Technology Adoption for Small and Medium Enterprises (SMEs')

Presentation by

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A bit about myself

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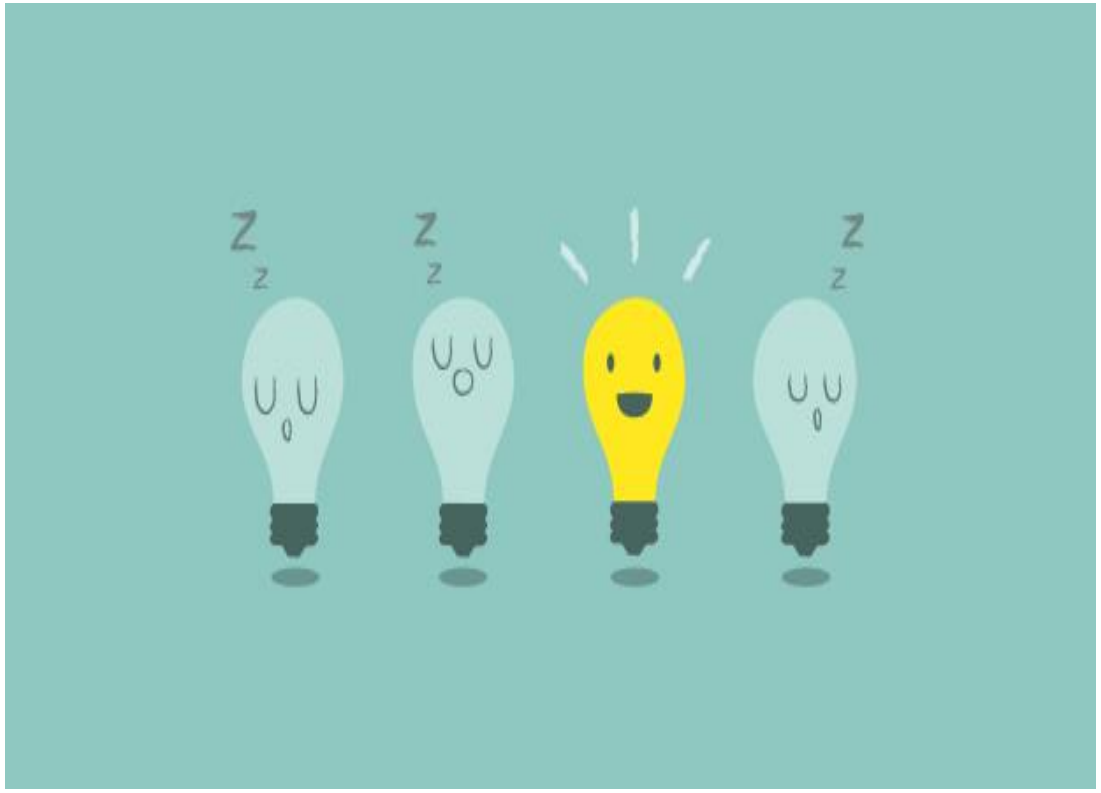
Areas of interest/specialization: Software Engineering

Biography

Personal Details

Dr. Mutanu is currently a Lecturer at the United States International University-Africa. She teaches computer related graduate and undergraduate degree courses. Her areas of specialization include teaching Software Engineering, Data Structures, Data Mining and Machine Learning. She has conducted research in developing Early Warning Systems, IoT Technology and Autonomic Computing.



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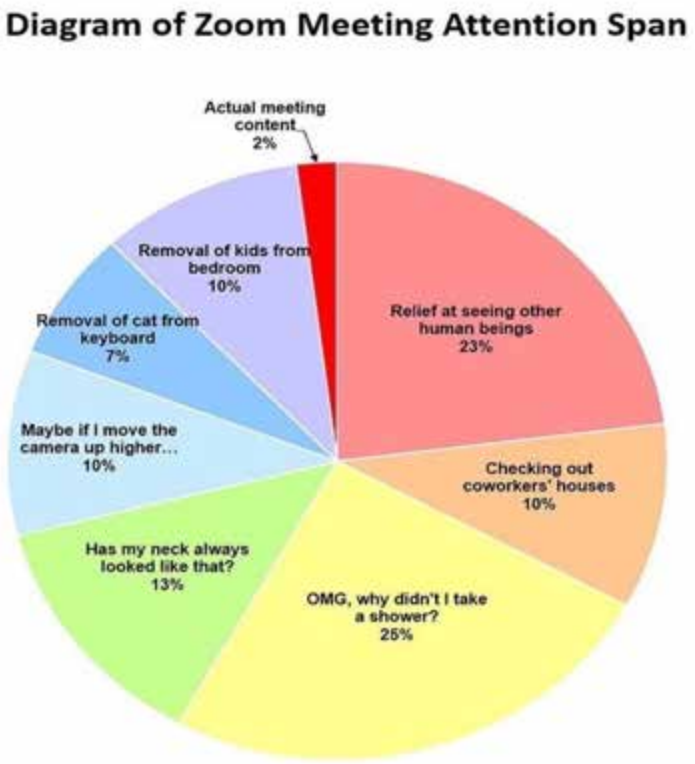
Presentation Content

- Role of IT in SME's
- Technology Value Proposition
- Types of Technologies
- Technology and Crisis Management
- **Examples of Accessible Technologies**
  - User Experiences – 2 stories
  - Demo on Apps – 2 stories
- **Factors to consider when selecting Technology**



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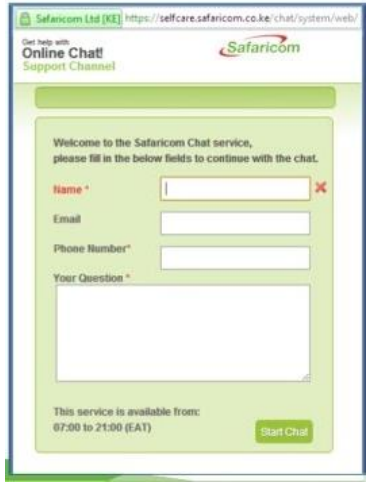
Role of Information Systems

1. Operational excellence – Performance, Functionality, Accessibility, Convenience e.g. ATMs, internet banking, online registration?

2. New products, services, and business models – Design, Customizationе.g. Mpesa



3. Customer and supplier intimacy e.g. Safaricom Chat

4. Improved decision making e.g. loan application

5. Survival - Risk and Cost reductione.g. the Yellow Pages

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Technology Value Proposition I

The use of technology for the creation, delivery and ongoing improvement of products and services

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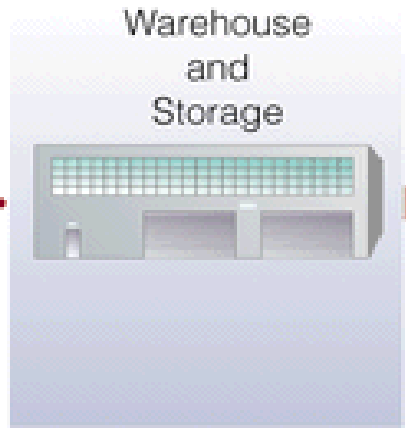
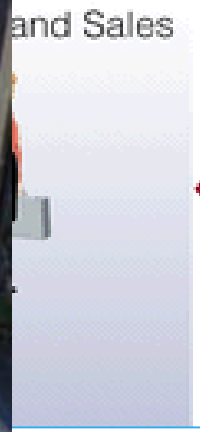
Technology Value Proposition II



Farhan – business entrepreneur in Kalobeyei



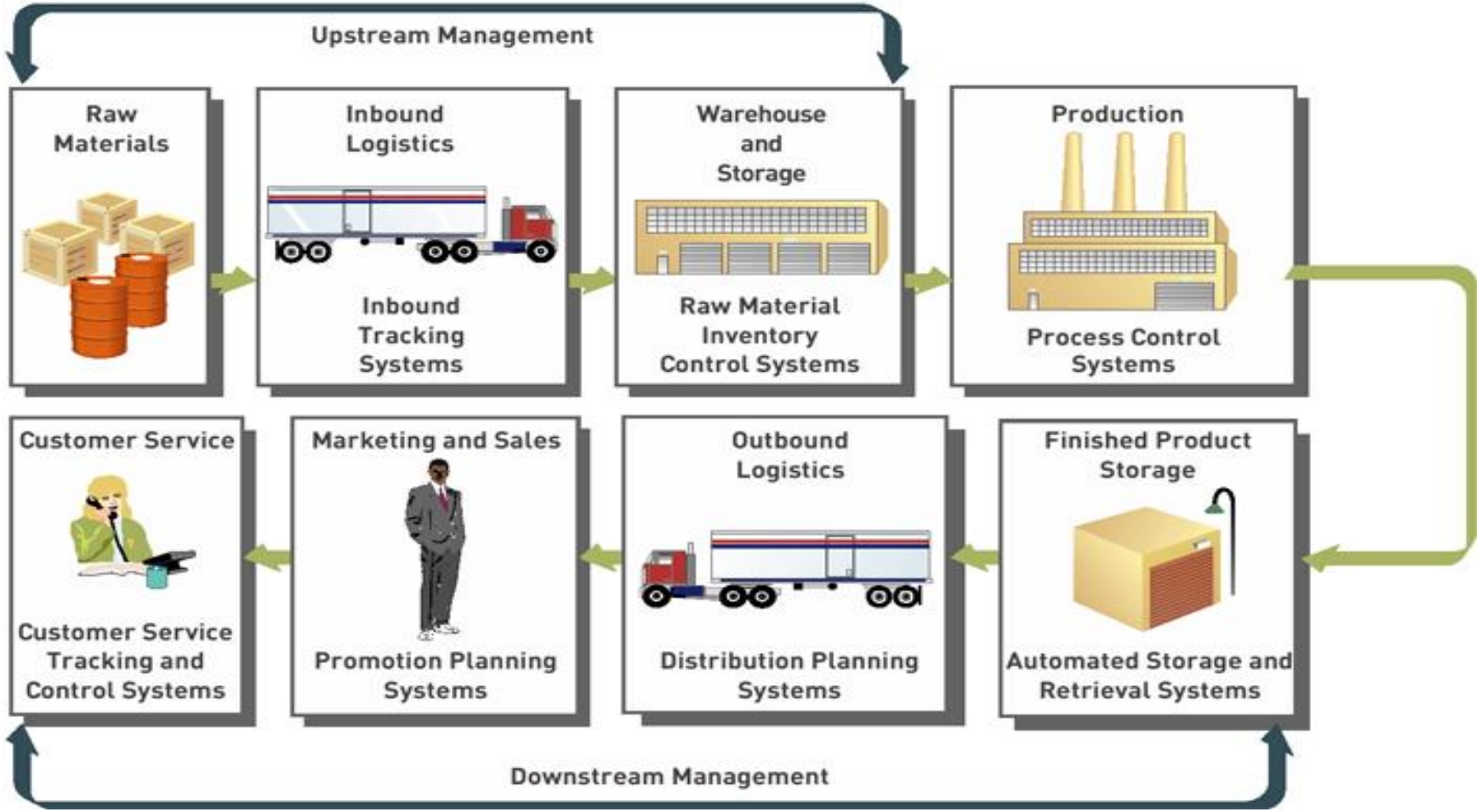
Aisha making liquid soap outside her home in Jinja

Source: Ideal Matunda. Farmers pruning an

Technology Value Proposition III

Technology Value Proposition IV

- Role of Technology in Value proposition



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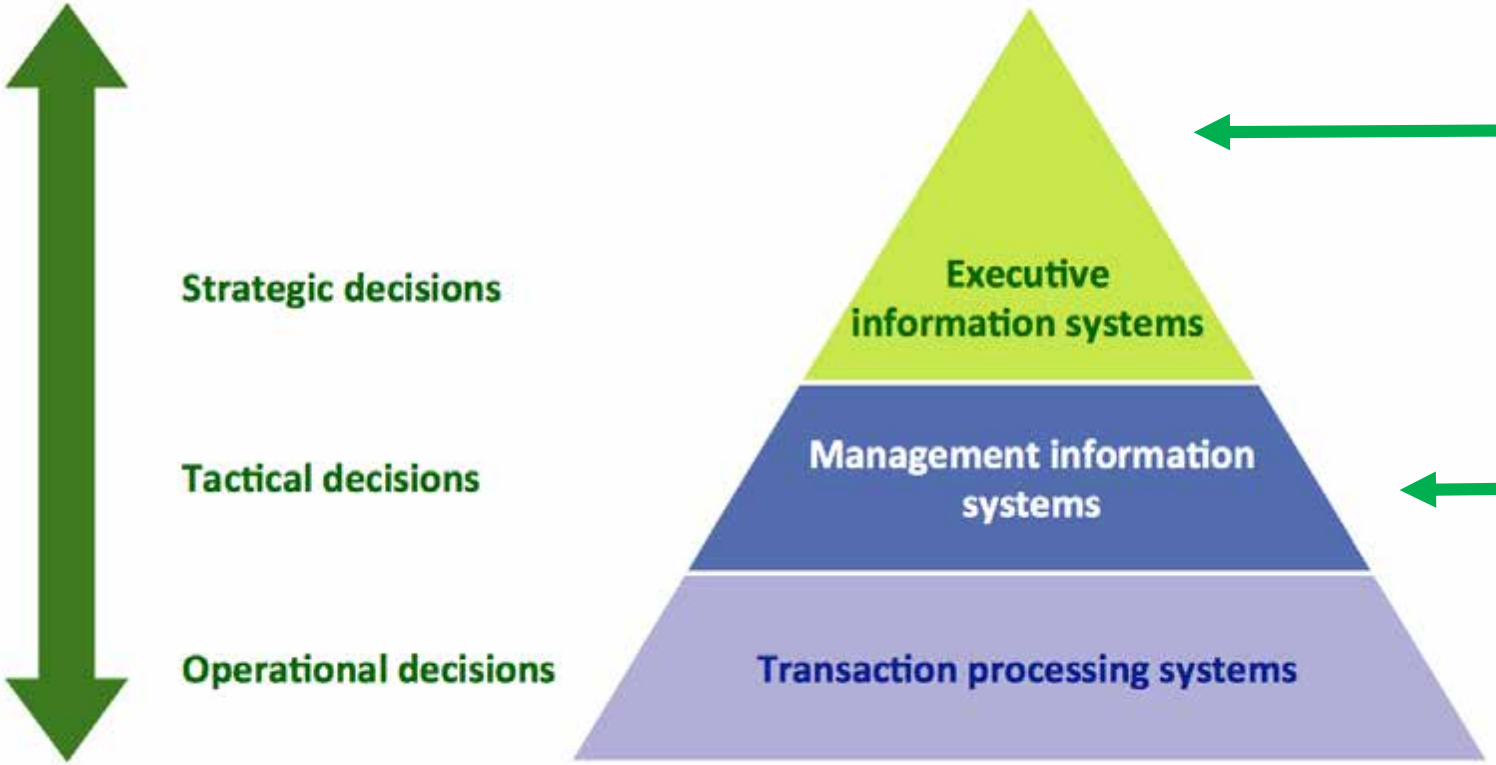
Types of Technologies



Specialized Information Systems e.g. Medical Expert Systems

Decision Support Systems e.g. claims processing

Production Systems e.g. soap manufacturing plant

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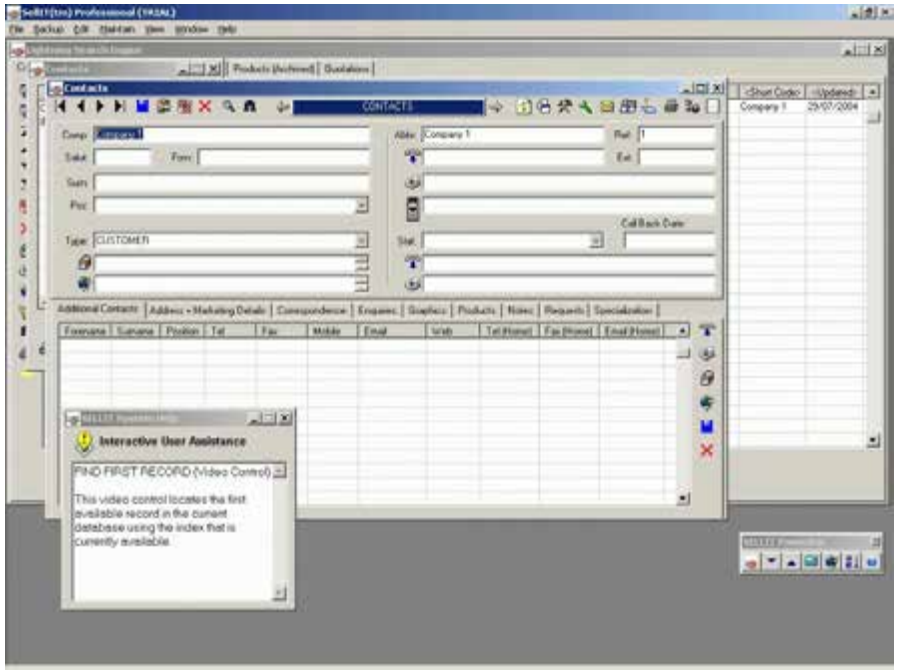
1. Transaction Processing Systems



- **Sales and Marketing systems.**
- **Human Resources System.**
- **Finance & Accounting Systems.**
- **Manufacturing and production systems.**
- Others…

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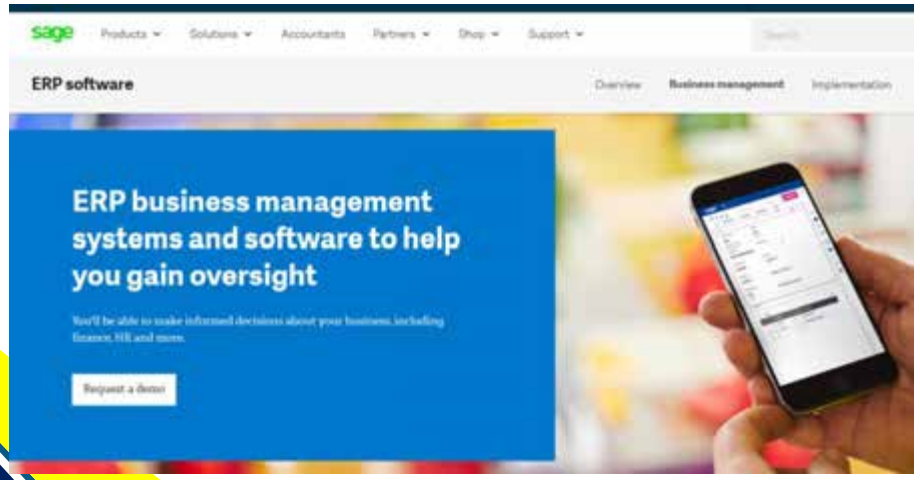
Enterprise Resource Planning Systems (ERP)

- TPS with Integrated programs that manage all business operations
- Coordinate planning, inventory control, production, and ordering
- They can manage a company's entire set of business operations



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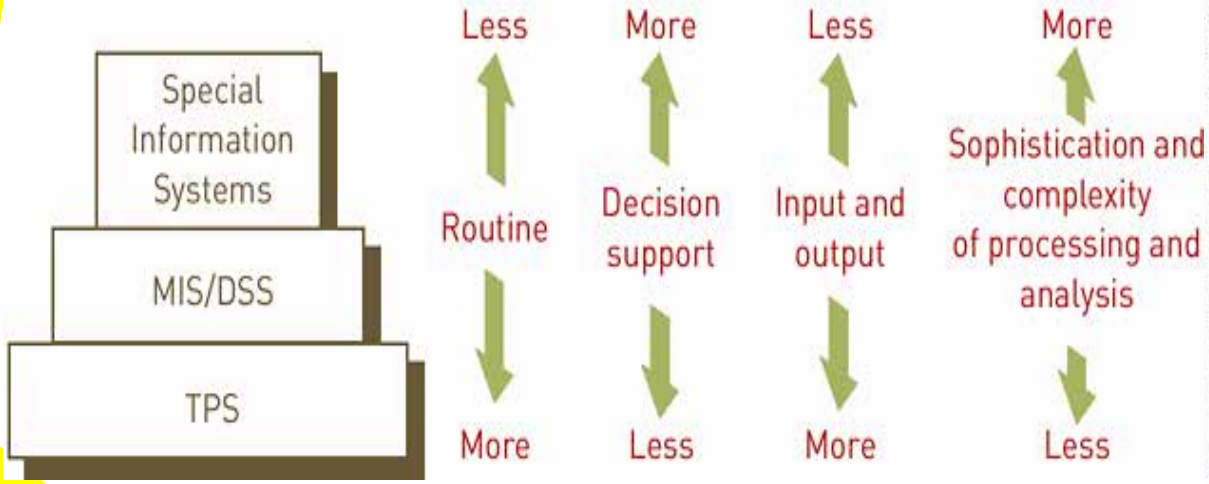
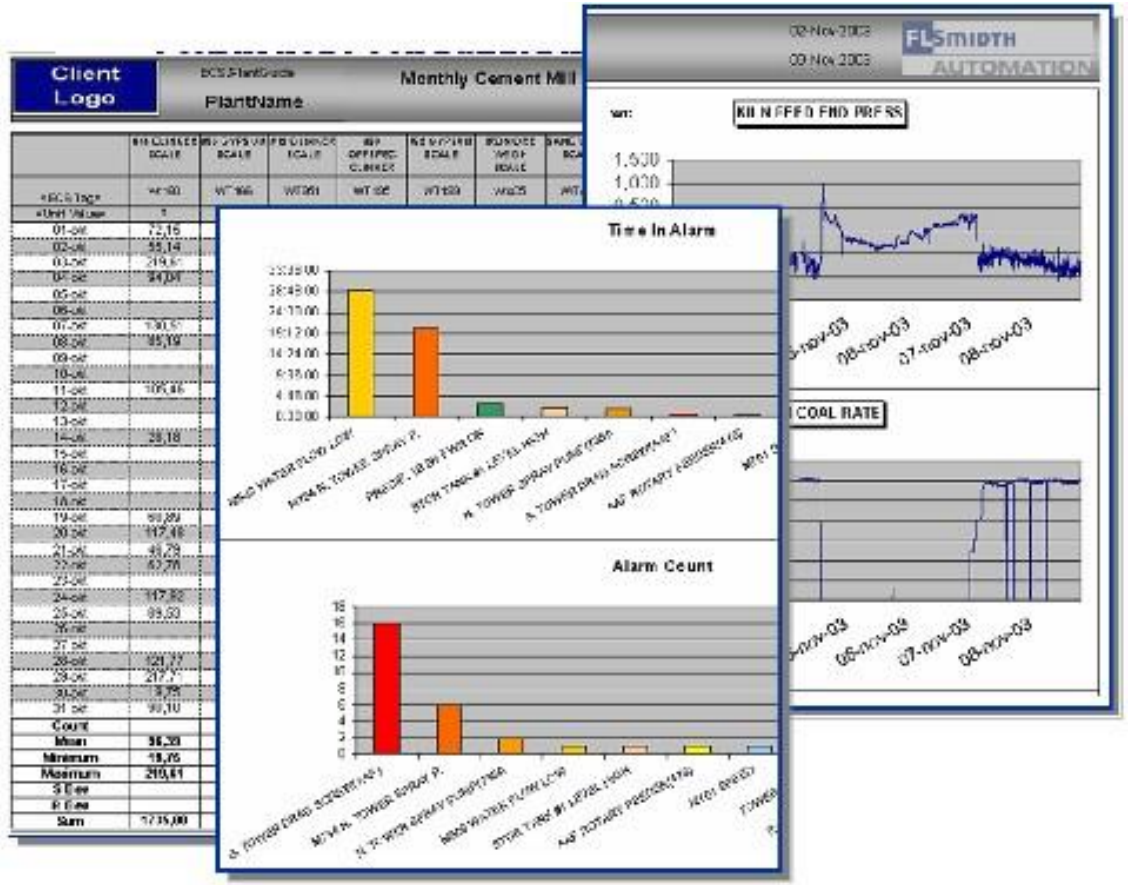
2. Management Information Systems

- provides managers with information that supports effective decision making and provides feedback on daily operations.





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3. Executive Information Systems

- Facilitates and supports senior executive information and strategic decision-making needs.
- It provides easy access to internal and external information relevant to organizational goals.

Coronavirus models: When will the pandemic end?

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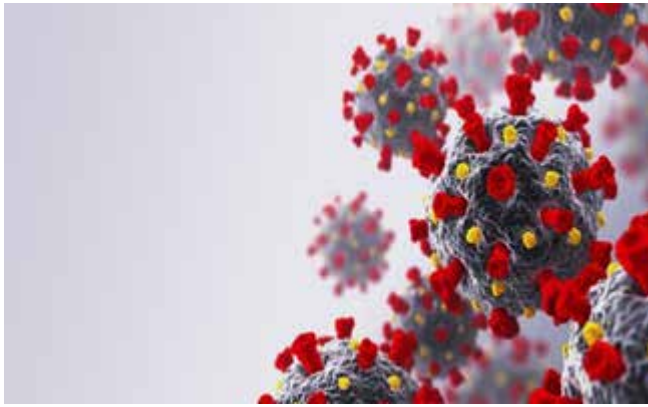
Technology and Crisis Management

- When disasters strike, they pose a real risk to any business. Technology can be leveraged to manage a crisis. These methods should be integrated alongside other crisis management and business continuity measures.



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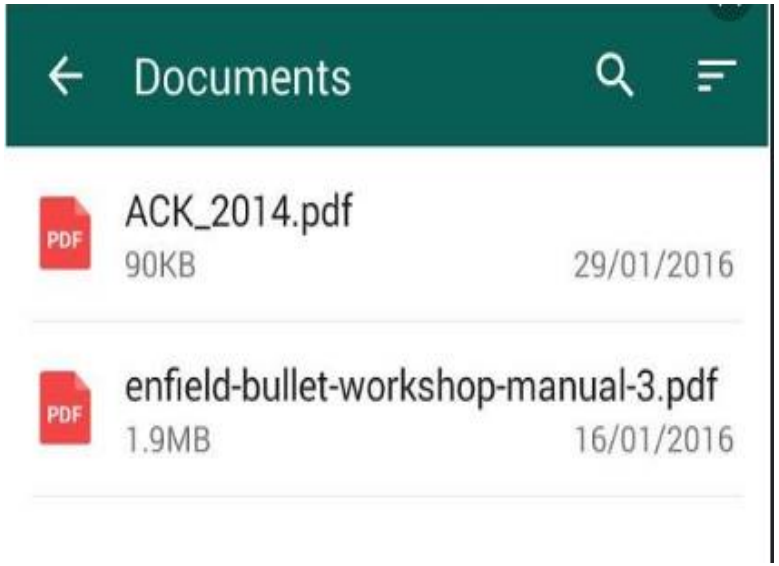
1. Crisis Management Training

- The training could be about employee safety or business continuity plans.
- Several mobile apps also exist to facilitate training or collaboration such as WhatsApp or Zoom.



Low or **No** cost solutions!!

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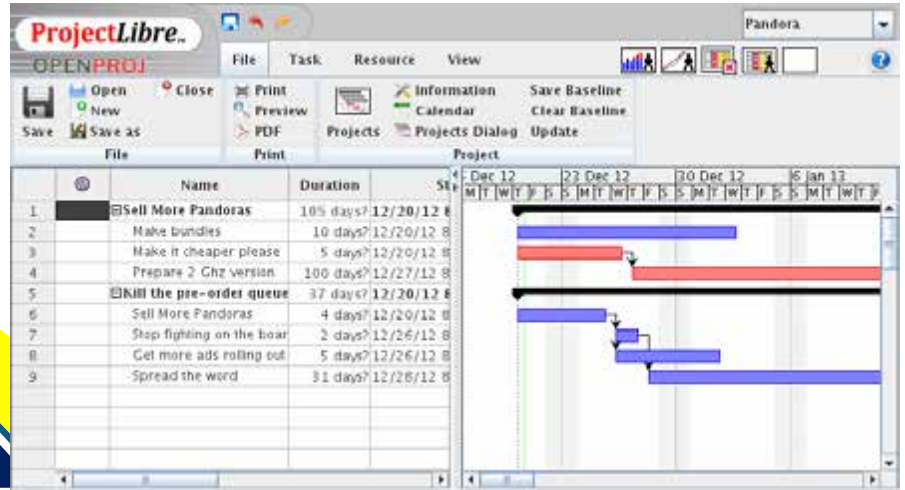
2. Backup Plan for Communicating

- During a crisis ordinary communication channels such as face to face, land lines and emails might not work.
- Have technology options available such as personal emails, social media accounts and other communication tools such as Skype.

3. Platforms to Support Resource and Information Management

- During a crisis you may not be able to access the computer that sits in your office or the file server in the office where you store your data and applications.
- You can leverage technology to support resource management (tracking systems) as well as develop emergency logistics plan (prediction systems). E.g. MS Excel or Open source tools



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4. Data and Application Backup

- During a crisis you may not be able to access the computer that sits in your office or the file server in the office where you store your data and applications.
- It important for individuals in the team to always have a backup of the data that can be accessed through the cloud or external storage devices.

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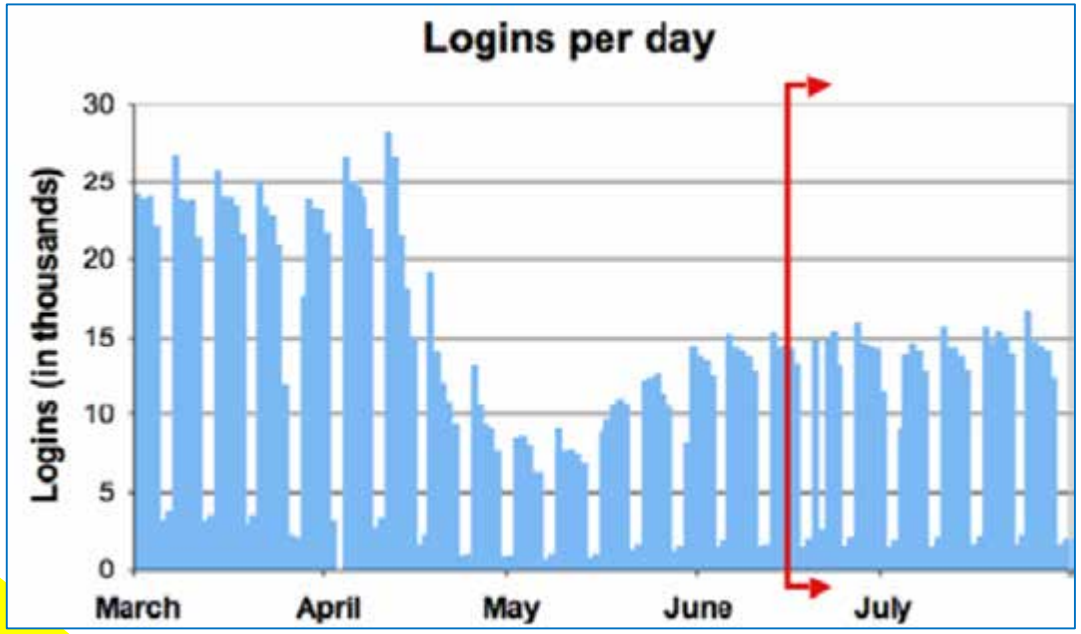
5. Appraise the technology selected

- During a crisis the situation can change very fast rendering previously working options ineffective.
- Acquire information systems that have some self-auditing modules e.g. who are able to log on, the profile of users who can assess the system, and the trend over time.



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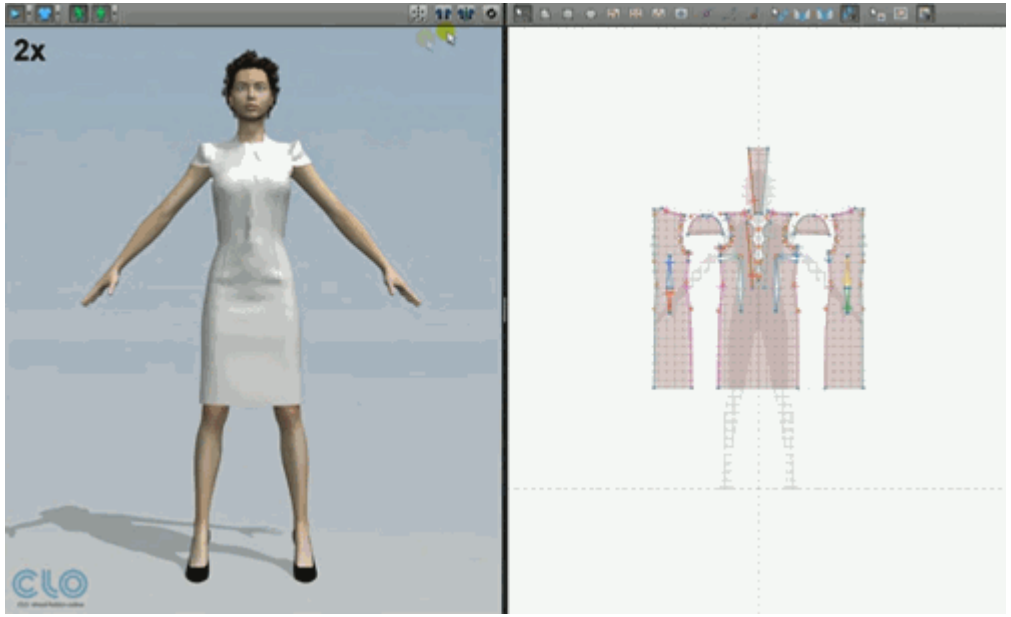
6. Simulation, Emulation and Virtualization

- The presence of a crisis sometimes indicates that activities that were typically conducted practically cannot be conducted anymore.
- By assessing the business activities, you can identify practical activities that can be replaced by simulation and Emulation and Virtualization.



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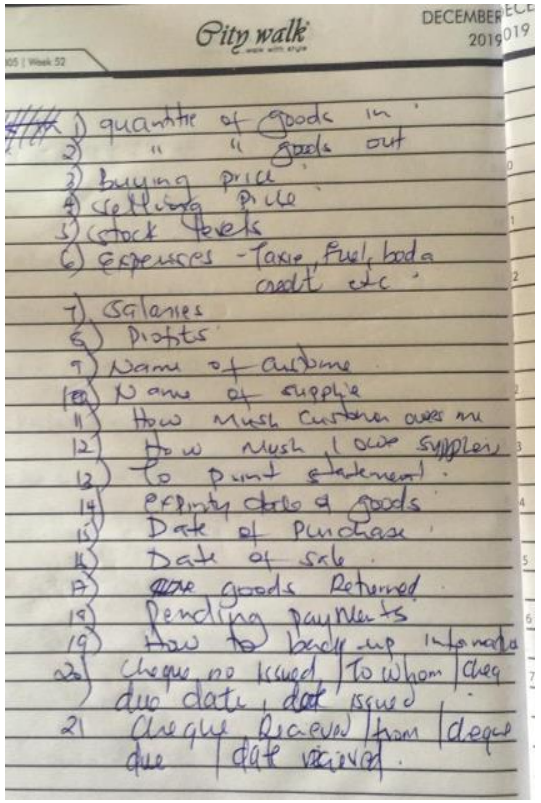
User Experiences

Distribution of Medication to Pharmacies I

- From wholesalers in Nairobi Eastleigh to Pharmacies. She has no employees or employer. Her Saloon car is the only means of transport.
- She needed a system to help her do the following tasks
- Similar systems exists, e.g. Pharmaken but the costs were beyond her



https://pharmaken.net/

pharmaken

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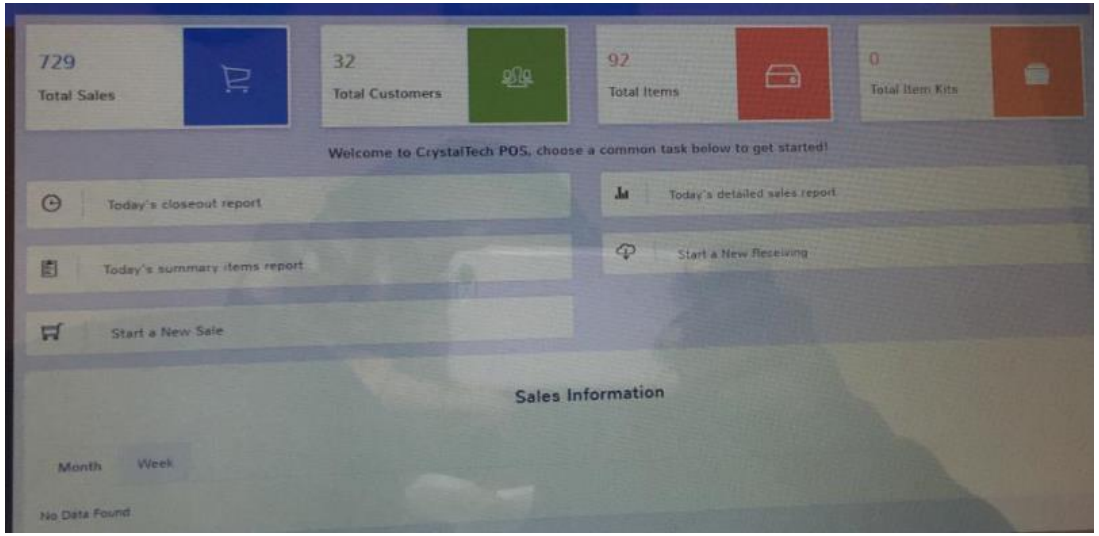
User Experiences

Distribution of Medication to Pharmacies II

- **Functionality**
  - Record keeping – Query information, Statements (Quarterly, monthly e.t.c.)
  - Inventory management – Tracks stock levels
  - Accounting – Profits and losses
  - Connect to the supplier
- **Benefits**
  - Cost – 25K installation and annual 2K fee.
  - Time – Efficiency
  - Accessibility – from her mobile phone
  - Simple to use
- During the crisis the shops in Eastleigh closed – For the SME it is Business as usual



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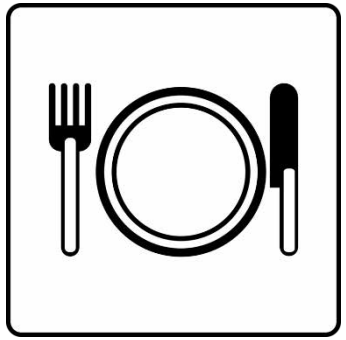
User Experiences

My planted Kitchen

A company that coaches, educates and inspires people to eat more healthy and enjoy a healthy lifestyle.

- Nutrition and Wellness Coaching
- Meal Prep Delivery Service
- Cooking Classes



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User Experiences

My planted Kitchen II

- **Apps**
  - Coachcatalyst - For Training
  - Freshbooks – For record keeping and Accounting.
  - Next - an app for ordering.
- **Costs**
  - 25$ monthly charge for 100 accounts
- **Benefits**
  - Easy to use
  - Lightens the workload
  - Accessible

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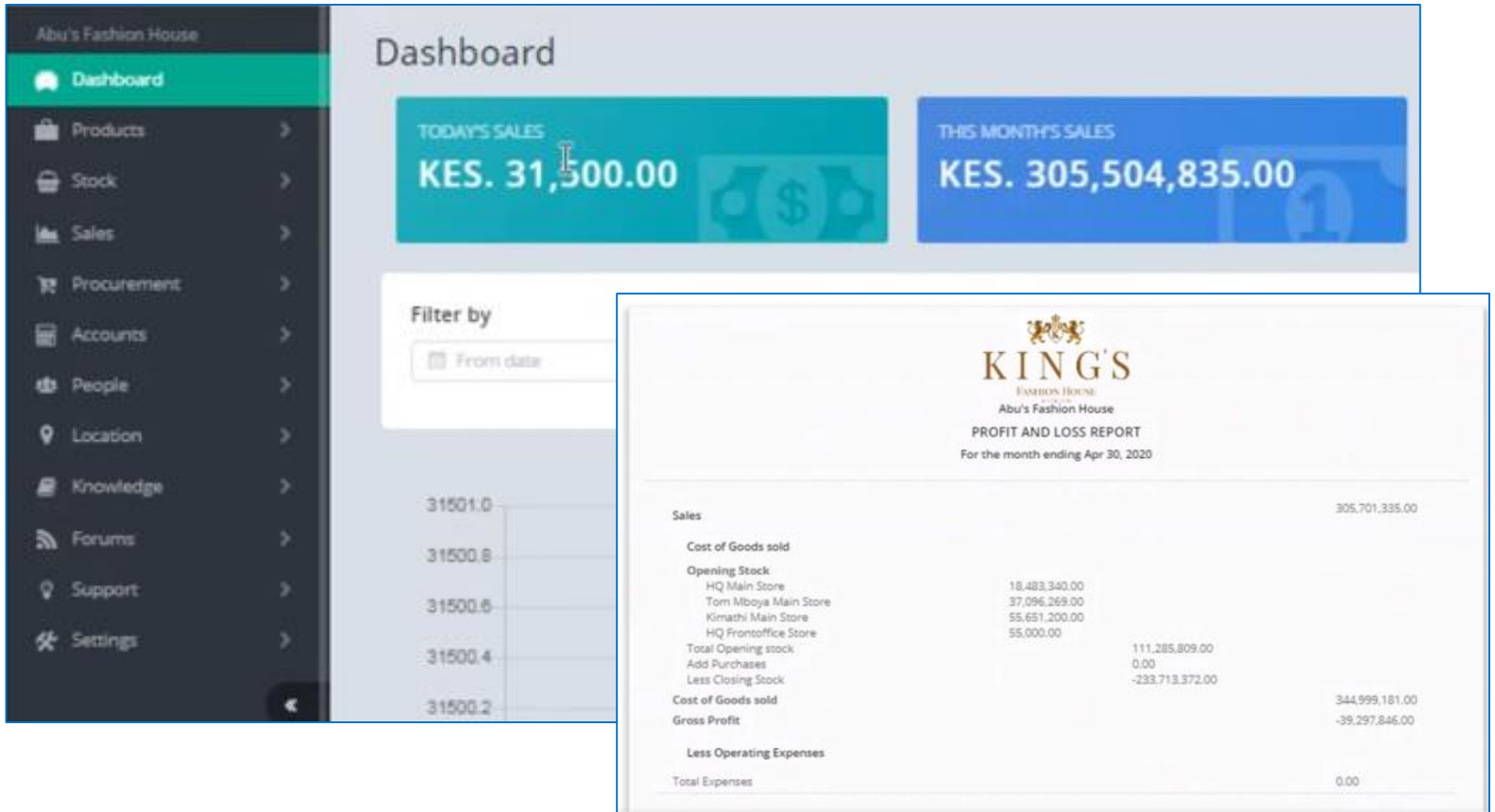
Demo

UZAPOINT

UZAPOINT

- POS Application
- Ecommerce
- Payment module



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Demo

Mobile Mart

- Management Information System
- Purchasing
- Inventory
- Accounting
- Payroll
- Point of Sale Terminal
- SMS Communication

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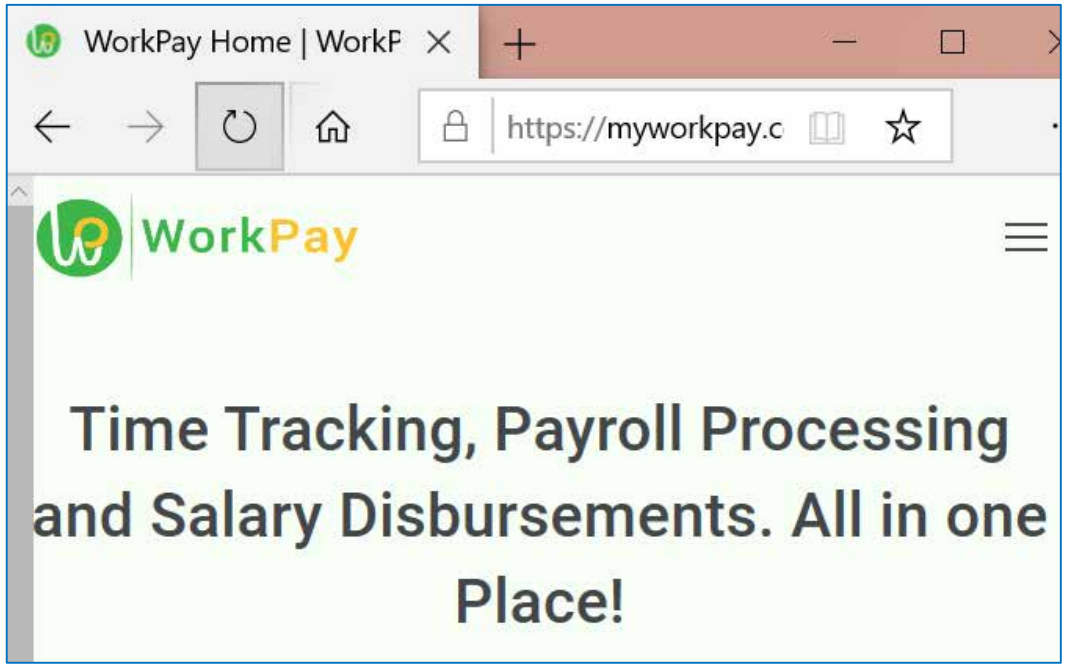
Many Solutions Exist for SMEs'



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Factors to consider

- Several Solutions exist in the market. When selecting technology consider:
  - Cost.
  - Contract Length.
  - Integrations.
  - Support.
  - Business Fit & Innovation.
  - Platform.
  - Implementation Process.

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Thankyou

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