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Order to cash business process standardization for audit compliance and accreditation at Ascensia Diabetes Care.

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Abstract

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This thesis aimed to demonstrate the order to cash process standardization that was carried out at Ascensia Diabetes Care for auditing and accreditation. The focus was on the commissioning company's current order to cash processes to learn the generally accepted business process standardization procedure. The research aimed at shedding light on quality and compliance as a result of standardizing business processes. This is a crucial part of audit compliance and accreditation for businesses interested in carrying out this venture.

The main business processes that this thesis focused on are the ones involved in the order to cash cycle. These include finance, operations, and customer service. Ascensia Diabetes Care is part of a conglomerate with a holding company. The holding company carries out the production of the medical device products as a separate entity. Therefore, production process standardization were not addressed extensively.

This thesis demonstrated that there are some value propositions as a result of business process standardization. The research gives an insight as to the motivation why most multinational corporations strive to achieve standardized business processes with the aim of auditing and accreditation. The research was limited to standardization, quality and, compliance, and some regulatory requirements in auditing and accreditation. The research showed how controls utilized during standardization improve operations, leading to risk management and risk reduction.

In conclusion, the thesis also recommended methodologies that can be adopted to achieve incremental business process improvements. These improvement methodologies are 5S and Kaizen. It was highlighted why the adoption of these methodologies can be used to achieve performance excellence and maintenance. This can be useful for the company when it considers methods of achieving incremental continuous improvements. These methods can be integrated into the company's ERP systems with as much ease as is possible while maintaining standards and quality.

Keywords
Business processes standardization, Order to cash,5S, Kaizen.

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1 Introduction

Process standardization of healthcare-related services and products increases credibility by exhibiting the ability to meet the needs, requirements, and expectations of the users (ISO, 2019). The main concern of standardization of processes in health care is the justifiability of related costs to stakeholders. Most multinational corporations (MCNs) are consistently looking for ways to improve performance while improving efficiency at minimal costs. Documentation of best practices in the standardization of processes identifies optimal methods of procedures that can be adopted by employees in organizations. This can be utilized by setting up controls and standard operating procedures (SOP). The readjustments to these new procedures can lead to increased performance and higher quality of both goods and services. This leads to consistencies of outputs that will lead to satisfaction of audit regulatory bodies and thus accreditation according to international standards. Business process standardization has huge potential in cost-saving, it is reported that IBM saved more than 9 billion dollars while increasing quality and on-time delivery rates of its business processes by 75% (Afflerbach, Bolsinger & Roglinger 2016, 336.)

Business process management affects process performance in several ways e.g., quality, cost, time, flexibility (Afflerbach & al. 2016, 335). This research focuses on the standardization of order to cash (O2C) business processes in Ascensia Diabetes Care (ADC) and makes recommendations on how to improve process performance sustainably. This means that the adoption of enhanced business processes should be value-based, and therefore value proposition will be investigated and defined. It will also study what are the benefits accrued from the standardization of O2C processes as opposed to when there were no standardized procedures.

Standardization of the O2C business process has been utilized as a method that decreases manual intervention by 30% in the cycle and thus leading to cost-saving (IOFM 2012).In ADC, standardization ensured the processes alignment for International Standards Organization (ISO) compliance and accreditation which is one of the company's strategic goals. In this regard, the company adopted a Quality Policy that states “We as Ascensia Diabetes Care employees, are committed to building quality-based alliances with our customers and suppliers. We do this by consistently designing, producing, and delivering products and services that meet or exceed our customers´ expectations. We are committed to worldwide regulatory and corporate compliance. We will lead our business processes based on meaningful metrics and dedication to continuously improve our performance” (Ascensia Diabetes Care 2016.)

Being a leader in the medical device market the company is always engaging different stakeholders to come up with more innovative ways to increase optimization of business processes. ADC has its own internal ways of improving its business processes just like many other organizations and companies. This research will highlight the utilization of methodologies like Kaizen and 5S to further understand the applicability and usefulness of adopting such methodologies in ADC to further improve process performance. There are several processes improving methodologies with specific advantages in the ability to optimize business processes, however, these two were chosen as a starting point for the commissioning company, however, there is no limitation to adopting others.

According to KPMG (2019), many successful businesses prefer to outsource some of the processes in O2C in an effort of bolstering their business processes. This is due to the extra burden it exerts on managers. It can, however, be remedied by the adoption of accurate, confidential, and integrated systems that comply with the local legislature and industry standards as will be demonstrated in ADC. (KPMG 2019.)

1.1 Background

ADC made a resolution to standardize all its business processes globally in readiness for an audit and accreditation process. This independent verification ensures that businesses, co-operations, institutions, governmental entities, and organizations exhibit competency and compliance with industry and /or international standards. (IAS 2019.)

I worked as a process optimization associate in charge of documentation of the order to cash process (O2C) in ADC in readiness for the audit process. This was done in collaboration with KPMG, a world-renowned audit process facilitator. They provided advisory services on the documentation and implementation of the processes. Healthcare is marred by outdated and autocratic business processes, which creates the need to streamline business processes in health-related companies similarly to other sectors. Redesigning or streamlining business processes in healthcare might have several constraints in the initial stages, but these should be remedied in the long term. The advantages of carrying out process standardization usually overshadow the disadvantages. In the initial phase, ADC acquired the services of an audit process advisor. The advisors' role was to ensure that the company documentation of O2C processes is in tandem with the certification standards.

Most multinational corporations (MNCs), like ADC, have adopted the usage of enterprise resource systems (ERP). This is done to streamline business processes and improve information flow amongst their subsidiaries. This can have a barrage of challenges if there is inadequate focus on business processes (Rahimi, Moller & Hvam 2016, 1213.) ADC utilizes an ERP that captures all its O2C processes carried out several changes in the systems. These changes were tailor-made for the organization in readiness for the audit process. This research will highlight the importance of integrating ERP systems and business processes for subsequent accreditation of MNCs.

1.2 Research Objective and Questions

This research is dedicated to analyzing business processes standardization with special attention to order to cash (O2C) processes. The focus will be on the inherent benefits of standardization of O2C business processes as part of a broader initiative to achieve accreditation by an audit firm.

The main objective of this thesis is to analyze the O2C business process standardization effectiveness and its intrinsic benefits in ADC. This will be achieved by carrying out an interview with the head of operations and operation managers in ADC and collection of data from the ADC internal website to get the answer to what were the reasons as to why the company decided to standardize its business processes.

Research question:
What is the purpose of O2C business process standardization in Ascensia Diabetes Care?
Investigative questions:

- IQ 1: What is the value proposition of standardization of O2C business processes?
- IQ 2: How does the O2C process standardization affect other business processes?
- IQ 3: What is the significance of O2C process standardization in the integration of ERP systems?
- IQ 4: Are there any inherent benefits of adopting O2C business process improvement methods during standardization?

1.3 Demarcations

The scope of the research will focus on the standardization of O2C business processes as part of the standardization of all the business processes of Ascensia Diabetes Care (ADC) for accreditation by an independent audit firm and subsequent ISO certification.

1.4 Structure of the thesis

This thesis has four main parts: Introduction, Theoretical Framework, Empirical Part, and Discussions. The Introduction contains general information related to the thesis topic. Theoretical framework will investigate existing knowledge and data on the thesis topic. This will include literature from written articles, books, and trustworthy internet sources. The Empirical part will discuss the objective and purpose of the thesis, the interview, and collected data results. The discussions will highlight the most important findings from the empirical data. This will then be followed by recommendations and lessons learned for a company willing to undergo a similar implementation.

1.5 Key concepts (Explanations & Details with references)

- Business process management (BPM)-is a systematic approach that improves workflow efficiency, effectiveness, and capacity of Organizations in dealing with the evolving business environment (ISO 9001 Group 2014).

- Business process standardization (BPS)- the creation of a common set of guidelines, rules, and specifications in business processes across the organization (Franz & Kirchmer 2016, 7).

- Business process improvement (BPI)- a cross-functional methodology that consists of a definition, analysis, design, and implementation in critical processes in an organization (Tuominen 2016, 8).

- Standards-basis of an evaluation process to be used by healthcare organizations to measure, assess, and improve performance (Joint Commission 2020).

- ISO 9001- a quality management system criteria that ensure that customers get consistent quality products and services based on set-up quality management principles (ISO 9001 Family 2019).

- Standard Operating Procedures (SOPs)-a set of written instructions documenting routine and/or repetitive activity in an organization. These instructions provide direction to end-users that lead to consistencies in operational activities. This is done to increase the integrity and quality of the organization (EPA 2007.)

- Order to Cash (O2C)- a business process cycle consisting of order management, order fulfillment, credit management, billing, collection, dispute resolution, and cash application. (IOFM 2012, 1).

- ADC- an acronym for Ascensia Diabetes Care

- MNC- an acronym for Multinational Corporations

- TQM- an acronym for Total Quality Management

- BPR- an acronym for Business Process Reengineering

1.6 Case Company

ADC is a global health technology organization that provides health products and solutions for people with diabetes. It was established in 2016 through the acquisition of BAYER Diabetes Care by Panasonic Healthcare Holdings now referred to as PHC holdings. It is headquartered in Japan and the United States of America and has operations in 31 countries including Finland. The supply chain department that is responsible for the European Union activities and finance department for Finnish and Swedish business activities are in Finland. The company is renowned for the CONTOUR portfolio of blood glucose monitoring systems which is sold to more than 125 countries. The company employs about 1700 employees and works closely with 8 alliances and partners who are industry experts who have been instrumental in the development of innovative products and technologies over the span of 70 years.

2 Theoretical Framework

Business process management (BPM) is an art and science that oversees work performance in an organization to ensure consistent outcomes and recognize improvement opportunities. BPM manages value-adding chains of activities, events, and decisions that are called processes (Dumas, La Rosa, Mending & Reijers 2018, 1.) BPM enables companies to create, redefine, and analyze processes that are part of business operations. To analyze BPM, there is a need to understand the relevant stakeholders' role in the successful implementation of business processes and the various faucets in process management. The stakeholder can be categorized into different levels from process owners, employees, end-users, service providers, approval bodies, customers, and partners. Facets in BPM include:

· Modelling- identification, definition, and representation of the business process holistically, with detail of communication methods and responsibilities.

· Automation- advanced research that acts as an assurance of delivery of smooth process execution.

· Execution- performing or enacting activities in the process.

· Control- ensuring that the process is enforced in the relation to the design.

· Measurement- quantitative determination of the progress of the process and its applicability to the end-users.

· Optimization- improvements made to the process to the needs of the end-users.

(Palmer 2014, 1.)

2.1 Business Processes

MCNs which have globally distributed business processes must use agile business process models. In ADC the master process is defined by best practices as the foundation for the adoption of business process variants.

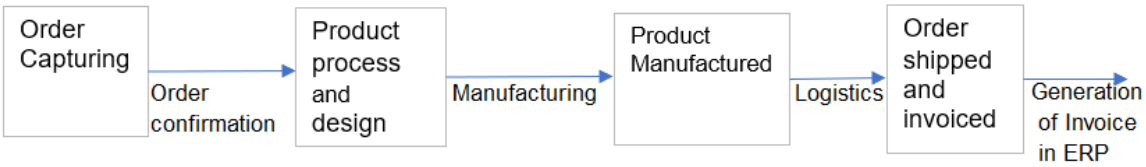

Figure 1. A flow of business processes
(Tuominen 2016,162.)

Figure 1 exhibits a simplistic version of the main business processes for consideration in the standardization of business processes. In this flow of business processes, there is an

Enterprise resource system (ERP) that is used as a tool for handling most of the activities after the generation of an invoice.

Dumas & al. (2018, 1) recognize that different companies have different business processes in relation to the type of business they conduct. As opposed to using O2C as a single process some of the companies might break down the processes further.

Quote to order- this is a business process that usually precedes O2C and starts when a supplier receives a request for a quote from a customer that prompts the customer to make a purchase order based on the quote received from the supplier. In a case where O2C and quote to cash processes are combined the process can be renamed quote to cash process (Dumas & al. 2018, 2.)

Procure to pay-starts when a company representative determines that a product or service should be purchased. It ends with the delivery and payment of the product or services. Activities in this process include obtaining quotes, purchase approval, supplier selection, issuance of a purchase order, receiving the goods, and payment of invoice. (Dumas & al. 2018, 2.)

Issue to resolution- starts when a customer raises a complaint or issue. The issue is usually related to defects in product or service consumption. It is resolved when both parties specifically the customer and the supplier agree. In case there is an insurance claim then this process is referred to as claim to resolution. (Dumas & al. 2018, 2.)

Application to approval-starts when an application for a benefit or privilege is made and ends when the benefit or privilege is either granted or denied. This process is common in government institutions like permit or license applications, admissions departments like universities, human resource departments like leave requests. (Dumas & al. 2018, 2.)

The O2C business processes are mostly any activities that involve order capturing, order shipping, invoicing, and payment processing without any of the production processes. Figure 2 exhibits the main business areas to be considered when monitoring activities in the O2C business process. The main components that are directly involved in the O2C business process are the logistics, supply chain, and financials. Network planning and product launches complement the O2C business process. Manufacturing operations are a critical sub-process in the production processes. The success of the O2C process is highly dependent on reliable manufacturing operations. The common goal of these components is to ensure the order is fulfilled then revenue generation. (Capgemini 2017, 2.)

Figure 2. Major components involved in 02C business process.
(Capgemini 2017, 3.)

According to The Controllers Report (2012, 10) transparency in O2C processes can be achieved by:

- Standardization of order management
- Integration of order entries, credit, billing, and collections
- Creation of a single risk management and reduction repository
- Automation of the cycle
- Implementation of automated alerts and event management
- Continuous analysis of the AR ledger
- Adoption of electronic invoicing, payments, and receipt of purchase orders.

(The Controllers Report 2012, 10.)

2.2 Business Process Standardization

Departmentalization of processes e.g. O2C ensures accountability, however, if there is no connection of business process activities there is the restriction of visibility, communication, and cooperation which might hinder optimum fulfillment of the business objectives.

Business process standardization (BPS) is an element of BPM. BPS increases inter-process correlation while mitigating the effects of process variation due to diversification (Afflerbach & al. 2016, 337). BPS simply means the creation and actualization of a common business process within an organization. This allows different parts of the organization to create synergies, cut barriers, and adapt to changing market conditions (Franz & Kirchmer 2016, 7.)

According to Afflerbach & al. (2016, 343-344) organizations that have undergone BPS have a higher quality of products or services, fewer errors, time reductions, and significantly positive effects on human resources.

There are five enablers of effective harmonization in BPS:

- Process governance

-This is the segmentation of business processes to provide a basis for assigning responsibility for appropriate standardization and harmonization

- Process Knowledge Management

-Using a process repository that can be accessed by different process management teams within the organization.

- People Engagement

-Engaging all stakeholders in the business processes to create a sense of responsibility and ownership.

- Technology and Tools

-Utilizing technological advancements to automate parts of the business processes.

- Controls and monitoring

-Measuring the adherence to business processes and behavioral changes of the process stakeholders towards the standardization metrics.
(Franz & Kirchmer 2016, 3.)

2.2.1 O2C Process Standardization

In a dynamic world, it not just enough to standardize and harmonize processes. Constituency, innovation, agility, and global digitalization have become indicators of the importance of process standardizations (Franz & Kirchmer 2016, 5). Afflerbach & al. (2016, 337), suggest that process standardizations should mostly be done in mature organizations that have global operations and departmentalized distributed processes for best results in performance excellence. These distributed processes have a cycle and include O2C management processes. The O2C process is categorized into order management and cash management processes. In these two categories, there can be departmentalization into four major units in ERP which are customer relations management (CRM), Master Data Management (MDM), supply change management (SCM), and Finances. (ERP 2011.)

Standardizing the different components in O2C processes start with order management. This starts when an order is placed by a customer and will involve the processing of purchase orders (Dumas & al. 2018, 76). It can either be done electronically or manually, however, electronic order management has been credited to speed up the O2C processes (The Controllers Report 2012, 11). The standardization of this process entails documentation of detailed procedures and actions that are plausible when an order is made. This includes how to handle the purchase order, who is responsible for processing the purchase order, and communication to the customer. These procedures are laid out in the Standard Operating Procedures (SOP) and always must be adhered to (Dumas & al. 2018,75.)

The beginning of the order management can also include customer information processing and handling. This is mostly done when there is no existing membership or prior transactions before the receipt of the purchase order. This includes the entry of customer's information into the company records, the verification of customer's credit ratings, and membership creation. (Dumas & al. 2018, 118.) The most prevalent standardization method of this stage is the creation of an information repository. This is handled by the master data management team. The information repository will reduce the need for re-entering similar data in every stage and thus reduces errors and time spent. (The Controllers Report 2012, 11.)

After these two stages have been done, the order fulfillment stage of the order management begins in the O2C process. This sub-process involves the transfer of this data into the company’s information systems or files for processing a sales order. This will involve verifications of order size, amounts, frequency, and costs with the availability in the storage locations (Dumas & al. 2018, 75-76.) Sales order creation usually involves the logistics department/operator who provides information on distribution costs and delivery times. When the sales order is complete the document is sent to the customer and awaits customer approval to begin the shipping. (Brent 2015,1.) The status of the sales order is monitored through electronic or any other methods that are defined in the O2C SOPs.

The customer approval of the sales order triggers the shipping process in the order fulfillment sub-process. This involves the logistics department/partner picking the items from the sales order and in some cases confirming with the purchase order to prepare for delivery (Dumas & al. 2018, 75-76.)The items are then packaged in suitable packaging solutions in relation to the shipment requirements considering fragility, transportation distance, and other factors to ensure the items reach the customer while in good condition. Packaging of the items usually includes tracking capabilities with a tracking number assigned to

an individual sales order. (The Controllers Report 2012, 11.) When the order is shipped, the order fulfillment sub-process triggers the creation of an invoice in the billing and revenue recognition sub-process (Dumas & al. 2018, 76). The tracking number can be made available to both the customer and the operations management team in whatever methods have been proposed in the SOPs.

Monitoring the shipment can be done using Electronic Data Interchange (EDI) or any other methods chosen by the logistics department/partner. Confirmation of order fulfillment to the order management department prompts the updating of the delivery status. This signals the beginning of the invoicing process. This is usually the end of the order management process. The invoices are usually sent through email, fax, and other electronic mediums (Brent 2015,1.) In process standardization of the O2C process, the SOPs define if the invoices will be sent separately from the shipment and when the revenue will be recognized Revenue can be recognized after successful billing. In some instances, it can be recognized after the customer has received the shipment.

The billing and revenue recognition sub-process is the beginning of the cash management process in the O2C business process. When payments are made, they are matched with corresponding invoices. Appropriate actions are made in the account receivables by the Finance/Accounting departments (Dumas & al. 2018, 76.) The SOP in this sub-process defines the credit, receivables, and collection policies after successful invoicing. Some collection policies allow longer timeframes for collection depending on customer risk and customer relationship with the company (The Controllers Report 2012, 10.) If the collections are not made within a stipulated time defined in the SOP will trigger a customer follow-up. This can be done by sending alerts, emails, or reminder letters and might involve interest charges for late payments. After customer follow-up on a payment past its due date leads to an evaluation of which steps to take according to the collection policy. This prompts the necessity to put a credit hold on a customer account and acts as the beginning of the debt collection stage. This credit hold ensures that future shipments will not be made until payment of the previous shipment is made. (IOMA 2003,11.)

Debt collection in the cash management cycle can be handled internally within the company or outsourced. If the company resolves to have the debt collection internally, the SOP must have all the actions and procedures defined. According to KKV (2014), the Finnish competition and consumer agency, if a company transfers the collection process to a collection agency, the agency can send a payment demand to the creditor. This payment demand includes recovery costs and can be sent after 14 days has elapsed from the

previous payment reminder. If payments demand obligations are not met, the agency can take legal action against the creditor. (KKV 2014.)

Standardization of the 02C lifecycle process benefits include:

- Operational efficiencies
  -Order and quote error reductions
  -Increased order processing times
- Speed
  -Reduction order cycle turnaround times
  -Reduction of payment collection times
  -Reduction in customer inquiries handling times
- Quality improvement
  -Creation of consistent dependable SOPs
  -Deployment of an integrated system
  -Increased data accuracy
  -Improved visibility of customer data for research and development
  -Encourages customer purchasing of high-end and complimentary products

(Afflerbach & al. 2016, 337.)

2.2.2 Enterprise Resource Systems (ERP) and BPS

ERP is simply a system of information management that allows the enterprise to control information flow and organize business processes in line with business resources (ERP 2011). The adoption of software like ERP with customer service portals, real-time progress management, automation of reports, electronic invoicing and payments, and processing of purchase orders, can lead to 30% less manual intervention of standardized O2C business processes (The Controllers Report 2012,11). According to ERP (2011), most enterprise resource planning software requires implementation in phases. The phases are multi-step incremental changes that should not disrupt business processes (ERP 2011.)

In the ERP system, order management in the O2C processes involves SCM, MDM, and CRM departments, while cash management in the O2C processes is mostly the Finances department role (ERP 2011). ERP system alignments with the organizational processes consist of the following: decision phase, acquisition phase, implementation phase, maintenance and use phase, evolution phase, and retirement phase (Sturdy 2012, 46).

The decision phase involves an analysis of business needs for an ERP system. This is done by assessing the complexities of the different ERP solutions available. The decision phase measures the system requirements against organizational needs. The acquisition phase involves the actual purchase of the ERP system and packages. The Implementation phase includes installation, customization, and data migration into the ERP system.

This is achieved through business process reengineering to comply with the system. The maintenance and use phase involve any activities after the implementation that returns expected benefits. During this phase, changes can be made to improve the functionality and usability of the system. This can also minimize disruptions to the business processes. (Sturdy 2012,47-48.) Adoption of ERP systems can enable automation of some of the sub-processes in the 02C cycle leading to a reduced cycle time by up to 50% (The Controllers Report 2012, 12).

2.2.3 Kaizen and 5S

These are business process improvement (BPI) methods whose origin is in Japan. These methodologies have been utilized for enhancing productivity, quality, flexibility. This leads to a reduction in waste and expenditure continuously and sustainably (Parker 2012,1.) BPI methods are usually adopted during BPS due to their effects on process performance. Suitability of a BPI method can be evaluated by using the Design Science Research (DSR) methodology. DSR is a research strategy that enables the creation of knowledge that can be instrumentally utilized to design and implement actions, processes, or systems. This strategy uses a direct and specific way that aims at certain desired outcomes in practice. DSR evaluates economic viability, practicality, and pragmatic validity. DSR involves testing, understanding, and documentation of designs and processes by a deep engagement with real-life Operations. The testing criteria will include pragmatic validity and relevance of desired results (Afflerbach & al. 2016, 338; van Aken, Chandrasekaran & Halman 2016,1.)

Kaizen is a method that comes from the Japanese words' *kai* means to change or correct and *zen* means good, as a combined word means continuous improvement. Kaizen can be used as a tool for setting necessary continuous improvements. The activities included in Kaizen are:

- Standardization of business operations and activities
- Measurement of the standardized operations and activities
- Comparison of the measurements against the requirements
- Innovation to achieve expected outcomes and increase productivity
- Formulation of improved standardized operations
- Continuously making improvements while paying attention to quality, employee involvement, effort, change inclination enthusiasm, and communication.

(Parker 2012,1.)

The first step in undertaking process improvement is defining the problem, identifying the process improvement method, and clearly stating expected outcomes. Kaizen has been generally adopted in processes undergoing an audit, corrective measures, and continuous

improvement monitoring. These actions form a part of Total Quality Management (TQM) required in auditing (Duffy 2013, 122.)

5S Is a productivity method whose five letters stand for sorting (seiri), straightening (seiton), shining (seiso), standardizing (seiketsu), sustaining (shitsuke). The 5Ss description:

- Sorting-Elimination, prevention, and reduction of unnecessary processes
- Straightening-Arrangement in a manner that promotes efficiency and accessibility
- Shining-Organized implementation incorporating consultation and training
- Standardizing-Consistency and identical replication of processes
- Sustaining-Maintenance of new improved (Kaizen) methods

(Parker 2012,1.)

The adoption of 5S can either be gradual or radical/breakthrough. This involves five phases of Business process reengineering (BPR). These phases are planning, analysis, production, development, and control in that order (Vorkapic, Cockalo, Dordevic & Besic 2017, 45.)

Kaizen and 5S methodologies can best be used concurrently using the gradual approach in BPR due to the less disruptive nature to current organizational processes while revising, documenting, and redefining incrementally to tailor-make a performance-driven process. A continuous improvement systematic approach is especially suitable for an organization with integrated, interdependent business processes (Duffy 2013, p7.)

Figure 3. Breakthrough versus continuous improvement.
(Duffy 2013, 5.)

Figure 3 demonstrates the small incremental improvements in continuous improvement which are more realistic and give time for adjustments as opposed to breakthrough improvements which are static in nature until another iteration is carried out. The identification of BPI methods with similar process variants lead to the conceptualization of a unified and homogeneous BPS (Afflerbach & al. 2016, 338.)

Kaizen which utilizes TQM and 5S utilizes BPR have some differences too, however, it is largely considered that BPR is a tool for TQM (Vorkapic & al. 2017, 46). The use of these methodologies in auditing leads to corrective actions that achieve a successful implementation and conformance (Duffy 2013,122).

2.2.4 Auditing and Accreditation

The purpose of understanding the auditing and accreditation process is to bring a better understanding of BPM as a toolbox that contains standardization elements. BPS is the fundamental guidance tool for a successful audit and accreditation (Afflerbach & al. 2016, 336.) The audit process requires the implementation of a consistent process that is in tandem with the ISO standards. According to International Accreditation Service (2019), accreditation is recognition, acceptance, or approval by independent verification of business, organizations, and governmental entities after fulfillment of compliance with industry and/ or international standards (IAS 2019). To achieve performance improvements ISO which awards accreditations after audit processes use seven quality management principles. They include:

- Customer focus
- Leadership
- People Engagement
- Process Approach
- Process improvement
- Evidence-based decision making
- Relationship management

(ISO 2015,1.)

This is achieved by establishing a team and setting up the phases for successful accreditation. The most common team members/roles include:

- Internal auditor

-Has acquired certification that meets the minimum auditor prerequisites
-ISO 9001 auditor certification
-Knowledge of corrective action analysis and causes of inefficiencies
-Auditing Experience

- Quality Technician/Expert

-Training of internal business processes and conversant with Legislature and customer requirements
-Certification of Quality Technician by a reputable body
-Experience with quality measurement, accuracy, and precision tools
-Knowledge of basic inspection, calibration, and testing techniques and requirements

- Process Manager

-Training of quality management system processes
-Training of corrective action and causes of inefficiencies in business processes
-Educator/Instructor of business processes

- Implementors/Employees

-Training on the audit process
-Training on the requirements of a successful implementation of the audit process
-Adherence of the business processes as documented
(Duffy 2013, 122)

The motivation for undertaking an audit and accreditation process is sustained success in meeting customers' expectations. This boosts the confidence of customers and other interested parties. This results in customer loyalty and expands the customer base (ISO 2015, 2.)

The major ISO certifications required by a medical device company are:

- ISO 9001:2015 |Quality management systems

-Demonstrates the company's ability to consistently provide quality products and services that meet the legal regulations and customer requirements.
-Enhances customer satisfaction by adopting system improvement that conforms to legal regulations and customer requirements.

- ISO 13485:2016|Medical devices -Quality management systems

-Demonstrate the ability to provide medical devices and services that conform to legal regulations and customer requirements. This includes the whole life cycle of the products and services. These include design and development, production, storage, distribution, installation, and servicing.
(ISO 9001 Family 2020)

Performance excellence in business operations acts as a driving factor in creating a framework that guides the organization. In healthcare organizations, this alignment mostly is to fulfill regulatory requirements. This prompts healthcare organizations to seek out strategies that reduce their liability. The solution to this has broadly been acquiring accreditation and certification from reputable organizations (The Joint Commission 2020).

The quality of a standardized business process is determined by how pragmatic and effective it is in achieving business goals. This entails multiple engagements with stakeholders to deliver value as a result of the standardization of the processes. Quality technicians are part of the change management process to instill discipline that leads to adherence to the process requirements (Franz & Kirchmer 2016, 8). These requirements are defined in the Quality management system ISO documentation.

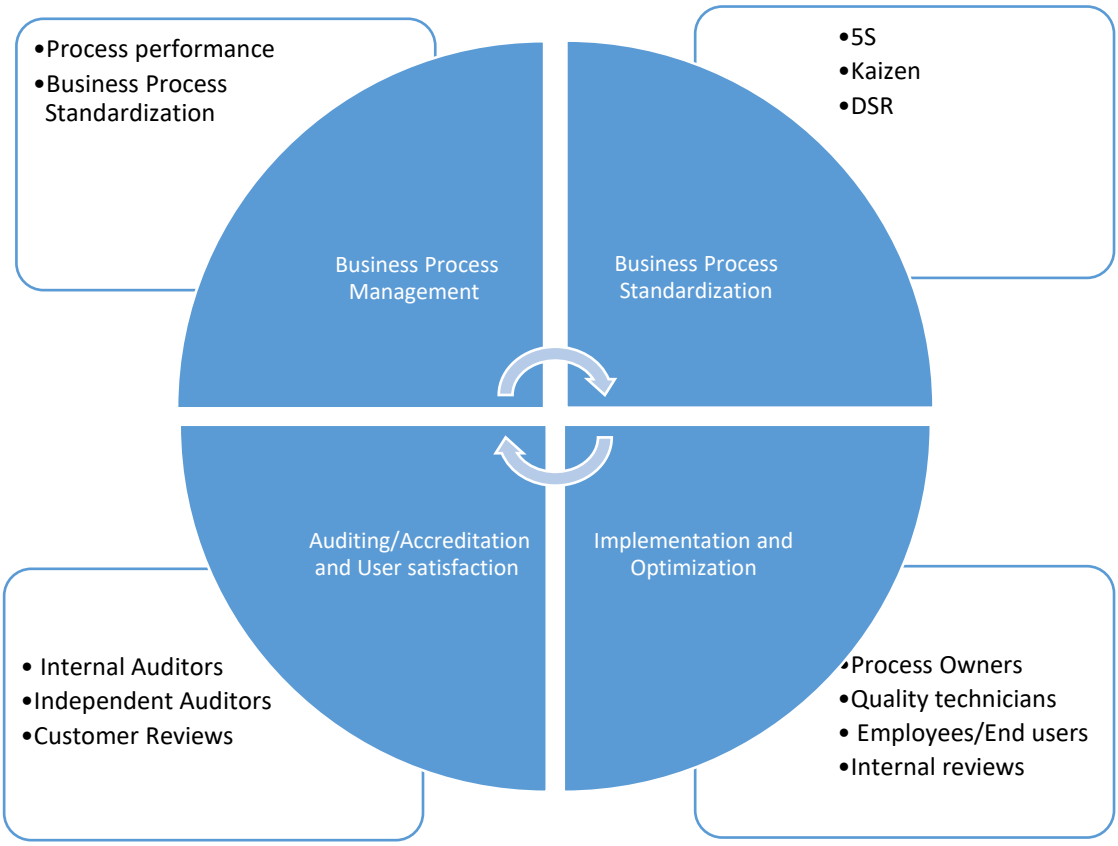

Figure 4. The relationship between the business processes, analytical tools and end user satisfaction

Figure 4 combines the key players involved in the process of audit for accreditation with the emphasis on sustainable business process improvements. The upper quadrant reflects the ideologies and tools that can be utilized to achieve gradual improvements in the business processes. The lower quadrant shows the main stakeholders and evaluation methods that can be utilized to ensure performance excellence.

2.2.5 Value Propositions in BPS

Customer retention: when a company undergoes BPS, for accreditation it sends a strong message to the customers and future partners on their intent to achieve the highest possible quality of their products and services (The Joint Commission 2020). An O2C process standardization using the ISO quality management principles ensures a reduction of customer uncertainty. This is achieved by setting up control references for the quality of goods and services (Afflerbach & al. 2016, 338.)

Inventory: proven tools and methodology adoption can lead to cost reduction or avoidance and improved profit, but not all TQM methods have a financial impact. Value engineering

analysis can be used to measure the non-financial benefits of these methodologies. An example would be the utilization of a BPS that decreases inventory buffers to balance unknown demand correlations and uncertainties (Afflerbach & al. 2016, 336.)

Cost reduction: intelligent process improvements can result in enhanced yields while maintaining the same resources. A well-planned business process improvement exercise leads to better cash flow, productivity, performance, output, sales, employee morale, and profits (Duffy 2013, 6). The benefits of cost reduction in business processes lead to a unit cost reduction. This can be used in pricing to attract or retain customers. In competitive markets, this is a win against competitors if the organization transfers this benefit to the customers by reducing product prices.

Business process flexibility: can be divided into functional flexibility and volume flexibility. Functional flexibility is a demand-based supply of deliverables to the customers. This is mostly a result of process design. Volume flexibility is process execution as a result of the scalability of resources. In this regard, functional flexibility is the most closely related to the BPI methodologies for BPS (Afflerbach & al. 2016, 342.) Integration of business processes and ERP systems require a seamless exchange of information and data across subsidiaries. This can lead to different flexibility challenges. The continuous incremental improvement nature of Kaizen and 5S allows configuration of the ERP systems to unify the business process standards across subsidiaries (Rahimi & al. 2016, 4).

Delivery times: due to continuous iterations of the improvement methods, delivery times can be affected positively. There is a higher chance of identifying redundant activities in the master process, which can be compressed or eliminated (Duffy 2013,138). The advantage of this would be a deduction of delivery times to meet local demand and a competitive edge. When superior performance incorporates strategy and environmental demands, one true process is achieved. This could enhance the global integration of ERP systems and process standardization (Rahimi & al. 2016, 4.)

Competitive edge: the undertaking of audit and accreditation might increase marketing advantage and increase the ability to secure business. This can be due to the willingness of many companies to do business with reputable organizations (The Joint Commission 2020)

3 Empirical Part

This section focuses on implementation activities in BPS and the data collection methods utilized to achieve the expected objective while answering the research questions.

3.1 ADC O2C Processes

In ADC, the processes are categorized mainly as sales, inventory, and operations planning. The purpose of this is to integrate sales forecasting, new product launch, production planning, and financial management to optimize customer service, inventory management, product life cycle management, and financial results. (Ascensia Diabetes Care: Sales, Inventory & Operations Planning Process Report 2019). This category brought together the commercial and operations departments under the supervision of a head of operations who is also the O2C process owner.

The main sub-process for this category that required documentation was the order fulfillment and cash collection processes. The purpose of documentation of this O2C process was to create a standard operating procedure (SOP) which describes the following parts of the sub-processes:

- Order capturing
- Order processing
- Order tracking
- Order fulfillment
- Invoicing
- Cash application
- Cash collection

The contents of the SOP for the O2C processes would affect:

- Commercial Department

-Finance and regional accounting platform
-Commercial customer service/customer support service

- Operations Department

-Order management
-Logistics

- Master Data Management

(Ascensia Diabetes Care: Order Fulfilment and Cash Collection Process SOP 2019)

In ADC, the O2C processes are carried out using the ERP system. In case there are any parts of the sub-processes that are outsourced, the operations managers are responsible for ensuring this data will be reflected in the system. The O2C process starts with the master data department. Their responsibilities include the creation, validation, credit

check, maintenance, and inactivation of customer data. During this phase, pricing is determined by pricing groups whose criteria for determination are volume, custom price, or base price.

The next step involves the operations department. The operations manager is responsible for capturing and processing the orders. The logistics operator ensures the tracking and fulfillment of the order. ADC opted to use the services of a renowned logistics operator whose track record was considered excellent. The operations track the shipment using the logistics operator tracking solution. This is enabled by using a preassigned tracking number. Once the sales order is in transit, the operations manager attaches the report to the ERP.

The next activities in the 02C process are mostly carried out by the Finance/Commerce department. Their role includes invoicing, cash application, and collection. This department was in liaison with the logistics operator that would send fulfillment confirmation directly to the ERP. This would trigger a credit/debit memo creation by the operations manager that allows an automatic invoice creation. The invoices are then sent to the customer, and revenue is recognized after successful billing. Customer relations management is responsible for any inquiries arising from the invoicing process.

3.2 Implementation of the O2C Process Standardization

O2C standardization processes follow a similar routine to other standardization processes in ADC. It is in this regard that, despite this thesis mostly highlighting O2C processes they can be generally used to infer to the other business processes in the organization.
The audit process in ADC involved five major stakeholder groups and the audit firm, it was implemented in four main phases.

Table 1: The implementation of O2C standardization for audit process in Ascensia diabetes care.

Phases	Role	Role description	Implementation
Initial	Executive Management Board	Decide on audit process and new business processes	Communication to participants of the initial phase
		Business process discussion participation	
	Internal Auditor	New business process discussion participation	Information inquiry for process implementation, internal audit planning

	Process owner	Business process discussion participation.	Relays information to process participants
	Audit process advisor	Advises on requirements of audit process and time estimates.	
Intermediate	Process owner	Training of operation managers and other audit-process participants	Organizing of seminars and workshops
	Implementors/ Operation managers/ Employees	Acquaintance of new business processes	Attendance of seminars and workshops
		Adherence to business processes	Adherence checks the by process owner
Implementation	Process owner	Facilitating documentation and adherence to business processes	Adherence checks by the process owner
		Audit progression reporting and ERP implementation	Progression reporting to the Stakeholders
	Internal auditors	Adherence to business processes	Random adherence checks of Implementors of business processes
Auditing and Accreditation	External Auditors	Adherence to business process standards that meet the ISO standard requirements	Random adherence checks of implementation of business processes
	Auditing Firm	Issuance of ISO certification and Accreditation	Implementation meet the ISO criteria
	Internal auditors	Maintenance of the ISO certification	Ensure new processes are within the scope of the ISO certification
	Process owner	Adherence of new master business processes	Annual workshops with mandatory attendance
			Monthly departmental reviews

In the implementation of the ISO certification the company adopted several cost-effective ways to curb overspending.

Use of international external expertise -The company outsourced services from KPMG which is a renowned auditing company for consultation services. The company provided the necessary insights and directions that would dictate the documentation requirements to achieve certification.

The Quality Management– The resolution by the Quality Management Team in 2016 to make a Quality Policy that seeks to commit its employees to a worldwide regulatory and

quality compliance meant that all the business processes had to be subjected to a scrutinization that complies with ISO documentation. This entailed the internal audits as part of the standardization process. The internal auditors would ensure the processes meet the standards required to undergo an audit by the external audit firm. This would save on time and costs plus ensure the audit process is seamless.

Training programs-The relevant departmental heads were required to attend the training of ISO certification requirements and in turn, pass on this knowledge to the department staff in planned training sessions with mandatory attendance. The training programs were adopted as a result of prior experiences that showed the employees had incorporated changes into their daily routines faster after having thorough training sessions.

Internal Review-The company was to recruit documentation experts who will schedule procedure review sessions with the employees to ensure that the documentation is in tandem with the processes in practice. In case there are exceptions, there should be proper documentation to ensure nothing is overlooked or incorrect. This would also ensure that employees understand and are familiar with the processes when auditing commences.

Management strategies-This is a departmental head task that seeks to discover any unnecessary procedures that lead to a backlog and thus might lead to delays in the processes. The adoption of relevant technological advances was encouraged to establish reliable, implementable, and tested strategies in accordance with market trends. In the O2C processes, there were trials on a new ERP system to help attain this goal.
(Ascensia Diabetes Care 2019.)

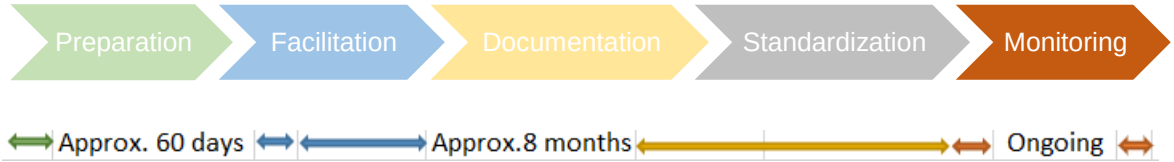

Figure 5: Summarization of the audit process and stipulated times

Figure 5 demonstrates the five stages adopted by ADC for O2C process standardization that would result in auditing and accreditation. These stages were mostly undertaken by a collaboration of the process owner, internal auditors, employees/implementors, and finally the auditing firm. The monitoring is mostly delegated to the process owner and the employees.

3.3 Data Collection

The method used to collect data was qualitative in nature due to the suitability to gather descriptive and in-depth data about the research topic. The data were collected both by participant observation as an employee of the organization and carrying out an unstructured interview of the Head of operations in Ascensia Diabetes care and questionnaire sent to operation managers through email. The interview participant is the global process owner of the O2C processes of the company and therefore has relevant information required to fully capture the process of BPS. This is because the process owner is a participant in all the phases of the implementation of the audit process. There were two sets of questionnaires due to the different levels of management of the participants. This was also done to get a different perspective of the 02C process, specifically, the process owner versus the process implementors.

3.4 Data Analysis

The interviews and company website data were analyzed in relation to the main purpose ADC would undergo a process standardization exercise. The main points of consideration were cost, quality, time, flexibility, and customer requirements. The data collection was done by recordings and note writing during the interview for the head of operations and by sending the questionnaire through email for the Operations managers who are based in Poland.

3.4.1 Analysing Benefits

The analysis of the benefits can be sub-categorized into key areas in the business activities that are impacted by the standardization. This analysis is based on the premise that standardization of the 02C processes led to better outcomes than before its implementation was carried out.

Improved efficiency- this was addressed in questionnaire 2: question 2. Standardization of processes has been known to improve efficiencies and productivity if implemented correctly, this fact was elaborated by the operations managers who agreed that while initially, the transfer of data to the new ERP system was cumbersome they now have an efficient system. They attributed this to the controls that were set up during the standardization and the documentation that directs their decision-making process. The benefit that would be considered in this improvement of efficiency would be time savings. This would mean less time allocation to some processes and thus relevant process dependent costs.

ERP system and O2C processes integration- this is an aspect addressed in questionnaire 1: question 3 and question 8. According to the head of operations in ADC, O2C process standardization ensured the company did not incur extra IT Implementation costs. This is the largest cost reduction within ADC global activities. The highly standardized process ensures that the system is set up for all subsidiaries at a global level simultaneously. This means that whenever there is a need to undertake system enhancements, it's done concurrently for all subsidiaries. Integration of the ERP and the processes have led to better control over the O2C cycle. (Magnusson 15 October 2020.)

Opportunity costs savings-this was addressed in questionnaire 1: question 4 and question 13. ADC is a medical devices company; this means that it is obligated to undergo process standardization for auditing and accreditation. The benefit of having a standardization implementation while undergoing auditing at a global level is that there are similar processes, similar controls, and SOPs. This, therefore, means that some of these audit checks were automized, reducing country-specific obligations of the audit. This is opposed to carrying out the country or region-specific process standardizations. This cost avoidance is very significant, and that is one of the key reasons why the company started the optimization and standardization process almost two years ago. This is reflected in the Annual Financial Statement (Magnusson 15 October 2020.)

3.4.2 Analysing Quality and Risks

Quality Assurance- questionnaire 1 Interview questions 1, question 6, and questionnaire 2 question 3 aimed at answering quality requirements. According to the results, the O2C business process is so important that even the sub-processes have been standardized. This makes sense not just and from the business point of view but is also a requirement for listing on the Japanese stock market. The products will rarely be affected due to streamlining of O2C processes they are not directly linked to the production processes. However, efficiency in one process often translates to a general quality enhancement.

Risk reduction and management-This therefore will affect the whole business and not just other business processes. The company reviews its business processes once annually and whenever they have acquired new businesses. This involves the realignment of the business set up and the business model in tandem with the global business processes. In case there are changes to be made in the business processes, the optimization should occur in all four of the subsidiaries based in other countries as well. O2C standardization affects activities in the sales department the most due to the nature of the role. This is because of the fact that part of their job is to find innovative ways to sell to the customers

and the O2C process team's mandate is to ensure that this new innovative way is compliant with the O2C processes as stipulated in the ISO requirements (Magnusson 15 October 2020.)

3.4.3 Analysing Customer Requirements and Expectations

Customer requirements- this was addressed by interview question 9 and 11. It became apparent that in the medical device business ISO certification is mandatory, in order to take part in the government business. It is regarded as a minimum requirement globally. Innovation should not affect the certification as it is a part of the business. ISO certification is impacted when major changes in production, manufacturing, or sale processes are done. An example would be can be a new product launch that does not fulfill the certificate requirements. A standardized process for auditing and accreditation acts as a safety net. This means, the employees know the process, therefore have a reference of what ought to be done in relation to customer-related requirements, and where to find the information with minimal supervision required (Magnusson 15 October 2020.)

Customer expectation- questionnaire 2 question 1 addresses what the operation managers believe the process has achieved. The benefits of standardization of O2C processes for accreditation despite being an industry norm is user confidence in the products that ADC launches to the market. Since the company is audit compliant it also transacts business with other audit compliant entities. This is best captured by the fact that they carry out vendor audits of sub-contractors, this is done on a regular basis to ensure quality is assured. The other benefit is that most audited companies perform regular business process reviews. This means there is the identification of inefficiencies in a timely manner leading to faster delivery of products to customers.

4 Discussion and Conclusions

The purpose of O2C business process standardization in ADC is largely attributed to the strategic goals of being ISO 9001 compliant. This is in line with its strategic policies and quality policy.

4.1 Key Findings

What is the value proposition of standardization of O2C business processes?

Standardization of O2C business processes is a purpose-driven venture that leads to efficiency in the sub-processes. Organizations that embrace the systematic processes have a scalable business process. This is achieved through the optimization and automation of the business processes. When business processes are standardized, the elimination of errors is achieved. This is due to the consistency and verification attributes of an SOP for all processes and sub-processes. The most significant value proposition for standardization of O2C processes is the adoption of meaningful metrics like SOPs and controls that enhanced employee satisfaction, improved performance, speed, and quality while meeting customer expectations

How does the O2C process standardization affect other business processes?

In ADC, the standardization of O2C business processes does not affect production processes directly. This is because the production of the devices is done by the holdings part of the company. However, this standardization process will affect other business processes that are a part of the ADC globally. The outsourced services will be affected due to the requirement of vendor auditing as part of an ISO requirement. The production processes are positively affected, due to standardization in O2C processes. This is because there is better communication and coordination of activities between the two processes.

What is the significance of O2C process standardization in the integration of ERP systems?

Integration of ERP and Business process standards is always a challenge. According to IQ 3 results, the challenge is usually at the beginning of the process. This involves standardization for processes and sub-processes and requires a lot of documentation with definition and delegation of roles of who can carry out which tasks in the ERP. When Ascensia started the standardization of processes, the optimization phase of the O2C process and ERP took 4 months. This is despite having existing processes and controls defined.

The benefit is that once the initial phase is complete, it's quite easy to adapt to it within the organization.

Are there any inherent benefits of adopting O2C business process improvement methods during standardization?

Adopting business process improvement methodologies is mostly the prerogative of the management. It was, however, apparent that operation managers would not be opposed to the idea. The success of the process improvement would depend on adequate training and timing for adjustment. This, therefore, might require a robust negotiation of agile methodology adoption to achieve a change in mindset. The purpose of adopting a new improvement method should be innovation from old ways to new. This should increase efficiency and productivity. If/when a value analysis is done and the adoption of a new improvement methodology does not lead to better outcomes, then the methodology should be rejected.

4.2 Improvement Proposals

ADC inherited their current business processes from the BAYER acquisition by PHC holdings in 2016. These processes have been utilized since the inception of the company. These business processes have in the past been emulated by their peers in the industry. The processes were, however, not enough to meet the criteria for audit and accreditation.

Improvement of existing business processes can never be in vain if it can be economically justifiable. In ADC, despite the excellent business processes, there are no defined BPI methodologies. This is the reason why the adoption of Kaizen and 5S was suggested in this research. These two BPI methodologies have their origin in Japan. ADC is part of a conglomerate whose headquarters are based in Tokyo. This means that it might be convenient to adopt these methodologies easily as opposed to others.

The acquisitions made by ADC in the last year have prompted changes in the O2C processes. The company is always redefining itself after acquisitions depending on the business models of acquired companies. Even though ADC mostly acquires companies within the health sector, the business model of the acquired company usually requires fine-tuning to undergo an audit process before being fully integrated into the ADC systems.

Utilization of value analysis in determining process improvement techniques might lead to a more convincing demonstration of expected outcomes. In the O2C business process

standardization, the value proposition might be the motivation to increase margins in a competitive market. This gives ADC a competitive edge that increases the market share for the organization. By improving business processes, the organization might increase its market value to the shareholders. For products that are heavily dependent on continuous research and development, as is the case in the medical industry, the value proposition of reducing the cost barriers can lead to earlier profitability after capitalizing on the R&D investment on the balance sheet.

4.3 How to Adopt Kaizen and 5S in ADC

The knowledge of these methodologies is the first step in implementation. This can be achieved by training after the company resolves to make continuous improvements in the O2C processes. This must be done in careful consideration of the customer requirements and fall within the scope of the acquired accreditation of ISO standards. The implementation should be done with the collaboration of the IT department. The department must accommodate the necessary changes in the ERP system. Since process improvements are in line with the company's strategic goals, the only hindrance is how the continuous improvements in the O2C process might impact production processes.

The implementation of Kaizen and 5S should be done in phases. The company can then use key performance indicators as measurements of the successfulness of the methodologies. In the initial phase, the implementation should be mostly directed at addressing employee behavior and culture towards the improvement methodologies. This might be met with resistance if the training is not clear and concise. However, since ADC already has a culture of employee commitment through continuous involvement and engagement in decision-making activities, it is without a doubt that the adoption of these improvement methodologies is attainable.

Measurement of the successful implementation of the improvement methodologies can be aligned with the company's strategic plans. This can use enterprise-level quality measures that improve process performance by creating challenging goals. This means frequently adjusting goals and improving upon the status quo. This influences the organizational culture towards quality. The organization can also adopt key performance indicators (KPIs). The KPIs define and measure progress toward the strategic plans. The measurement and performance data can be easily collected from the ERP systems. This data is accurate, unbiased, current, and complete. This data can be utilized during the quarterly reviews. (Duffy 2013, 114.)

4.4 Reliability and Validity

The reliability and validity of the results of this research must be put into consideration. This is because the data collection sample includes participative process standardization members. Even though the data collected was from credible sources including, the process owner, operation managers, and internal company website, the research might have a bias of observation of the process from one perspective while not having a holistic approach.

Since the author and the participants were involved in the O2C process standardization in ADC, the reliability of the results should undergo a customer and vendor perspective of how the new changes have affected them. This can be done by acquiring feedback from the customer and vendor portals that already exist within the company.

The information on details of process standardization costs and specific data related to outsourced services during the whole process are discretionary. This, therefore, limits the calculation of percentages or amounts of cost reductions. The interviewees, however, believe that the costs were justifiable due to the satisfaction exhibited by the executive board members and relayed to the employees by the company president.

4.5 Communication of the Outcome and Recommendations

The outcome of this thesis will be shared by the author with the head of operations in ADC, and it is their prerogative how to utilize the recommendations given. It was however discussed that this thesis can be used as supplementary documentation for employees willing to understand the BPS methodologies, and for self-study or new employees as extra training literature. This research will benefit the commissioning company by educating the employees on the importance of standardization for quality assessment. It can also be used for promotion activities since companies and other organizations prefer to transact business with internationally accredited entities, thus, possibly exposing the company to the market and help with client acquisition and increase their competitive edge in the sector.

No actions were discussed concerning the implementation of suggested BPI methodologies since there were no obligations towards proposals made in the recommendations. The findings and recommendations need a comprehensive plan of the implementation strategy. This can reduce the time required for full integration into the ERP systems.

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Appendices

Appendix 1. Questionnaire 1

List of questions asked to the head of operations in Ascensia diabetes care

1.How important is it for Ascensia to have efficient Business processes (e.g. OTC)?
2. How does the company ensure that the business processes are adhered to by the Employees?
3.What is the effect of standardization of O2C business processes to other business processes?
4.Does business process standardization lead to cost reductions/avoidance? if so how?
5. How often does the company update/review its business processes?
6. Is it possible to reduce the costs without negative impact to quality?
7.What tools/ techniques have been used to ensure the process standardization does not result in quality degradation?
8.How are newly standardized business process integrated to ERP systems?
9.What are the main reasons Ascensia decided to carry out Auditing and Accreditation?
10.What are the main stages/steps/activities of a company carrying out an audit process?
11.Are there any Value Propositions to acquiring ISO certification?
12. Are there any cost reduction/avoidance(long-term) as a result of acquiring and international Standardization e.g. ISO certification?
13.What are the main benefits of Auditing and Accreditation?
14.How have the employees adapted to the auditing process/ which notable challenges have arisen from the exercise?
15.What has been the major lesson learnt as a result of carrying out the auditing process?

Appendix 2. Questionnaire 2

List of questions sent to the operation managers through email
1.What are your opinions about the process standardization for audit compliance in ADC?
2.According to your experience did the standardization process increase productivity/efficiency in ADC?
3.Are there any benefits of having SOPs for the processes and subprocesses in ADC
4.What are the benefits of having an integrated ERP SYSTEM and ADC business processes
5.According to your opinion are the roles well defined and documented in ADC O2C processes

6.Would you be willing to accept adoption of new process improvement methodologies in ADC?