacking: non-functioning and wrong spare parts delivered to customers.
   - Communication process to SMS in Den Bosch not working well.

6. **Slow responsiveness (e.g. shipments, processes)**
   - TAC lead times too long.
   - Lead time of (spare) parts too long.
   - Lead time of repairs too long.

7. **Poor Hardware/Software**
   - Poor quality of hardware and software.

8. **Other**
   - Honeywell website not informative and difficult to navigate.
   - Pricing model complex and expensive products.

6.4.2 Establishing Interconnections among Problems

As the problems have been classified and are grouped, an analysis can be conducted to determine the interconnections among the problems. For the interconnections among problems we have combined the outcomes of the Stream Analysis Chart and the outcomes from the 7S-framework, as some of the 7S's are believed to be fundamental core problems. We have skipped the "Other" group from the Stream Analysis as this will give no added value. Appendix XV shows the Cause and Effect Diagram based on the Stream Diagnostics Chart of Porras (1987) with exception that we did not use columns to highlight the different streams. The streams are indicated by a color or can be found at the right side of an issue.

6.4.3 Core Problems and Story Analysis

What we see from the Cause and Effect Diagram based on the Stream Diagnostics Chart of Porras (1987) is that there are (fundamental) core problems and symptoms. Most of the reported issues by customers can be seen as symptoms.

No time and/or money to train Engineers results in Engineers with insufficient technical knowledge and a lower availability of skilled Engineers. This means that the more experienced Engineers will have a higher than normal workload which can result in Engineers leaving the company and the danger of a snowball effect. Sending less competent Engineers onsite results in customer complaints, less value for money, and so a decrease in customer satisfaction. We also see that powerful customers begin to claim more experienced Engineers with success. Refer to Appendix XVI for the story chart.

Issues with the Honeywell Initiative "Enablers" and more specific CP/S leads to serious problems within the company and a recurring loop is strengthening the problems. First of all non-functioning and non-user friendly systems lead to an increase in the administrative burden and to rework, resulting in a higher workload and an increase of administrative failures. As we know that "what goes in" "goes out", one will work with non-reliable and missing data, leading to wrong conclusions and again to rework.
All of this will result in a higher workload resulting in a decrease of customer satisfaction as mentioned before. Examples are entering customer data in both Siebel, SAP as in a local tools; the systems are not synchronized and rework is needed. Another example is that the Skills Matrix in Siebel is not user friendly and easy to work with. For this reason one works again with a local "Skill Matrix" tool. Refer to Appendix XVI for the story chart.

The translation of the Honeywell Vision and Strategy to Group and Individual G&Os can be improved and should be SMART. At this moment one has less feeling with the Honeywell Vision and Strategy. Clear G&Os derived from the Vision and Strategy should highlight how the department (group) and individuals can help to achieve or contribute to the five Honeywell Initiatives Growth, Productivity, Cash, People, and Enablers. Judgment and Reward should be key to continuously improve employee behavior and

performance. Missing aligned G&Os result in departments not working well together, low value for money, and missing customer-centric behavior; all leading to symptoms resulting in a decrease of customer satisfaction. Refer to Appendix XVI for the story chart.

The present Management Style & Organizational Culture should be adapted in these economic difficult times to adhere to customer satisfaction. At this moment the baseline on the base values are slipping. It is a combination of slipping of processes (procedures and work instructions), mismatches in present structure, and missing of people management and direct coaching. The management style of "loose delegation of responsibilities" should be adapted towards a more "direct coaching" approach. The present style of "communicating the message" must be transformed into "securing the message has been understood". Missing and non up-to-date processes and procedures should be adapted and standardization of contracts and document templates will increase understanding and brand image. As processes and procedures are not followed and slipping, this leads again to an increase of the administrative burden and rework, and does not apply to Honeywell's Quality & Productivity Policy "Right the First Time in All Aspects of Business". All the above mentioned results in symptoms decreasing customer satisfaction. Refer to Appendix XVI for the story chart.

To determine the ranking of the streams we have used the product of the scores of three factors below. Ranking of problem = Factor 1 x Factor 2 x Factor 3

A. Factor 1 – based on the number of reported issues per stream.

# Issues	Score
0-10	1
10-20	2
20-30	3
30-40	4
40-50	5

B. Factor 2 – The severity of the stream by a subjective analysis of the Focus Team[17] ranked from 1-5 in where 1 has the lowest and 5 the highest severity.
C. Factor 3 – The easiness to solve the problem for the local affiliate based on required resources, time and direct costs by a subjective analysis of the Focus Team ranked from 1-5 in where 1 has the lowest and 5 the highest chance for improvement.

The completion of the ranking of the streams can be found in Appendix XVII. Table 3 gives an overview of the scores and ranking of the streams.

Table 3 - Ranking of streams

Stream	Score	Rank
Staff (Soft characteristics)	64	1
Staff (Poor communication & feedback)	60	2
Staff (Hard characteristics incl. workload)	60	2
Systems (Processes & Procedures)	45	3
Slow responsiveness (Shipments & Global processes)	24	4
Poor Hardware/Software	20	5
Systems (Systems & Tools)	12	6
Other	8	7

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[17] The Focus Team consisted out of the Quality Leader, the Field Service Leader, the Team Lead of the Project Consultants and Engineers, and Myself.

7. Research Results

From Interviews and Local VOC surveys it became clear that customer satisfaction has improved since beginning of 2006 till Q3-2008, but is decreasing since that time. The Globally performed VOC surveys indicated a decrease in customer satisfaction from 2007 to 2008. The increase in Corrective Action Requests confirms this decrease since 2007.

Research shows that in the period 2006 till May 2009, xxx Engineers have joined HPS-SO Energy & Chemicals; xxx from outside the company and xxx internally from the Pulp, paper & Printing business. From beginning of 2007 till May 2009, xxx experienced Field Service Engineers have left the company for various reasons. Xxx of these xxx have left the company from 2008 till May 2009. The negative side effect is that new employees cannot make the same amount of billable hours as the more experienced employees who left and that the work pressure at the more experienced Engineers has grown last years. What we see at HPS-SO is that at good times there is less time to train and in less economic times, there is less budget to train as is nowadays the situation. Anti-cyclic behavior should be favorable with regard to training. Besides this a balanced workforce and balanced customer demand results in increased internal efficiency and so has a positive effect to productivity and quality.

Beginning of 2003 a new Customer Relationship Management tool (Siebel) and in July 2008 a new Enterprise Resource Planning (SAP) tool was introduced top-down by CP/S. These Global Tools have changed Honeywell's core business processes, and most employees have experienced a negative change in their job as a result of this, resulting in an increase of the administrative burden and rework.

If one looks at the Service Productivity[18] KPI defined by Grönroos and Ojasalo (2004) from Paragraph 4.3, one can see that despite a raise in revenue, the Service Productivity KPI is declining since 2006. This means that cost effects of internal and capacity efficiency has grown faster than the revenue effects of external and capacity efficiency.

From the exploratory research based on the VOC surveys and direct Corrective Action Requests, it became clear that customers have most complaints with regard to the "Staff" element of McKinsey. Besides this issues related to the "lead time of TAC support, shipments and repairs", and "poor hardware and/or software" showed off.
From exploratory research based on attending meetings, interviews with internal employees and internal Corrective Action Requests it became clear that the "Staff" and "Systems" element of McKinsey showed off.
The Cause and Effect diagram based on the Stream Analysis Chart of Porras and the 7S-framework from McKinsey applied to HPS-SO shows that many issues reported by customers are symptoms. Symptoms present are (a) questions not answered, (b) slow response by Engineers and the Operational Support Unit, (c) no frequent and effective communication, (d) ongoing issues not solved, (e) customers not informed w.r.t. changes, new products etc., (f) low value for money, (g) response time for jobs too long, (h) TAC lead time long, (i) lead time spare parts long, and (j) lead times for repairs long.

From Analysis by the Focus Team it became clear that we need to focus on all *Staff* elements of the service organization in total. One has to demonstrate delivering service excellence and thereby increasing the likelihood of retaining and extending service contracts. The service organization in total covers both supervisor layer and field service Engineer layer, both operations layer (external) and supporting to operations layer (internal). Quick wins which lead to improved customer satisfaction are improving feedback and communication to customers.

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[18] Based on the Total Revenue and the direct Cost of Sales without SG&A (Selling, General and Administrative) Costs for HPS-SO.

Direct Coaching and securing the message has been understood is crucial for success as these are solutions for the fundamental core problems.

During the yearly Quality Management Review in April this year, the local Management Team has started initiatives to improve customer satisfaction. According to the MT, the soft elements of the Staff element have been selected to have the biggest impact on customer satisfaction and therefore desires special attention. This report can highlight that one also has to look to the basis of these symptoms and problems as is mentioned above.

Due to production restructuring globally, issues with product development and long lead times have grown. The TAC related items are almost all from the year 2007 and the TAC performance has improved significantly over the last years due to changes made within the TAC organization. We expect that during 2009 and coming years issues with product lead times and product developments will improve significantly.

Poor Hardware/Software is mainly out of control of the Dutch affiliate and is part of the Global Strategy and Processes. Last decade there is a platform shift from proprietary to open systems and that the complexity has increased significantly. Besides this the pressure to distinct from the competition results in an ever decreasing time-to-market and bug free software solution are therefore an illusion and one has to accept that bugs are reality. The reasons for damaged hardware are unknown and should be investigated as this can have occurred in the production facility, during transport or within the local affiliate.

Another aspect mentioned by customers, is the pricing model, which is again out of control of the Dutch affiliate and part of the Global Strategy and Processes. Honeywell is looking into reducing its cost-base in a sustainable manner such as indirect overhead analysis, process changes, headcount reduction & low cost center development. As price is a perception, creating understanding and value for money are the key drivers to counterstrike this issue reported by customers.

As we know the ranking of the problems, we can do some additional literature research to get a better foundation how to overcome the causes of the mentioned problems.

8. Additional Literature Research

Based on the Research results in Chapter 7, we will provide additional literature research for the Staff element of McKinsey. Poor communication and feedback will be highlighted by means of the Communication Model (8.1). The soft characteristics will be highlighted by means of defining the Human performance Indicators (8.2).

8.1 Communication Model

Communication is essential for a company and its individuals to survive in the long end and it includes a persons ability to receive, transmit, and act on information. It comprises the information flows to and from the organization and within the organization. Effective communication is the result of a common understanding between the communicator and the receiver. Communication is the transmission of information and understanding through the use of common symbols in which the symbols may be both verbal as nonverbal[19].

The general process of communication contains five basic elements (Gibson et al, 2003), which are the communicator, the message, the medium, the receiver, and feedback.

Communicator	Message	Medium	Receiver	Feedback
Who ...	*says what ...*	*in what way ...*	*to whom ...*	*... with what effect*

We will use the communication model based on early work of Shannon and Weaver (1948), and Schramm (1953) and adjusted by Gibson et al (2003) as displayed in Figure 22.

Figure 22 - Communication Model
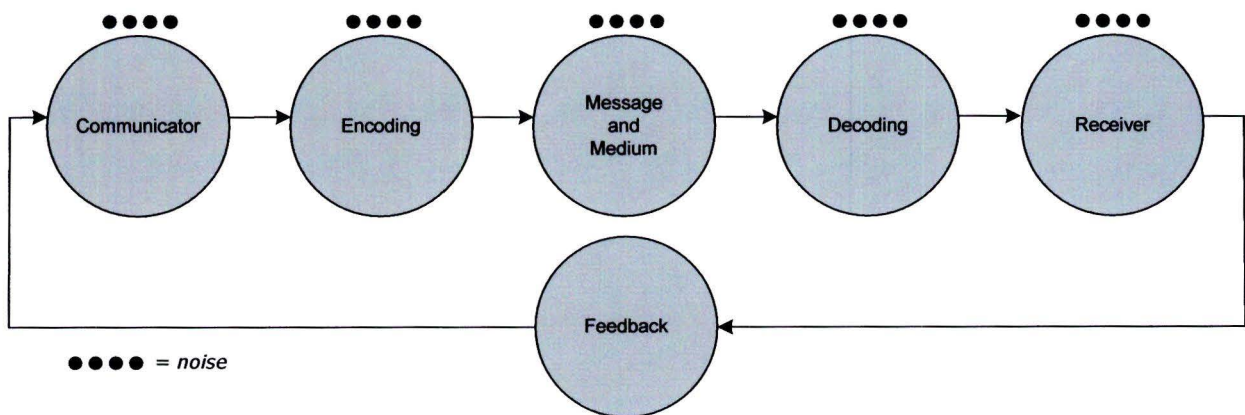
The communicator is the person sending out the message, which could be an idea, intention, and/or information. The encoding comprises the translation of the intended message into a systematic set of symbols. The message is the result of the encoding process including unintended messages. It is what the individual hopes to communicate to the intended receiver and depends to a great extent on the used medium. The medium is the carrier of the message, such as face-to-face communication, telephone conversations, SMS/MMS, fax messages, paper messages including memos, e-mail and instant messaging. One has to be aware that the medium to be chosen depends on the factors *Urgency* and *Importance*. Selecting the appropriate medium will have a major impact on communication performance and managerial performance.

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[19] Messages send with body posture, facial expressions, and hand and eye movements.

In case of high importance and high urgency, one has to use the medium face-to-face or telephone conversations. Decoding is needed to translate the message from the communicator by the receiver and involves interpretation based on the receivers previous own experiences and frames of reference. The feedback loop provides a channel for receiver response and enables the communicator to determine whether the message has been received and understood as intended (two-way communication). Indirect means of feedback, such as decreasing quality, may indicate communication breakdowns. Finally noise can be all different type of factors such as time-pressure and different interpretation of words, that distort the intended message.

Communication within the Organization

The design of the organization should provide for communication in four distinct directions and provide the framework within which communication in the organization takes place:

1. *Downward*: communication that flows from higher to lower levels in the organization including management policies, job instructions, official memos, procedures, manuals, and company publications. On has to be aware that downward communication is often both inadequate and inaccurate, and an individual's need for relevant information to their jobs should be central.
2. *Upward*: communication that flows from lower to higher levels in the organization including suggestion boxes, group meetings, and appeal or grievance procedures. A study of Smither et al (1995) found that in organizations with an effectively implemented upward communication programs, the majority of the managers improved their performance. Upward communication is necessary for sound decision making.
3. *Horizontal*: communication that flows across functions and/or departments in the organization necessary for coordinating an integrating diverse organizational functions. An example is the communication between the service department and the Engineering and/or sales department. Peer-to-peer communication is the preferred method for this type of communication.
4. *Diagonal*: communication that cuts across functions and levels in the organization, which is important when the other three types of communication channels do not work effectively. The diagonal channel is most efficient in terms of time and effort.

Grapevines, rumors, and gossip are deeply ingrained in organizations and managers must be aware of what is going on. Employees should be informed by the management about what's going on by means of a formal company newsletter or briefing. Rumors causing fear and anxieties (The Bogie rumor according to Mishra, 1990), dividing groups and destroying loyalties (Wedge drivers according to Mishra, 1990) should be corrected by mangers by feeding accurate information to primary communicators or liaison individuals.

Interpersonal Communication

Interpersonal communications flow between individuals in face-to-face and group situations. It is the primary means of managerial communication. The problems that arise with interpersonal communication can be traced to perceptual differences and interpersonal style differences, in where the latter deals with the manner in which we relate to other persons. The Johari Window (1955) below identifies four combinations of information known and unknown by the self and others.

Figure 23 - The Johari Window
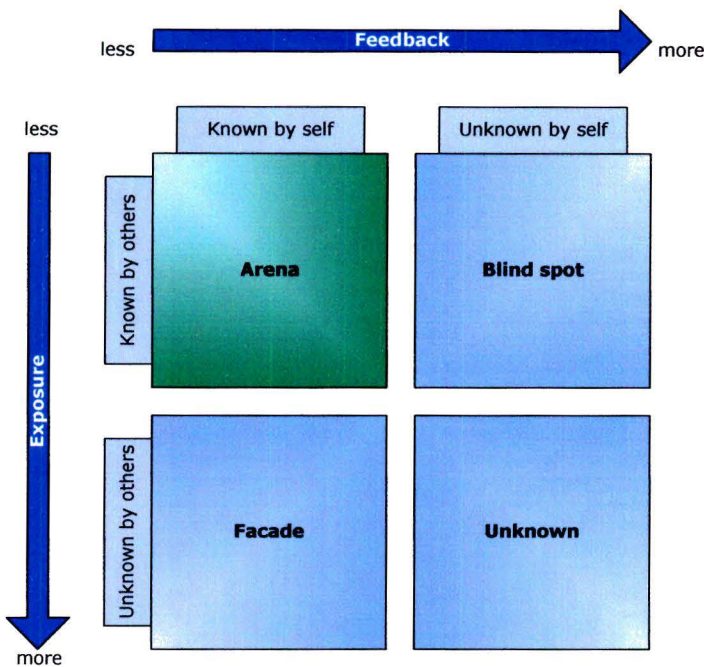
The ideal combination is called "*Arena*", in where both persons share identical feelings, data, assumptions, and skills. All of the information necessary to carry on effective communication is known. The larger the Arena area, the more effective the communication is. The "*Blind Spot*" area occurs when the relevant information is known by others, but not by the self and thus results in a handicap for the self (disadvantaged situation). The interpersonal relationships and communications suffer. The "*Facade*" area comes in place when there is an advantaged situation of the knowledge by the self and may result in superficial communications and reduces the possibility of effective communication. At last the "*Unknown*" region can arise when individuals in different specialties must communicate to coordinate what to do. Interpersonal communications is poor in these circumstances.

To improve the interpersonal communications, one can utilize two strategies: (A) Exposure, and (B) Feedback. *Exposure* means decreasing the unknown by others and requires the self to be open and honest in sharing information to the other. *Feedback* at the other hand means to reduce the blind spot of the self, and depends on the individual's willingness to hear and the other's willingness to give it.

Barriers to Effective Communication
To improve effective communication, one has to be aware of the possible barriers that have a negative impact on effective communication and can be seen as noise. The following barriers can be present during communicating the message.

A. *Frame of Reference*: this is according to communication specialists the most important factor that breaks down the commonness in communications as different individuals can interpret the same communication different, depending on previous experiences that result in variations in encoding and decoding processes.
B. *Selective Listening*: this is a form of selective perception, an individual tends to block out new information, especially if it conflict with existing beliefs.
C. *Value Judgments:* assigning an overall worth to a message prior to receiving the entire communication.

D. *Source Credibility:* the trust, confidence, and faith that the receiver has in words and actions of the communicator.

E. *Semantic Problems:* if the same words mean entirely different things to different people. The language expressed in common symbols is the same, but the understanding is not clear to the receiver.

F. *Filtering:* the manipulation of information so that the receiver perceives it as positive. This happens often with upward communication and the temptation to filter is likely to be strong at every level in the organization.

G. *In-Group Language:* in case jargon is used within groups. The use of in-group language can result in severe communication breakdowns when outsiders or other groups are involved. Communication skills training to affected individuals is an effective way to facilitate effective communication between involved parties.

H. *Status Difference:* this can be perceived as threats by persons lower in the hierarchy, and can prevent or distort communication.

I. *Proxemic Behavior*: an important element of non-verbal communication, which comprises an individual's use of space (distance between communicator and receiver in meters) when interpersonally communicating with others. It consists out of four zones of informal space according to Hall (1974)[20].

J. *Time Pressures:* short-circuiting is a failure of the formally prescribed communication system that often results from time pressures such as bypassing the formal processes and procedures in case of an emergency or rush order.

K. *Communication Overload:* when individuals feel buried by a deluge of information and data. They are not able to absorb or adequately respond to all of the messages directed to them.

When one wants to improve the communication, one must be aware of the difference between barriers within individuals (e.g. A and C) or within organizations (e.g. F and G). The difference in focus for the first is the people itself, and for the latter the organizational structure.

Intranet improves both the efficiency as the effectiveness of internal organizational communication. Honeywell makes actively use of intranet pages and team rooms.

Improving communication in Organizations

Improving communications means improving the message and improving the understanding, or improve the encoding and decoding of the message. The following techniques can be used to accomplish the above mentioned tasks.

A. *Following up:* assume that you are misunderstood, and attempt to determine whether your intended meaning was actually received.

B. *Regulating Information Flow:* regulate the information in both quality and quantity based on the exception principle of management[21].

C. *Utilizing Feedback:* to be effective, feedback needs to be engaging, responsive, and direct toward a desired outcome. Feedback for two-way communications can be easily verified, as is the same for face-to-face communication with help of direct feedback. Downward communication does not guarantee that communication has occurred. Communicating the message is not enough; securing the message is understood is key for effective communication.

D. *Empathy:* the ability to put oneself in the other person's role and to assume that individual's viewpoints and emotions. This is needed to understand and appreciate the process of decoding. Empathy is a skill that is not easy to develop.

E. *Repetition:* introducing repetition or redundancy into communication (especially in case of technical nature) ensures that if one part of the message is not understood, other parts carry the same message.

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[20] Hall's (1974) four zones of informal space are: (1) intimate zone, (2) personal zone, (3) social zone, and (4) public zone.

[21] Bring only significant deviations from policies and procedures to the attention of superiors.

F. _Encouraging Mutual Trust:_ time pressures often mean that people cannot follow up communication and encourage feedback or upward communication every time they communicate. An atmosphere of mutual confidence and trust can facilitate communication in these circumstances.

G. _Effective Timing:_ effective communication can be facilitated by properly timing major announcements. Retreats can be effective to lessen distortions and value judgments.

H. _Simplifying Language:_ complex language has been identified as a major barrier to effective communication. Messages must be encoded in words, appeals, and symbols that are meaningful to the receiver.

I. _Effective Listening:_ this comprises listening with understanding and is a skill that is not easy to develop.

8.2 Human Performance Indicators

As the Staff element of McKinsey shows off from the exploratory research, we have done additional research to human performance indicators. The (in)actions of individuals are influenced by (a) the organization they work for, (b) the procedures (formal, informal, software) they use to perform activities, (c) the structure and equipment involved in the activities, and (d) the environments in which the individual conducts activities.

Basically we can make distinction between internal and external performance shaping factors[22] as illustrated in Table 4.

Internal	External
- Training/skills - Practice/experience - Knowledge of required performance standards - Stress - Intelligence - Motivation - Personality - Emotional State - Physical Condition/Health - Culture	_Situational Characteristics:_ Architectural features, Environment (noise, heat, humidity, lighting, etc.), Work hours and schedule, Availability of equipment, Staffing levels, Actions by Supervisors, and (Customer) policies. _Task, Equipment, and Procedural Characteristics:_ Procedures (written or unwritten), Communications (written or oral), Work methods, Frequency/ repetitiveness, Physical requirements, Complexity (information overload), Feedback, Hardware interface factors (design, job aids, equipment), and Task criticality. _Physiological/Psychological Stressors:_ Fatigue, Climate extremes, Movement repetition, Sleep deprivation, High task overload, Threats, Negative reinforcement, and Lack of rewards, recognition, or benefits

Table 4 - Overview of Performance shaping factors

Competence Development with respect to Personnel Development should be top priority, and from research it became clear that coaching will give the best result. Competencies which should be considered are technical (product values), economic (service values), behavior (Relation values), and professional (service values).

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[22] Source: a _Manager's Guide to Reducing Human Errors, Improving Human Performance in the Chemical Industry, Chemical Manufacturer's Association, July 1990._

8.3 Service Quality and Excellence

The attainment of "service quality" according to Ghobadian et all (1994) requires:

A. <u>Market and customer focus</u>. Service quality problems are more likely to arise in organizations that are not focused on identifying and acting on the customer's needs and expectations. Honeywell should put itself in the "customer's shoes" and build its policies from the customer's vantage point.

B. <u>Empowerment of frontline staff</u>. Service quality can be enhanced by giving frontline staff the latitude to make important decisions regarding the customer's needs.

C. <u>Well-trained and motivated staff</u>. Frontline staff who are not adequately trained for their job will find it difficult to perform their tasks effectively. This will be noted by the consumer and is likely to cause adverse quality perceptions. It is also important to ensure that frontline staff are effectively supported and well motivated. Motivated staff require the provision of an appropriate and clear career ladder and opportunities; remuneration and recognition system; a measurement system; and appraisal procedures.

D. <u>A clear "service quality" vision</u>. One consequence of the interactive nature of service is the need for a clear vision of quality. In the absence of a clear vision and definition employees are likely to have their own interpretation of "service quality". Lack of common vision will inevitably increase the variability experienced by the customer within and without each stage of the service delivery. Inconsistency and variability of treatment is likely to have an adverse impact on the perception of quality.

Service quality determinants proposed by Parasuraman et all (1985) are described below:

1. <u>Reliability</u>: the ability to provide the pledged service on time, accurately and dependably.
2. <u>Responsiveness</u>: the ability to deal effectively with complaints and promptness of the service.
3. <u>Customization</u>: the willingness and ability to adjust the service to meet the needs of the customer.
4. <u>Credibility</u>: the extent to which the service is believed and trusted. The service provider's name and reputation, and the personal traits of front line staff all contribute to credibility.
5. <u>Competence</u>: staff should possess the necessary skill, knowledge and information to perform the service effectively.
6. <u>Access</u>: the ease of approachability and contact.
7. <u>Courtesy</u>: the politeness, respect, consideration and friendliness shown to the customers by the contact personnel.
8. <u>Security</u>: the freedom from danger, risk and doubt. It involves physical safety, financial security and confidentiality.
9. <u>Communication</u>: keeping customers informed about the service in a language that they can understand and listening to the customers.
10. <u>Tangibles</u>: including the state of facilitating goods, physical condition of the buildings and the environment, appearance of personnel, and condition of equipment.
11. <u>Understanding/knowing the customer</u>: this involves trying to understand the customer's needs and specific requirements, providing individualized attention, and recognizing the regular customer.

Most of the time delivering service excellence directly to customers will be handled by the FSE. There are certain skills that must be trained, next to the behavior aspects of the field service engineer. The final result of the service delivered to our customer can be measured with the formula below and the outcome is dependent on the performance of each of the three parameters within the formula.

$$Result = Knowledge * Behavior * Skills$$

When delivering service to customers there is always a starting point (*the beginning*) and an ending point (*the concluding*). Between these two points the actual service will be deployed to the customer. The final result of this service is dependent on the skills performed by the FSE and the perception of the customer. There is a distinction between task related skills and people related skills. Refer to Figure 24 at the next page for the illustration of above mentioned.

The beginning – Before the actual service deployment to our customers starts, the beginning phase must be considered. It's the preparation phase of our service delivery and the outcome i.e. result of our service delivery strongly depends on the actions taken here.
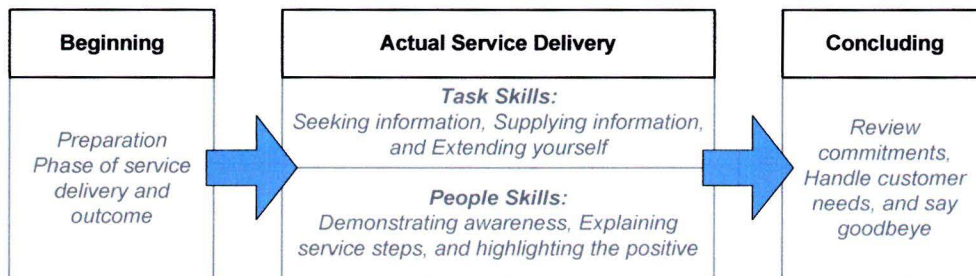

Beginning	Actual Service Delivery	Concluding
Preparation Phase of service delivery and outcome	**Task Skills:** *Seeking information, Supplying information, and Extending yourself* / **People Skills:** *Demonstrating awareness, Explaining service steps, and highlighting the positive*	Review commitments, Handle customer needs, and say goodbeye

Figure 24 - Three step model of service delivery

The task skills reflects the business level of skills used to deliver service excellence to out customer. Task skills that must be focused on are:
- Seeking information: Start with an open probe, get all the facts, and check your understanding.
- Supplying information: Give clear relevant information and check for customer understanding and acceptance.
- Extending yourself: Identify alternatives, provide extra information, and take extra action steps.

The people skills reflects the human level of skills used to deliver service excellence to out customer. People skills that must be focused on are:
- Demonstrating awareness: Refer to the customer's situation & probable feelings, and If appropriate, apologize.
- Explaining the service steps: State the what and how, and explain the why.
- Highlight the positive: Specify the customer, organizational, or personal strength(s), and say how it is helpful (if appropriate).

The concluding – When the actual service delivery to our customers ends, the concluding phase must be considered. It's the concluding phase were we can give additional attention to our customer and investigate if there are any open ends or further opportunities for future service delivery.

Review the commitments made, if appropriate. Indicate the availability of yourself or the Honeywell organization for future service, handle these customer needs yourself. Finally, before you leave, formally thank the customer.

When delivering service excellence to our customer from the beginning through the concluding, one must realize that service excellence delivery always start within the human level and always ends within the human level. It never starts or ends within the business level as is illustrated in Figure 25.
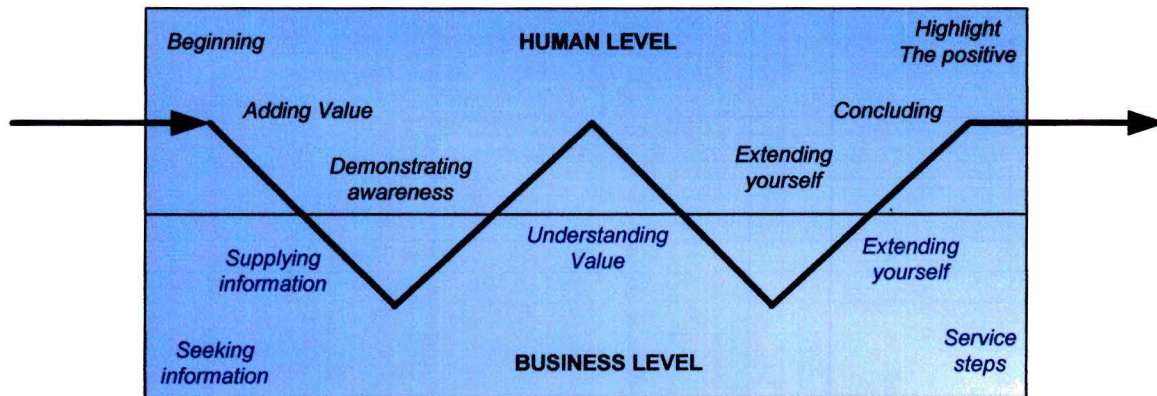

Figure 25 – Human vs. Business level in service delivery

9. Guidelines and Recommendations

From the Core Problems and Story Analysis in paragraph 6.4.3 and the Research results in chapter 7 it became clear that the top three rated items all relate to the "Staff" element of McKinsey. This chapter will illustrate an Ambiguous (9.1), Realistic (9.2) and Minimalistic scenario (9.3) and provide guidelines for an Improvement Plan for a real customer.
We know from the 7S-framework of McKinsey that changing a particular element means considering the other elements of McKinsey as all are connected to each-other and that balance, connectivity and heterogeneity are key for success in the long run. What we know from the Stream Diagnostic Chart is that the issues in the Staff element are no root causes, and cannot be solved by handling the aspect in isolation.

9.1 Ambiguous Scenario

In the ambiguous scenario all problems will be tackled which have the highest impact to customer satisfaction and which can be solved by the local affiliate.

From research (Ghobadian et all, 1994) it became clear that in the long term, the most important factor affecting business performance is the quality of goods and services offered by the organization, relative to its competitors. It costs about four times more to attract new customers and six times more people hear about a negative customer service experience than hear about a positive one. We have seen that customers' service expectations are constantly rising, while their tolerance for poor service is declining. Primary objective for HPS-SO (and HPS) should be to drive maximization of customer satisfaction by delivering "best in class service" to HPS customers through the optimal deployment of customer care skills and behavior of the workforce, the so-called "soft" quality objective. It should provide a framework that clearly defines how to improve customer satisfaction. The shared values and beliefs that "customer should be central" including the quality and safety objective, should be company wide and does not only affect HPS-SO.
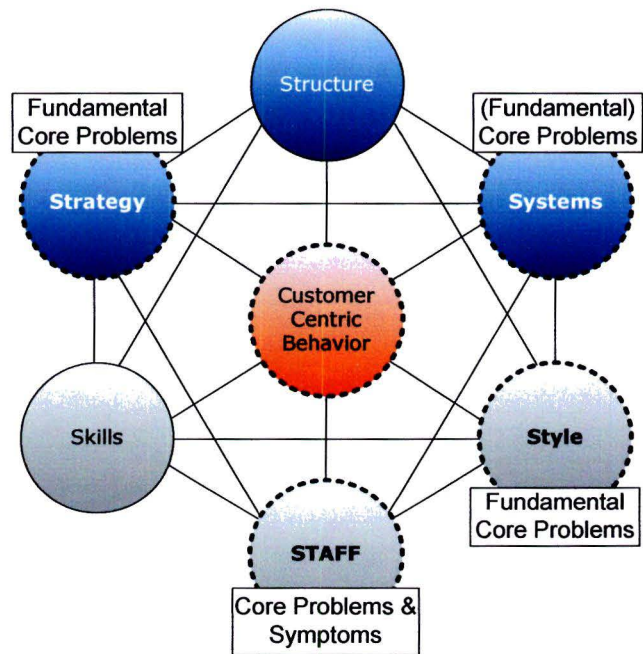
Management should give attention to the skills in understanding and responding to customers. Demand must be managed so that an optimal balance between perceived quality and internal efficiency can be maintained. Information from all departments should be combined and include the customers' needs and preferences, and underlying factors that influence these needs and preferences.

A market-led strategy which meets the desire to be better than the competition must be presents, and distinctive competencies must be linked to market opportunities to drive competitive advantage. The organizational structure must reflect this marketing strategy and should be adaptive to changing market conditions. Implementation requires clear communication of strategy and involves people, incentives, communications and persuasion. Top-down management attention is a key issue to reach the desired goals. Managing Change should be provided through power (Direct Coaching and Performance and Development) and reeducation (Training).

Honeywell

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Table 5 and Table 6 show the actions to be taken per improvement objective.

Table 5 - Solution scenarios Staff element

Objective	Who	How
(RANK 1) Staff Element – Soft Characteristics		
1. Achieve service oriented and customer focused behavior of Engineers	All	Training Course X, Development Plan in HPD – DL/FSL Repetition aspect (meetings)
2. The ONE Honeywell approach must be present	All	eLearning training module (LMS) Repetition aspect (meetings)
3. Existing processes and procedures must be followed	All	Creating awareness Direct Coaching G&O in HPD for All
4. Contract entitlement must be guarded and followed-up accordingly to ensure that issues are resolved and provide status on open issues.	SL, HR *Escalation: FSL*	Job description SL, G&O in HPD for SL, Regularly meeting SL & FSL
5. Service Requests must be guarded and followed-up accordingly	SL *Escalation: FSL*	Job description SL, G&O SL, Regularly meeting SL & FSL
(RANK 2) Staff Element – Poor Communication and Feedback		
6. Communications must be improved, both internal and external	All	Training Course X, Improve interpersonal communication (Arena area) -All Development Plan in HPD – DL/FSL Repetition aspect (meetings), Direct Coaching
7. Improve level of responsiveness to customer's questions	All	Training Course X, Repetition aspect, Direct Coaching
8. A pro-active, timely and periodic communication approach to contract customers must be present.	SL / Sales	Regularly meeting SL & Sales, Default entitlement in contract
(RANK 2) Staff Element – Hard Characteristics		
9. Technical skills of Engineers must be improved.	Specific FSE	Training Course Y, Skill Matrix by DL (gaps), Development Plan in HPD – DL/FSL
10. Availability of (skilled) Engineers must be improved	OSU	Better use of Skills Matrix – OSU Increase customer perception – SL & Sales
11. Provide first time resolution, Ease of accessibility, Accuracy of information & Avoidance of follow ups ("Do it right the first time").	All	Reserve preparation time – OSU Improve CP/S – CP/S Direct Coaching – SL/DL/FSL

Table 6 - Solution scenarios other elements

(RANK 3) Systems Element – Processes and Procedures		
12. Ensure greater standardization of approach because lack of standardization due to varying customer requirements and "perceptions" leads to higher implementation time and associated costs.	FSL, DL and Contract Manager	Standardize templates and used documents – DL/FSL Update processes, procedures and work instructions – DL/FSL Direct Coaching – SL/DL/FSL Training X G&O in HPD for DL/FSL
13. Standardize Contract entitlements	FSL, CM	Standardize contract entitlements – FSL / Contract Manager

14. Standardize Invoices and add control mechanism	CBL, Leader Back Office	Standardize invoices – CBL / Leader Back Office Adjust process and add control mechanism before sending out – CBL / Leader Back Office
15. Improve follow-up assessments to ensure corrective actions have been fully implemented in accordance with commitments made to the customers	FSL, DL, SL, HR	Insert follow-up assessment in processes/procedures – DL/FSL Job description SL, G&O in HPD for SL, Regularly meeting SL & FSL
16. Escalation processes missing or not up-to-date.	FSL, DL, HR	Update processes and procedures – DL/FSL Job description DL, G&O in HPD for DL/FSL Direct Coaching
17. Improve spare parts process	FSL, OSU, Procurement	Add visual incoming inspection in process/procedure – OSU/Procurement Test spare part – FSE
18. Improve communications to SMS	HR, OSU, NL33	Job description (responsibilities) – HR Set up contact matrix – OSU/NL33
(RANK 4) Slow responsiveness of TAC, Spare Parts and Repairs		
19. Improve TAC Lead Times	SL	Follow up of SR's outstanding by TAC and provide feedback to customer – SL
20. Improve Lead Time of spare parts	All	Perception to customer – All Training Course X, Follow processes – All Investigate lacking processes - OSU
21. Improve Lead Time of repairs	All	Perception to customer – All Training Course X, Follow processes (defect parts send to OSU) – All Investigate lacking processes - OSU

Without taking the following elements into account, success will be limited and will not survive in the long run.

Strategy: The translation of the Strategy to "Improve Customer Satisfaction" must be translated to Group and Individual G&Os and should be SMART. Judgment and Reward should be key to continuously improve employee behavior and performance w.r.t. the planned strategy.

Structure: The organizational structure introduced per beginning of 2009 is in line with the other elements set out in this chapter. Please refer to paragraph 5.2.1. for the organigram.

Systems: The current administrative systems in place will not change and comprise Siebel, SAP, Concur, and Lotus Notes. The local affiliate cannot improve the Common Processes and Systems themselves, and this initiative should be taken care off high in the organization. Providing feedback to the right persons will accelerate these improvements. All one can do is make the best out of it, and learn to live with it. Poor hardware and software is also out of control of the local Dutch affiliate, but close follow up to the customer complaints and a compensation in any form could tone down the issue.

The local processes, procedures and work instructions should be updated as most of them most of these processes are not adapted to the changes the organization went through in the last years, leading to procedures that have missing links to every day

practice. Creating awareness of the existence of these processes, procedures and work instructions is key for success and should be done in the HPS-SO department meetings (repetition aspect). Standardization of contracts and document templates must be performed as this will increase understanding and brand image.

Skills: Best in class service provider.

Style: The present Management Style of "loose delegation of responsibilities" should be adapted towards a more "direct coaching" approach. The present style of "communicating the message" must be transformed into "securing the message has been understood".

Shared Values: Customer centric behavior.

Staff: Competence Development with respect to Personnel Development should be top priority, and from research it became clear that coaching will give the best result. Competencies which should be considered are technical (product values), economic (service values), behavior (relation values), and professional (service values).

Soft characteristics
The key priority which requires attention are the soft characteristics of the HPS-SO employees which comprise moral, motivation, and behavior. Behavioral change techniques should redirect and increase employee motivation, skills, and knowledge basis (Gibson et all, 2003). Employees must be more service oriented and customer focused so value for money will increase. Direct Coaching, SMART based Goals and Objectives, and securing the message has been understood are all key for success. Repetition of the shared values and beliefs that customers are central will strengthen this aspect. Repetition should occur during the All Employee Meeting, half-year Toolbox Meeting, DL meetings, SL meetings, and FSE meetings.
The slipping of processes and procedures must be brought back to an acceptable level by means of direct coaching and judgment of the G&Os in the yearly performance evaluation and mid-year update. New or less experienced Engineers could have a mentor, who will support the Engineer in his daily work w.r.t. technical skills and the processes, procedures and work-instructions within HPS-SO. This mentor approach should be part of the mentor's G&Os.
The missing pro-active approach has been partly solved by changing the Organizational Structure of HPS-SO per beginning of 2009 with the introduction of the Service Lead concept, in where the SL is responsible for all Operational aspect of the customer. The job descriptions have been accordingly adjusted, so the individual responsibilities are clear. The chance for success will be increased by means of direct coaching and judging the responsibilities in the performance evaluation of the different functions.

The success of a customer interaction can be significantly influenced by the way the initial customer contact is made. Effective openings enhance overall customer satisfaction, and will reinforce customer loyalty. There are three key steps at the beginning of an interaction which support effective openings to enhance overall customer satisfaction:

- Project professionalism: indicating you are someone that can help and adds value.
- Communicate willingness: to help the customer resolve his problems.
- Consider the customer: his specific situation and probable feelings.

A training about "customer centric behavior" (*Training X*) is advised to provide guidelines and can be used as a framework by the management. The content of the training program initiative must handle improving present customer skills within Honeywell, and to give employees the confidence to use these skills to develop relationships with the

customers that in turn would drive improved business performance. The content of the training must focus on the skills a FSE needs to demonstrate "in the frontline" with the customer in every action they perform to deliver service excellence. Expected benefits comprise increase in customer loyalty, increase in customer retention and reduction at-risk cancelled contracts, less rework and more "first time right" behaviour, and improvement in sales and conversions of existing installed base. Supervisors must be driving quality and FSE's must be delivering service excellence.

Poor communication, poor feedback
Honeywell needs to strengthen communications and responsiveness by establishing expectations and procedures for keeping consumers informed. This can be done by returning phone calls and e-mails and regularly communicate in ways that are helpful.

Customers must be educated and informed in such a way that, through their participation in the service process, they contribute positively to customer-induced quality and productivity as well as to interaction-induced quality and productivity. An example is Honeywell Connect, a self-service channel which is able to provide feedback to customers on the status of a job in case the SR has been set to "External". Customers can also create a SR themselves this way, which automatically will be assigned to the Operational Support Unit.

Improving communications and feedback to customers can be improved by adopting the communication approach to customer and internally as illustrated in Figure 26 and by obtaining Training X.
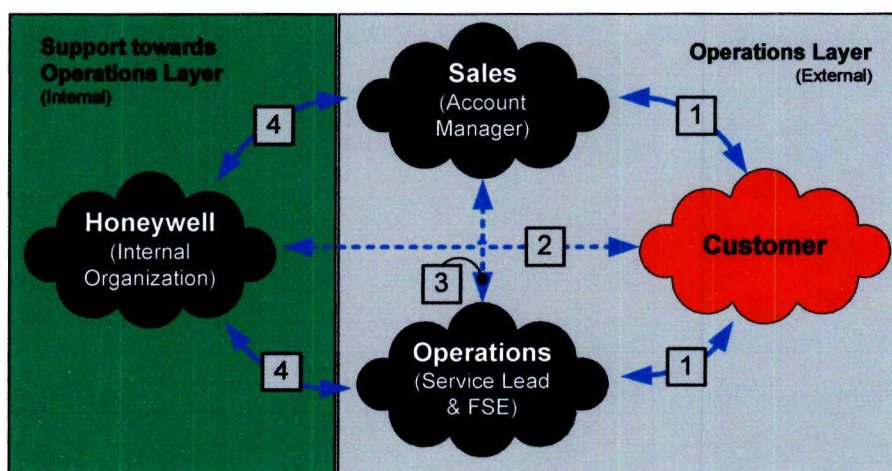

Figure 26 – Communication Model

[1] Customers have different channels to get in contact with Honeywell and since beginning of 2009 all Operational aspects are responsibility of the Service Lead. On a regular basis the SL will contact/visit the customer to discuss the daily operational business performed by HPS-SO. Follow-up assessments should be conducted to ensure corrective actions have been fully implemented in accordance with commitments made to the customers. Besides this the responsible (AMS) Account Manager will visit the customer on a regular basis w.r.t. all Sales related items. All jobs from customers will be handled by the Sales department. All contract customers should have at least a Yearly Account Meeting in where the responsible AM, AMS AM and SL should participate. This meeting should reflect the contract period and summarize all relevant aspects a.o. Account structure and contacts, Contract entitlements, Open and closed SR's, Projects, Ongoing issues and actions items, Expectations, Information Sources, etc.

[2] In case customer have questions w.r.t. contract management activities, the planning and/or delivery of materials, they should contact the Operational Support Unit. Incident Handling, should always go via the Call Center.

[3] Regular contact between (Service) Sales and Operations must be present and formal internal customer meetings will increase the chance for following up commitments made.

[4] Finally there must be communication between Sales, operations and the other HPS departments. An example is that if Sales requires assistance from HPS-SO for creating a quote, an SR must be obtained from the Operational Support Unit.

Management should create awareness of the to be used communication mediums depending on the urgency and importance of the message, which could be supported by the so called Training X.

Hard characteristics
Every non-standard knowledge domain, part of customer contract entitlements, should be part of the skills of at least two or three Engineers. An overview of all available knowledge domain should be updated in the Skills Matrix and all knowledge gaps should be highlighted.
Improving the technical skills of Engineers and the availability of (skilled) Engineers can only be achieved by the combination of attending training courses and training on the job by means of the mentor principle. The outcomes of the resource consultation by the Operations Support Unit and the Discipline Leads could be checked by the Service Leads, as they are responsible for the daily Operations at the customer. Direct Coaching by the FSL to the SL's should avoid that the SL's go to the customer themselves in case no Engineer with the right capabilities is available. In this situation the SL should act as a coach and assist the less experienced Engineer onsite.
Engineers also have to apply the "Do it right the first time" principle as too many times a follow-up visit is needed. The Operational Support Unit and the Engineers themselves should always plan time to prepare for a site visit and if necessary ask help. Follow-up by the Service Lead and Operational Support Unit is needed to improve this process.

9.2 Realistic Scenario

The Realistic Scenario comprises adjustments in the Culture and Management Style and in two out of three Staff elements and a few aspects from the Systems (Processes and Procedures) element. As budget for training is hard to get in these economic times, we will apply all aspect from the Ambiguous Scenario, but training will be limited to employees making part of the pilot project for a real customer to see if improvements occur.

Pilot Plan for a Real Customer
In Q2-2009 several interviews were kept with two key customers of Honeywell to improve the quality delivered by Honeywell Process Solutions in total at request of these customers. At request of the Core Team, I will present guidelines how to improve the quality based on the research in this report.

The first step will be to setup a "Customer Quality Improvement Team" company wide, who will be responsible for the implementation of a proactive engagement model between Honeywell and the specific customer. What we need is to apply a Collaboration Culture, in where success is reached by building, developing, and making use of effective teams. The Customer Quality Improvement Team consists out of people with diverse capabilities in where openness is crucial for success.

Customer Quality Improvement Team
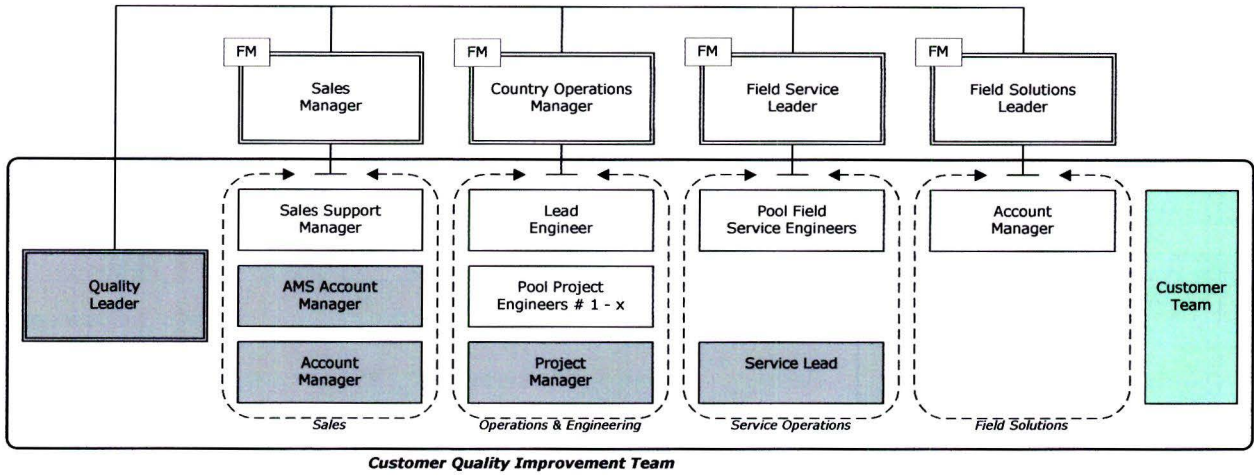
Advantages of this type of team setup are commitment, autonomy, and strong generalists. Basically there is a core team led by the Quality Leader and existing out of the responsible overall Account Manager for all Sales related items, an AMS Account Manager for all AMS Sales related items, a project Manager for all project related items, and a Service Lead responsible for the After Market Service. The Quality Leader (QL) is responsible for following up commitments in the core team and to the customer and can be seen as the guard of the improvement team. In case designated officials have failed to give resolution within the prescribed time frame, lack of commitment of the team members or a conflict, the Functional Manager (FM) should take accountability and the necessary corrective actions in.

The second step will be to plan customer meetings with the core team and discuss open issues and create an action plan how to solve the open issues. Ownership and follow-up are key for success. Improvements made should apply to the 7S-framework of McKinsey and all elements should be taken in consideration.

9.3 Minimalistic Scenario

The Minimalistic Scenario should be adjustments in Culture and Management Style and improvement of the Staff element "Poor communication and poor feedback" as this is the easiest to accomplish. In this case no "customer centric behavior" will be accomplished and only short term improvements will be noticed. Refer to Table 7 for the steps to be taken.

Table 7 - Solution scenarios Staff element (*Poor Communication and Feedback*)

Objective	Who	How
(RANK 2) Staff Element – Poor Communication and Feedback		
1. Communications must be improved, both internal and external	All	Improve interpersonal communication (Arena area) -All Repetition aspect (meetings), Direct Coaching
2. Improve level of responsiveness to customer's questions	All	Repetition aspect, Direct Coaching
3. A pro-active, timely and periodic communication approach to contract customers must be present.	SL / Sales	Regularly meeting SL & Sales, Default entitlement in contract

Epilogue

Will Honeywell become best in class service provider or will the service delivery decline and will employees and customers leave or will we just continue as we did for many years?

My personal opinion is that we can become best in class service provider, but Management Style and Culture are the critical success factors together with the Staff element. Becoming best in class service provider means taking risks, thinking out of the box and adapt the organization to the highly dynamic market environment.

Non-user friendly systems and tools, non up-to-date processes, procedures and work-instructions do have impact on the internal efficiency, but are not key to success. Even when all are working perfect and are up-to-date, slipping of processes and procedures still can happen and what goes in, comes out! My advise is that responsibility of data compliancy should be given to specific persons. An example is that contract data in Siebel and assets should be the responsibility of the SL and that customer contact information is the responsibility of the AM (Sales).

My recommendation is to bring the organization back in line company wide with direct coaching and mentoring as the key enablers. The Quality Leader, Quality Coordinator and Quality Officers of all departments should sit together and learn from each-other. Convincing, motivating and inspiring employees with proper communication and feedback and focus of energy will improve the organization and result in "Convinced, motivated and inspired employees" leading automatically to improved customer satisfaction.

The Quality Department could be made responsible to periodically collect the raw VOC survey data from both GSO as Company X. The information from both surveys should be summarized , a consistency check could be performed and trends could be analyzed. At this moment no CAR is made in case of a below level performance or customer complaint resulting from the locally performed VOC survey. The summarized information, both positive as negative, should periodically (e.g. quarterly) be made available to the Sales Department (Sales and Account Manager), responsible Service Lead and HPS-SO Management. Another improvement is to update and synchronize the contacts database in Siebel with HPS Contacts from Outlook, as at this moment the VOC contacts database does not represents all the actual contacts who are in close contact with Honeywell employees. This will improve the reliability and usefulness of the surveys.

Research should be done what additional KPI's can be used within Service Organizations, so "checking" and "acting" will be core processes. At this moment results are measured financially, and these are not always fair. Research should be done to the service quality determinants: reliability, responsiveness, customization, credibility, competence, access, courtesy, security, communication, tangibles such as appearance of personnel and condition of equipment, and understanding the customer (Ghobadian et all, 1994). Due to time restrictions, no time was left to set up proper KPI's for HPS-SO.

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Appendices