Enabling Digitalization Strategies using Time and Motion Study (TMS)

Global Workshop on Digital Public Infrastructure: Accelerating Action

World Bank HQ, Washington D.C
September 13, 2023
3:30 pm - 4:30 pm

Presentation Outline

1. Time and Motion Study Simulation Game using Bricks
2. What is Time and Motion Study (TMS)?
3. Overview of TMS Methodology
4. Application of TMS in the Philippines
5. Key Takeaways
6. Acknowledgement

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![Technopoly - Partnering for Change]

Let's Play!

TMS Simulation Game Using Bricks

Game Set-up & Team

STAGE

Team 1
Table 1   Table 2

Team 2
Table 3   Table 4

Team 3
Table 5   Table 6

Team 4
Table 7   Table 8

Team 5
Table 9   Table 10

Team 6
Table 11   Table 12

Team 7
Table 13   Table 14

Team 8
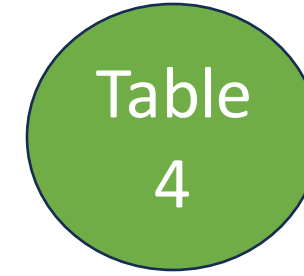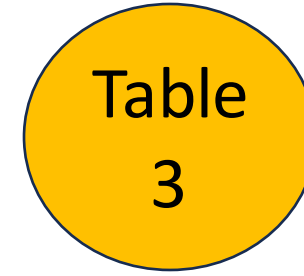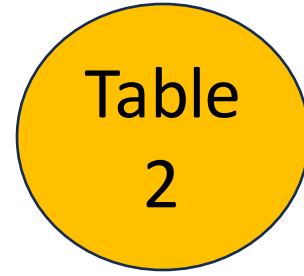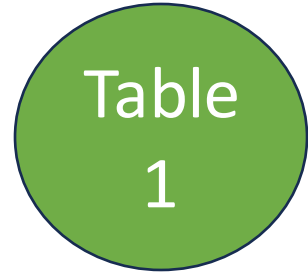Table 15   Table 16

Team 9
Table 17   Table 18

Team 10
Table 19   Table 20

Game Set-up & Team
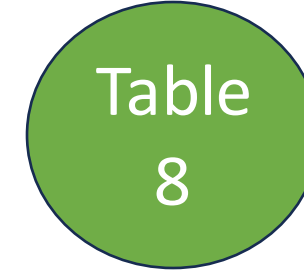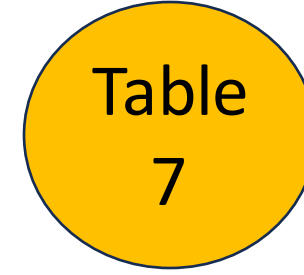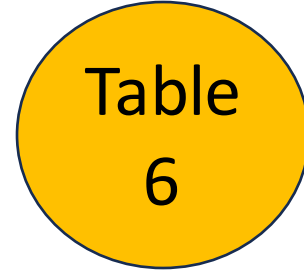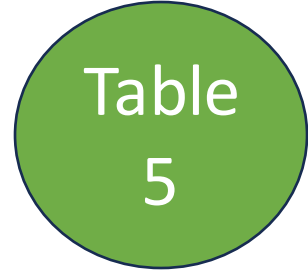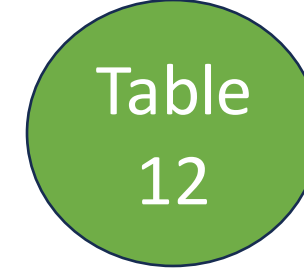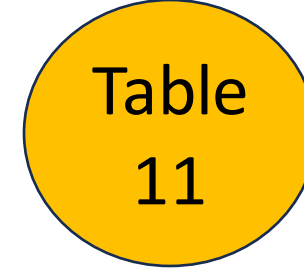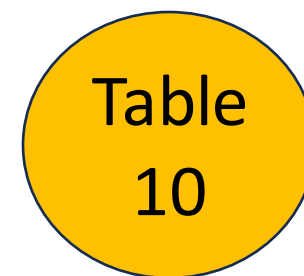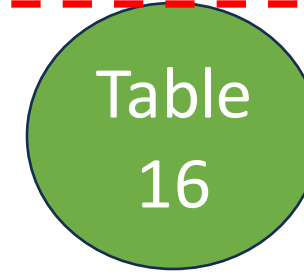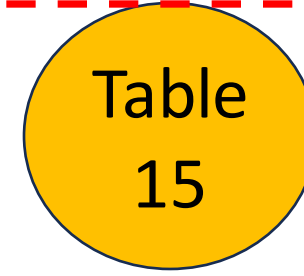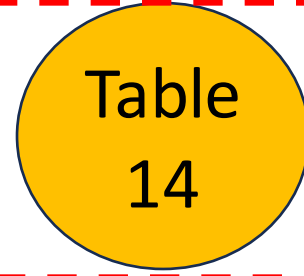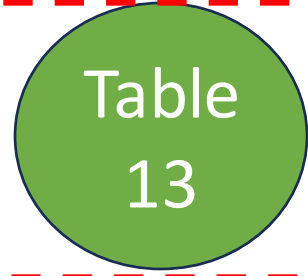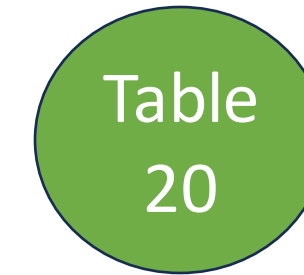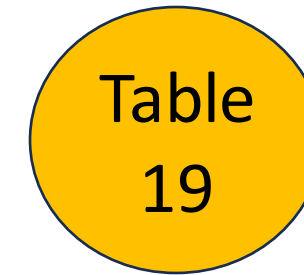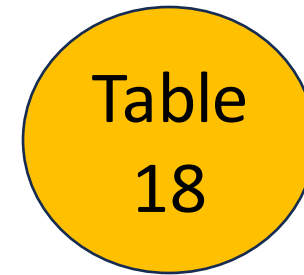
Game Main Objectives

1. Produce as much output as you can within two (2) minutes for each scenario.

2. Three scenarios will be played throughout the game

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The Finished Product
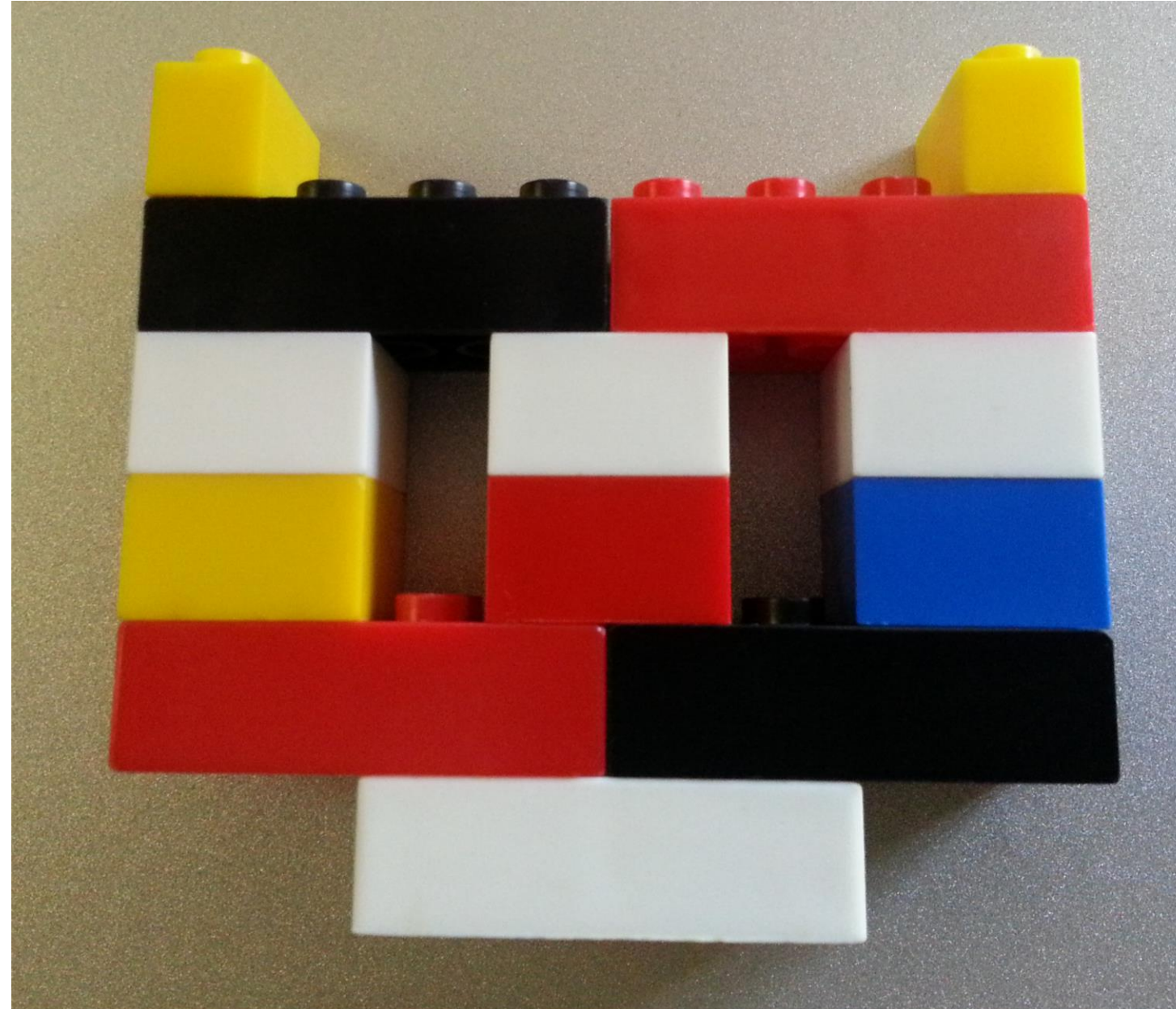
Note: No need to follow the color of the bricks

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Measuring Performance per Scenario

Productivity

- A measure of the effective use of resources, usually expressed as the ratio of output to input

$$\text{Productivity} = \frac{\text{Outputs}}{\text{Inputs}}$$

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Performance Board per Team

Scenario	Description	Input (Personnel)	Output	Productivity
1	Baseline			
2	With additional Personnel			
3	3 personnel with process improvement			

Game Roles per Team

No.	Game Role	Participants needed per role
1	Assemblers	4
2	Delivery and Recorder	1
3	Process Observers	15

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Table Set-up and Flow per Team

STAGE

Stopwatch Screen

Delivery & Recorder

Assembler 1

Assembler 2
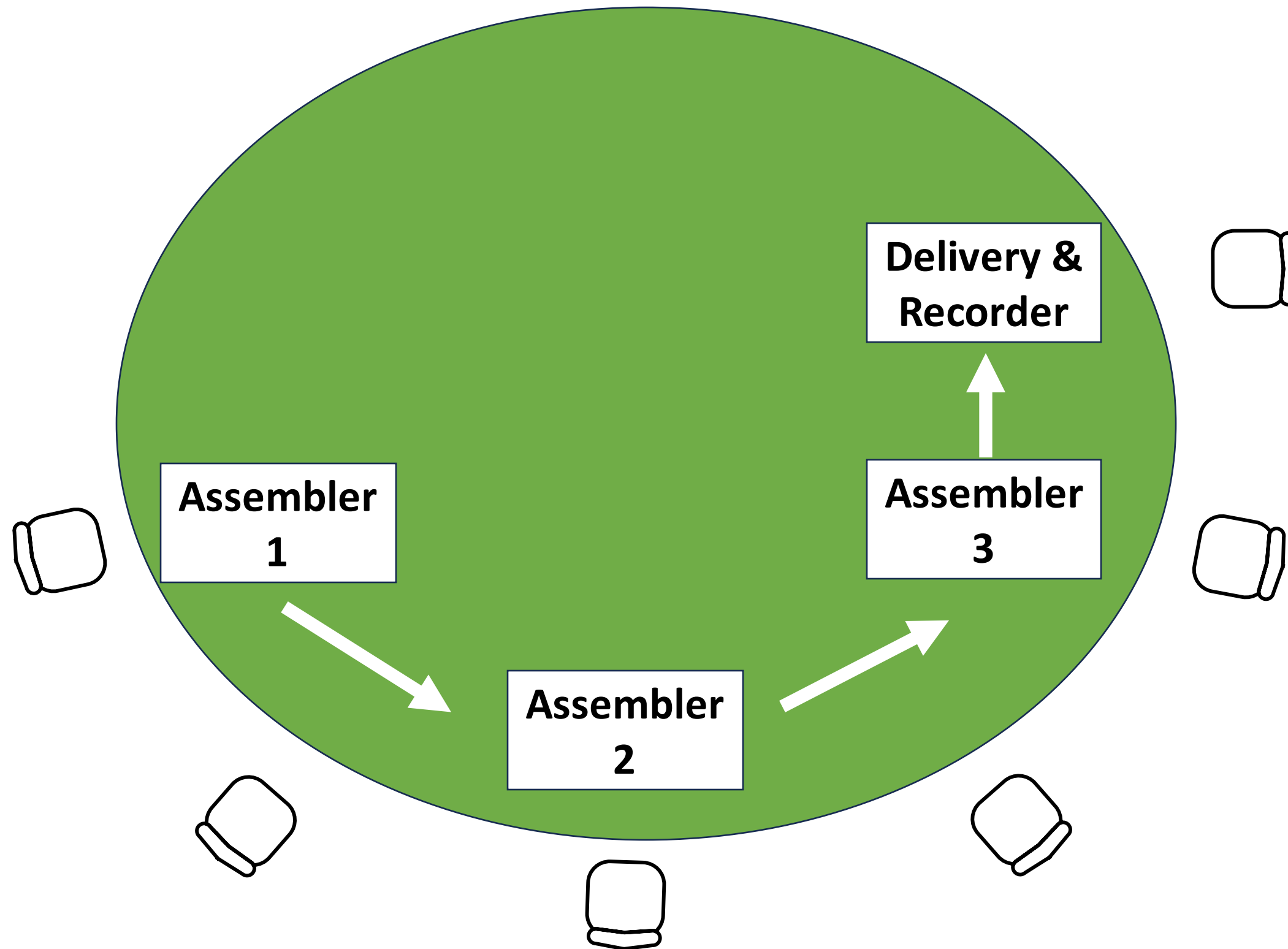
Assembler 3

Assembler 1 Materials

Assembler 2 Materials

Assembler 3 Materials

Delivery and Recorder Instructions
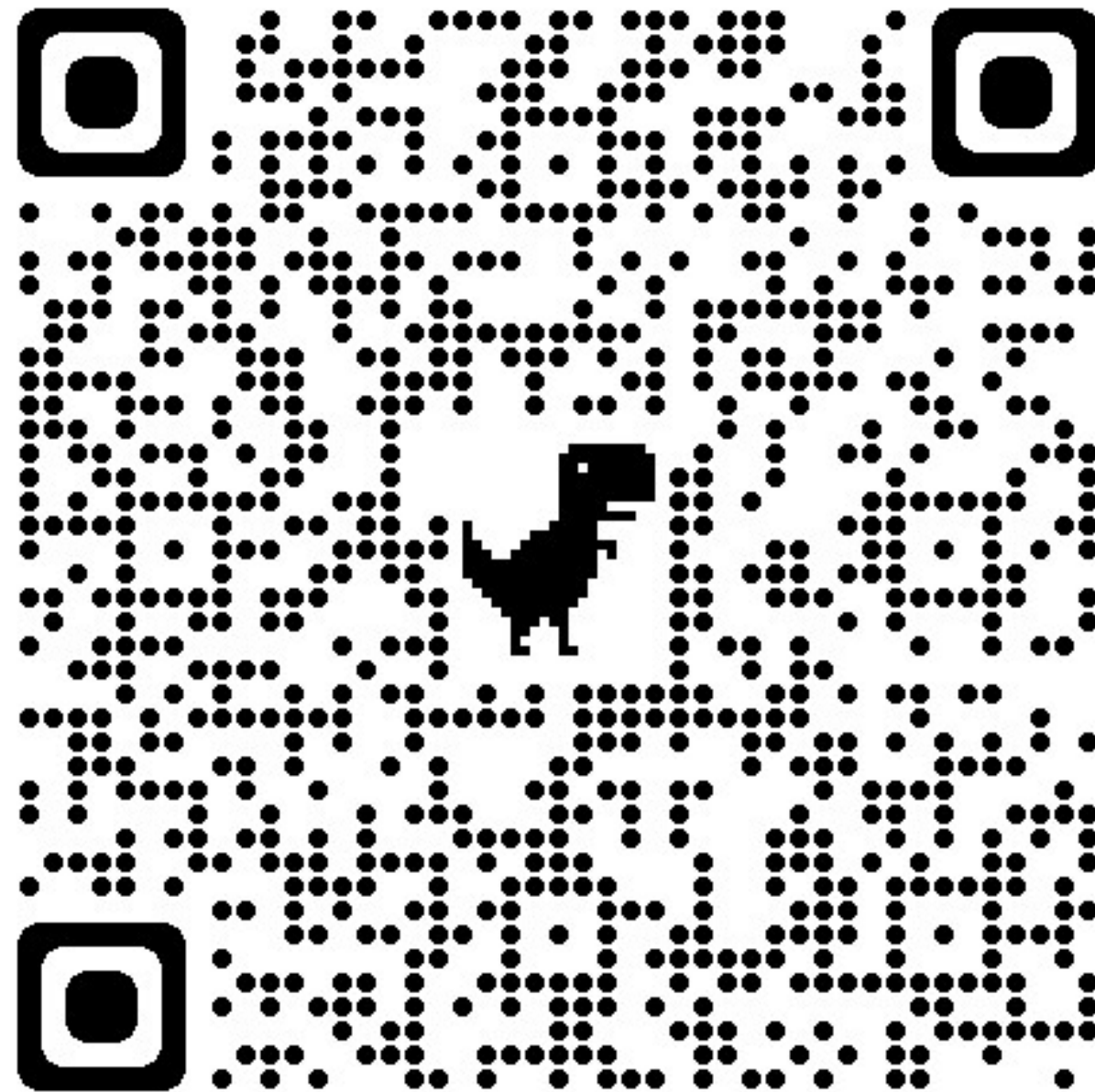
Instructions

1. Scan QR code using your mobile phone or tablet.
2. Go to your assigned Team sheet

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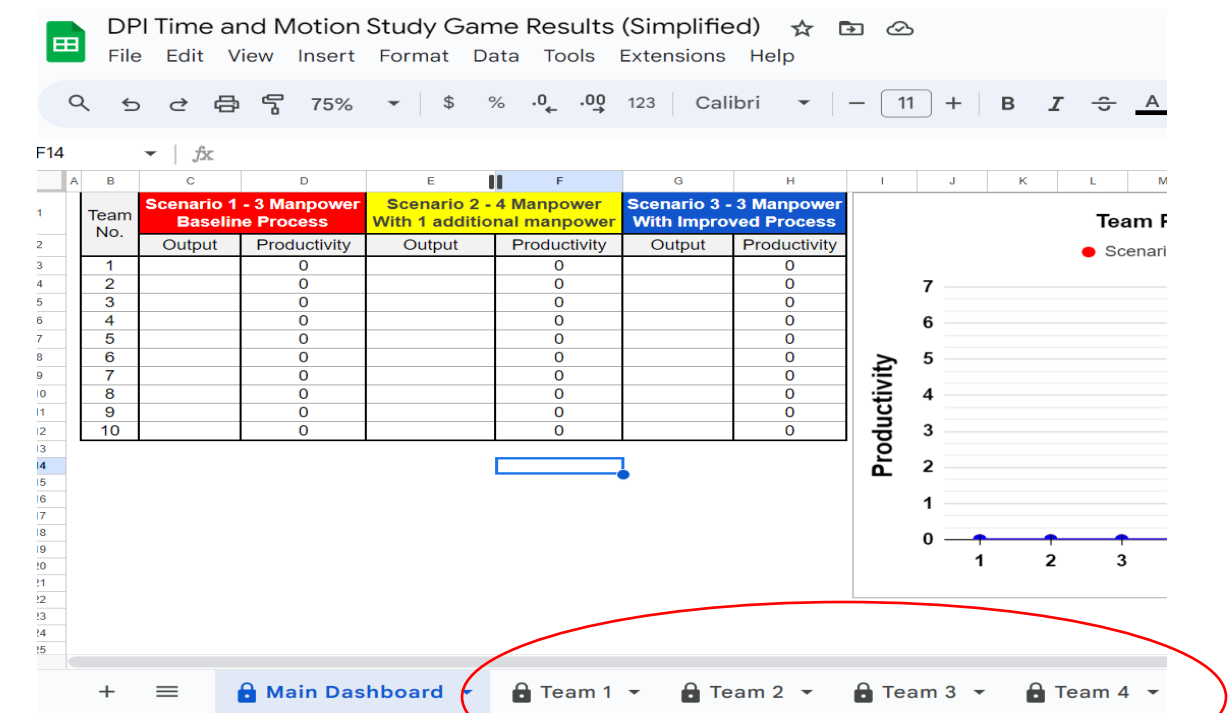
Delivery and Recorder Instructions

Team 1 Output per Scenario			
Scenario	Input	Output	Productivity
1	3		0.00
2	4		0.00
3	3		0.00

Instruction:
Count and record the output of the Team for each scenario.

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Scenario 1: 3 Workstations – 3 Assemblers

Station 1 → Station 2 → Station 3

Assembler 1   Assembler 2   Assembler 3

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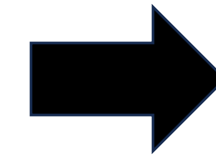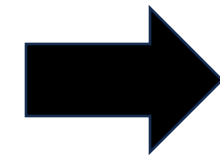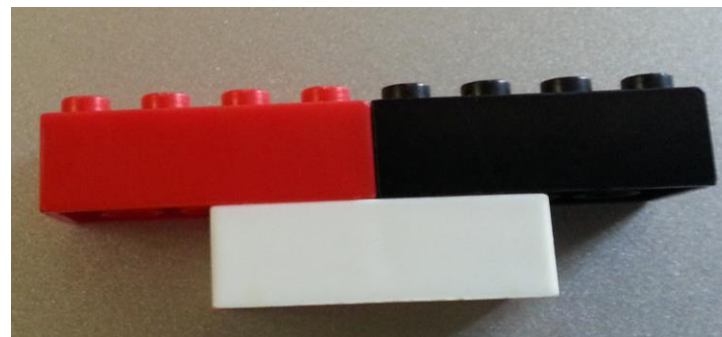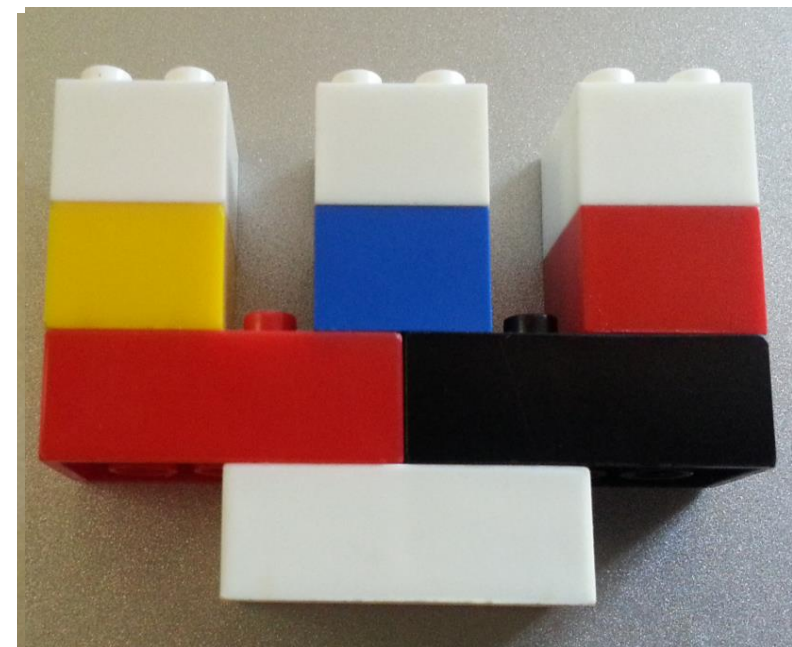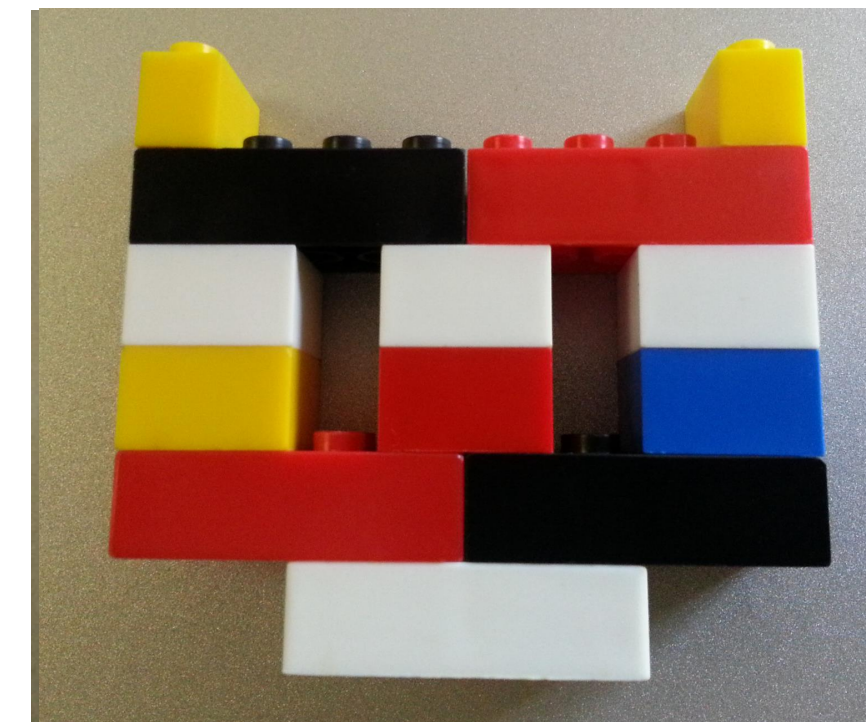
Scenario 2: 3 Workstations – 4 Assemblers

Station 1 → Station 2 → Station 3
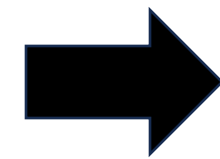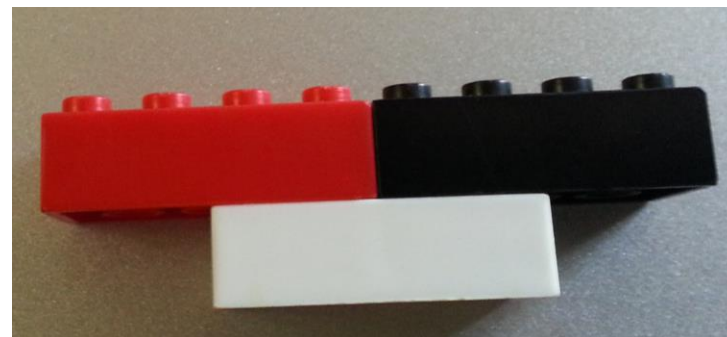
Assembler 1

Assemblers 2 and 3
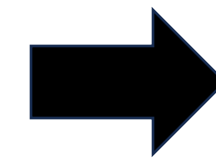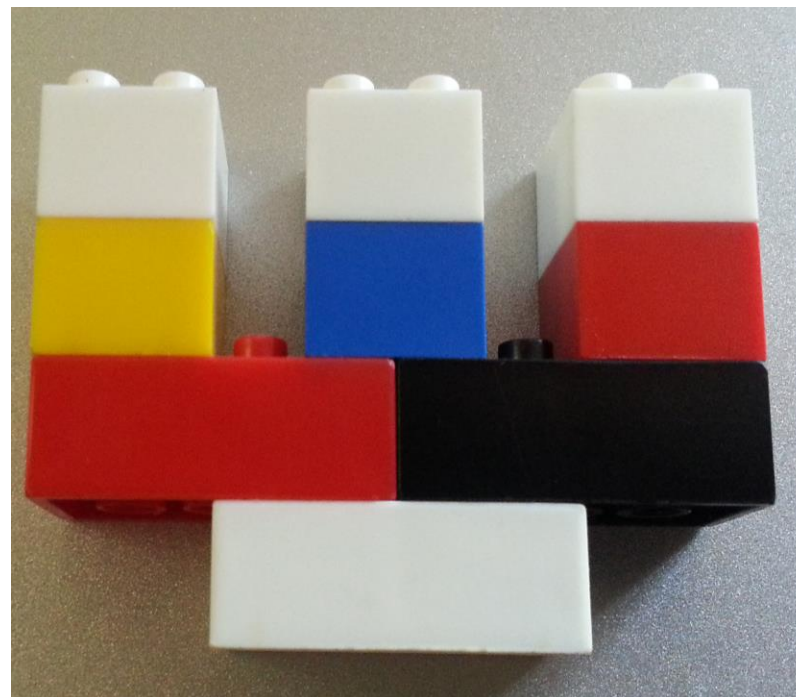
Assembler 4
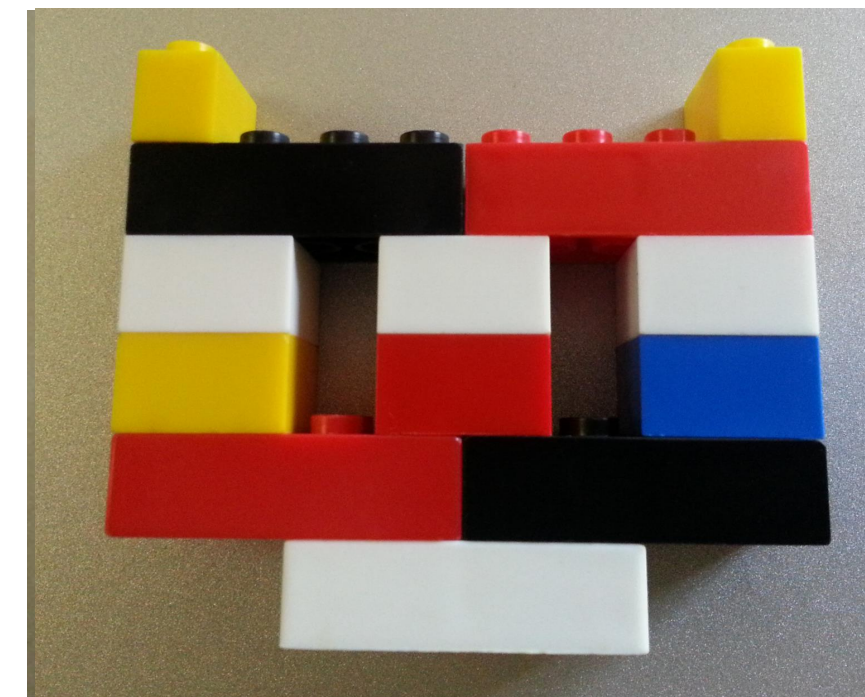
Scenario 3: 3 Workstations – 3 Assemblers
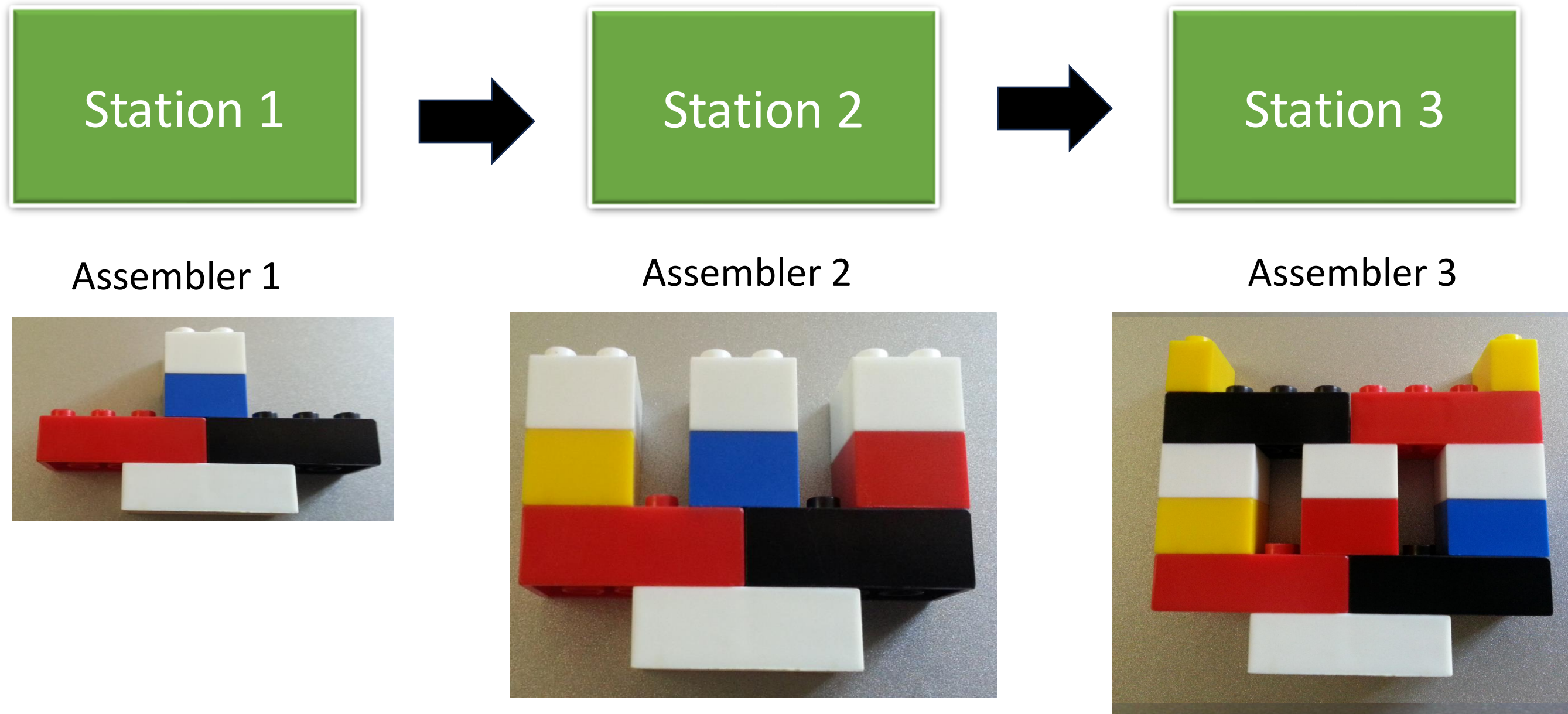
https://docs.google.com/spreadsheets/d/12Wl4aubu6Nth3bpLIUHR-jjX9X0pP8xC_HKyJI4q7iQ/edit#gid=1264227737

Game Debriefing.
What does this mean in real life processes?

Scenario 1: Applying for permits

Submit and verify requirements
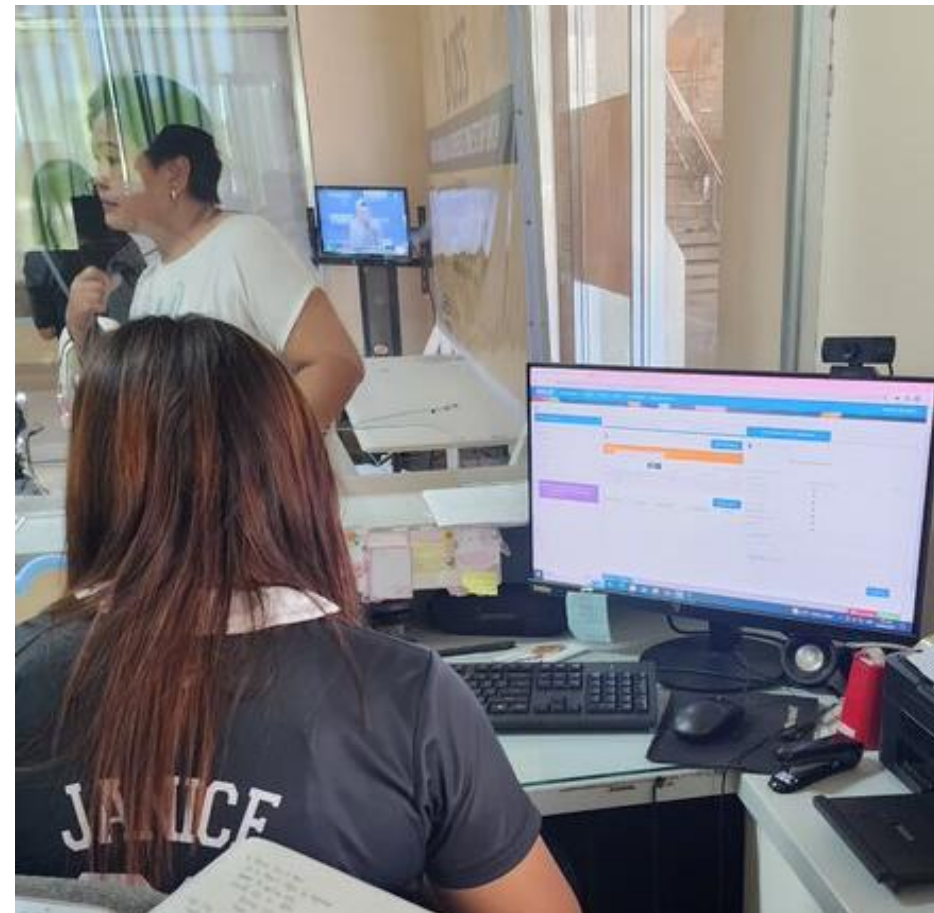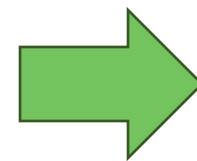
Encoding information from forms

Issue business permit

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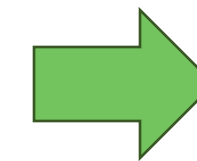
Scenario 2: Registering for a government service

Filling-out forms
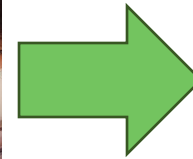
Encoding information from forms
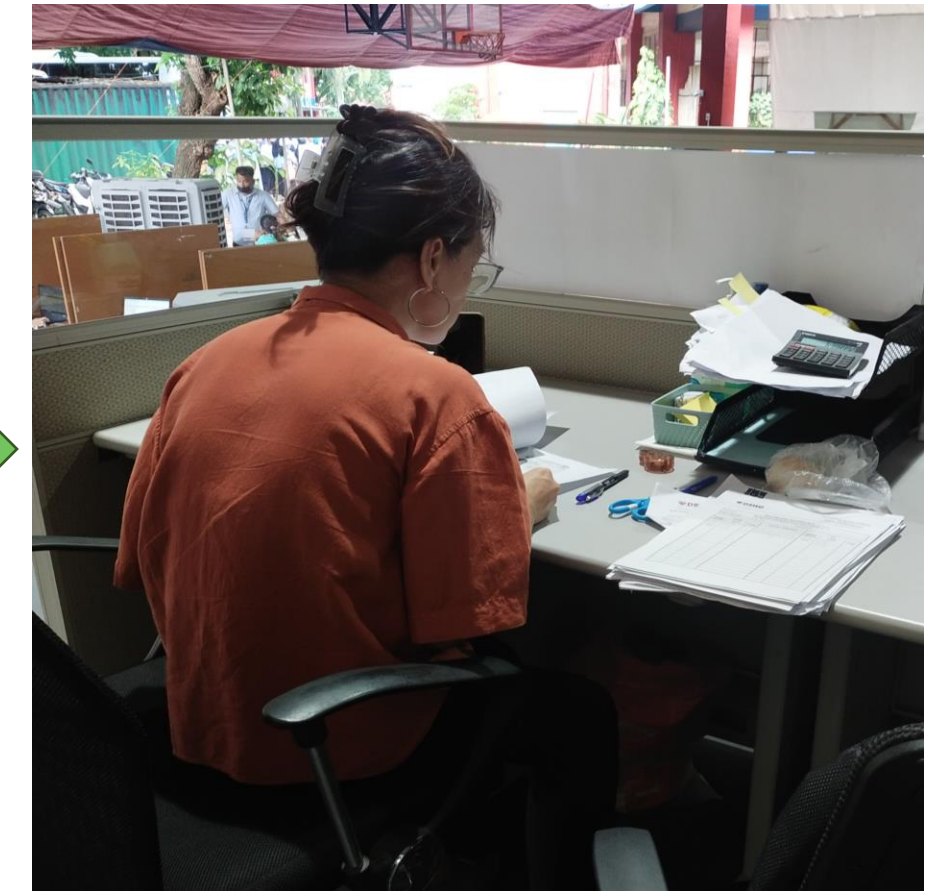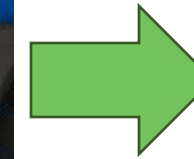
Evaluating encoded information

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Scenario 3: Bank account opening

Fill-out
application form
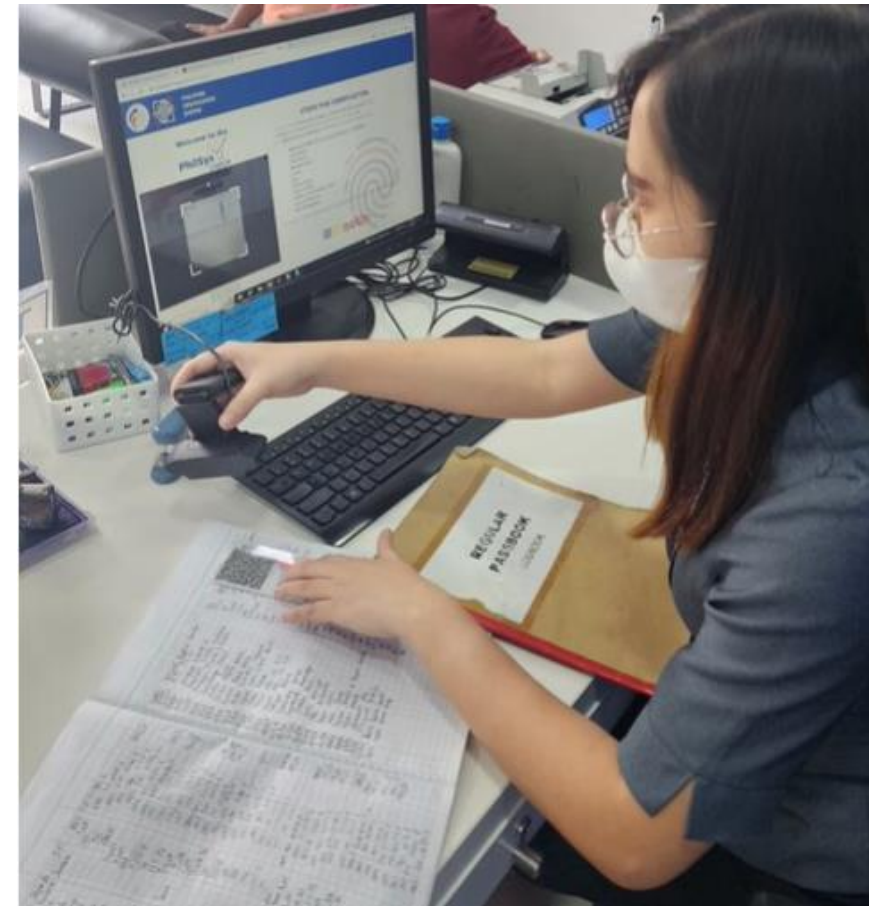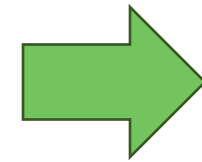
Scan PhilID
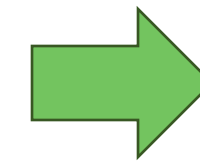
Activate and
issue ATM card

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Time and Motion Study (TMS)

- Time and Motion Study is a systematic and scientific approach used to analyze and improve the efficiency of work processes by:

- Breaking down the activities and tasks,

- Measuring them, and

- Evaluating their impact on performance (Service and Customer).

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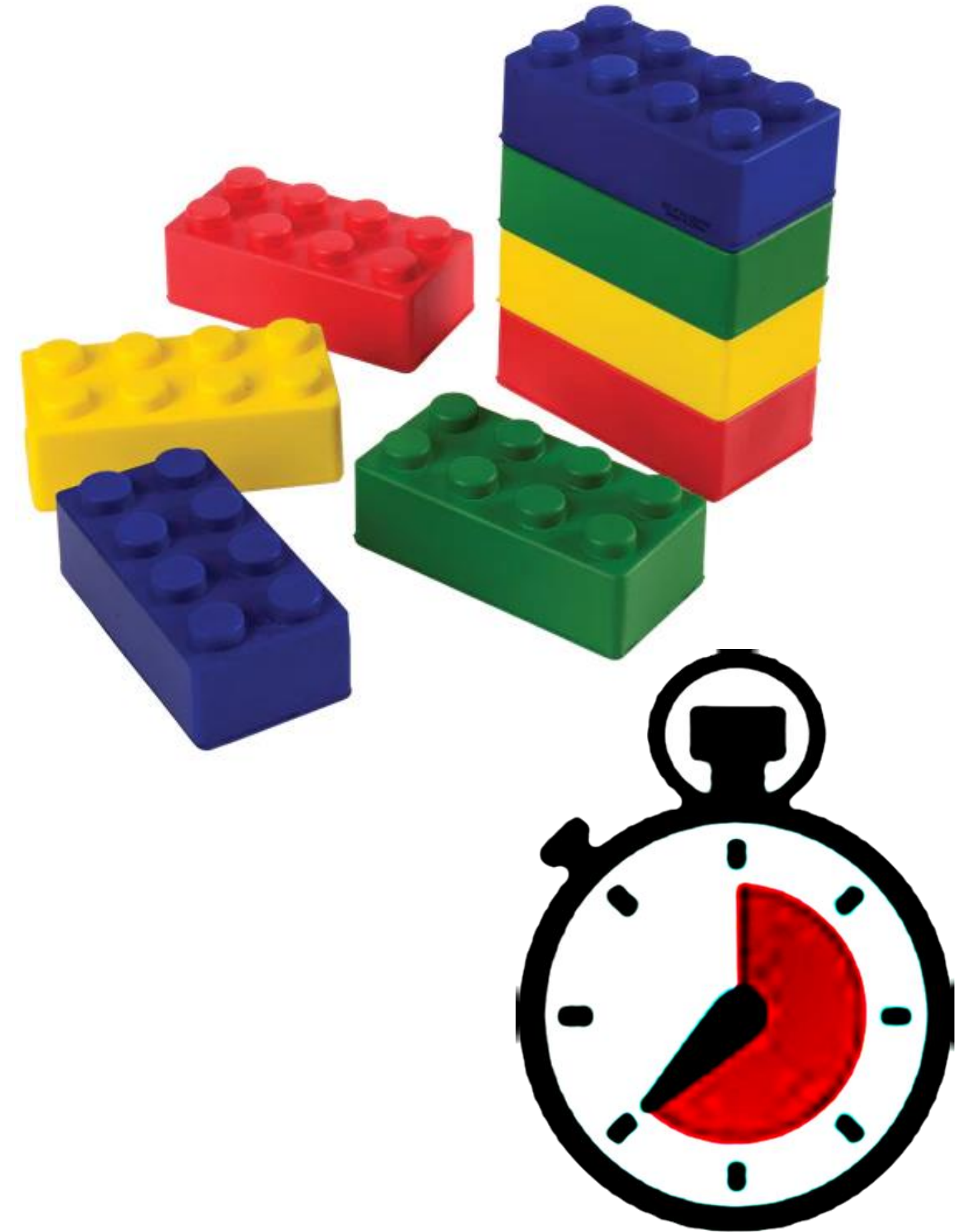
Customer Centricity: Seeing impact and value to Customer

- Customer centricity is an approach and philosophy that places the customer at the core of all business decisions and operations.

- The customer's needs, preferences, and satisfaction should be the primary focus of any organization's strategies and activities.

Lean Thinking:
Learning to see value and non value
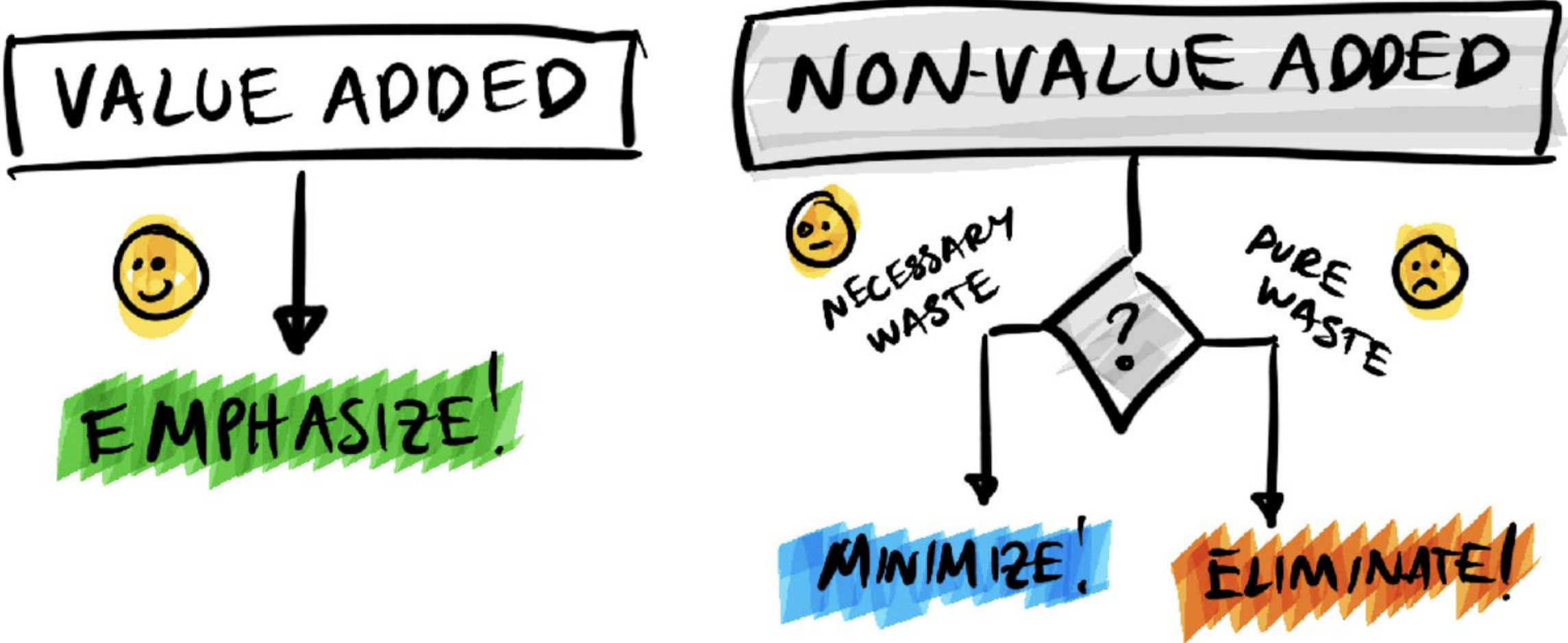
Value Adding Activities

Creation of Guarantee Letter

Verification of presented ID
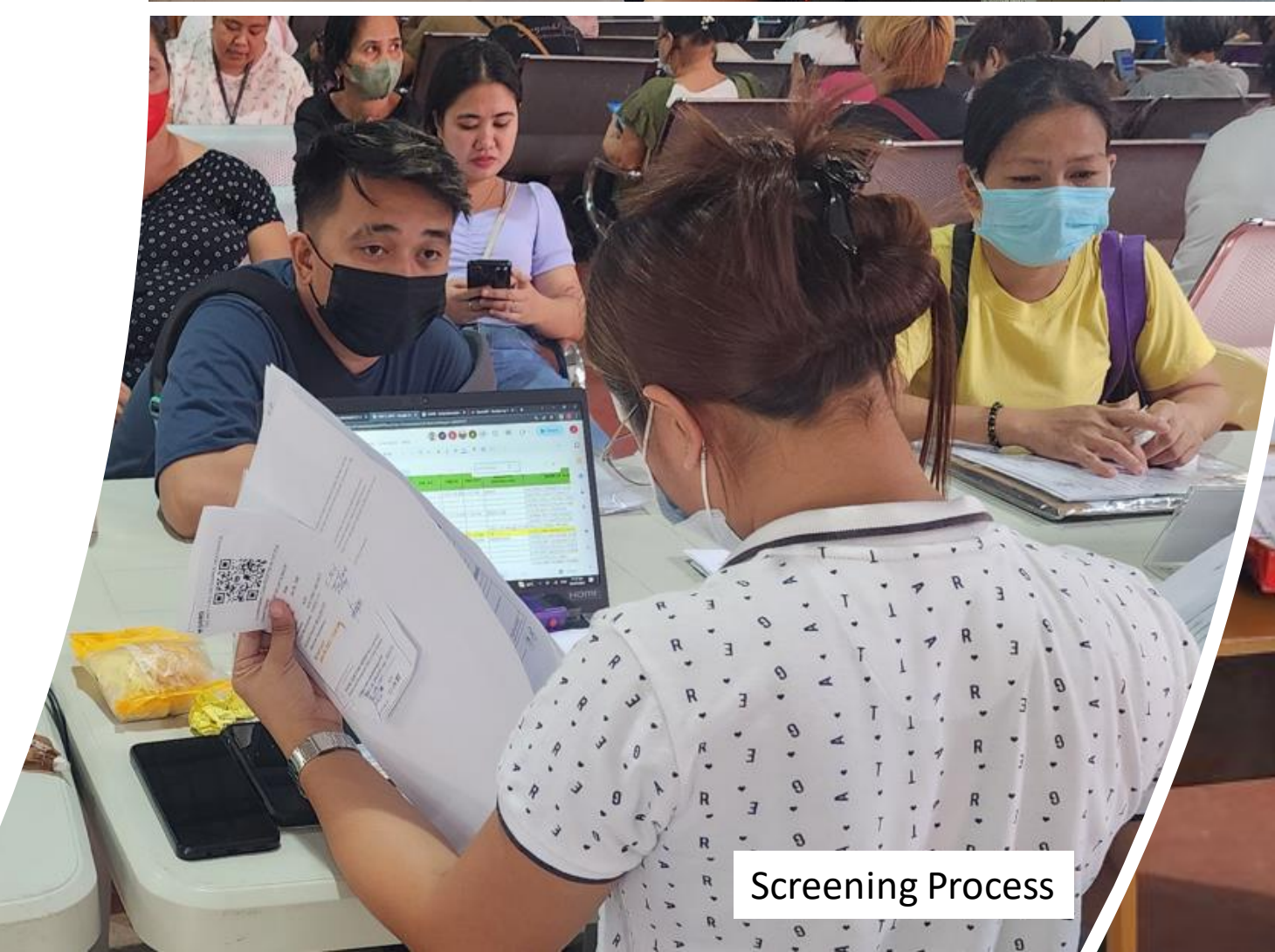
Screening Process
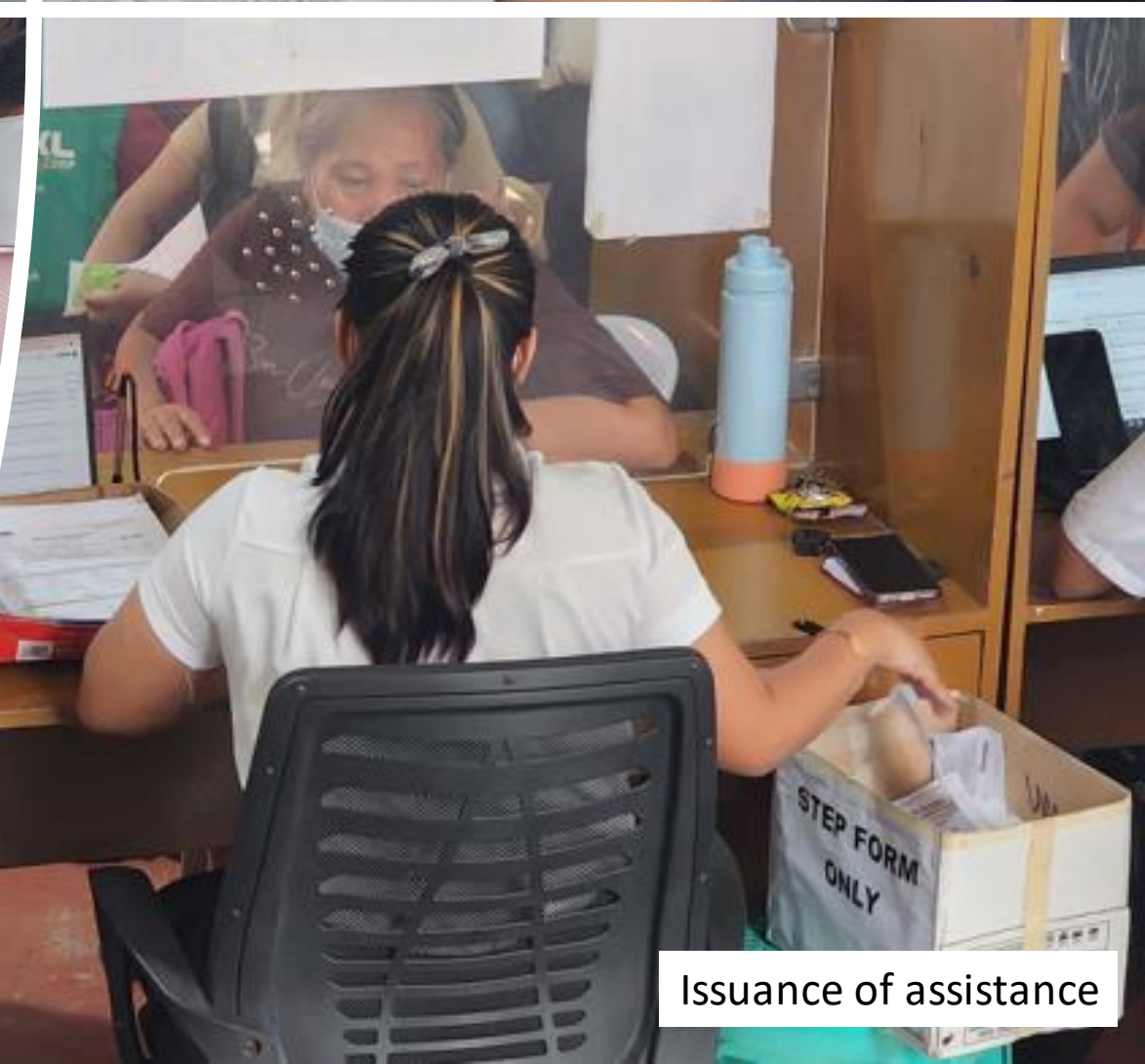
Issuance of assistance

Non-value adding

Converting a handwritten document to a digital copy

Idle (waiting for input)

Queue

Waiting to be processed

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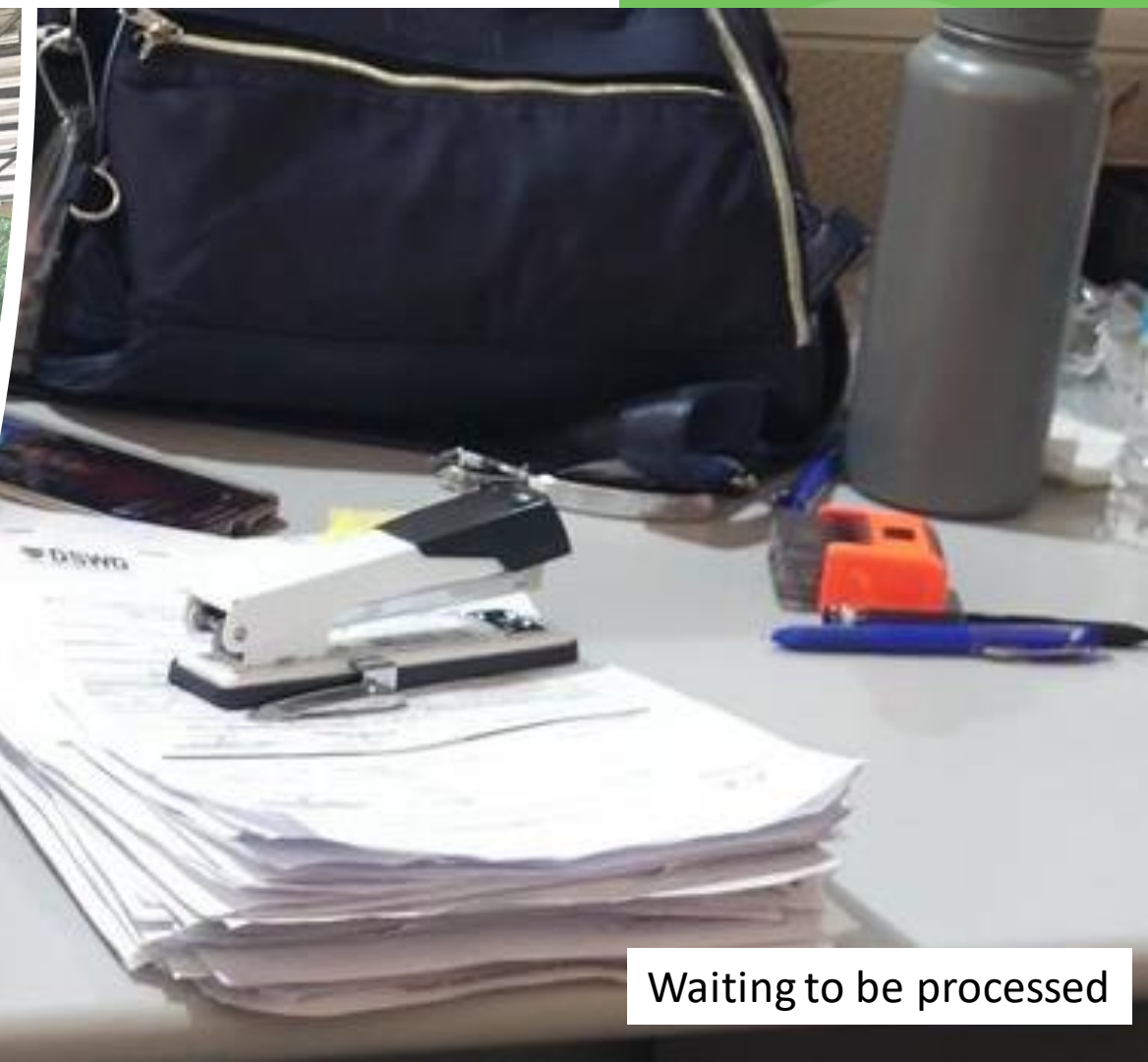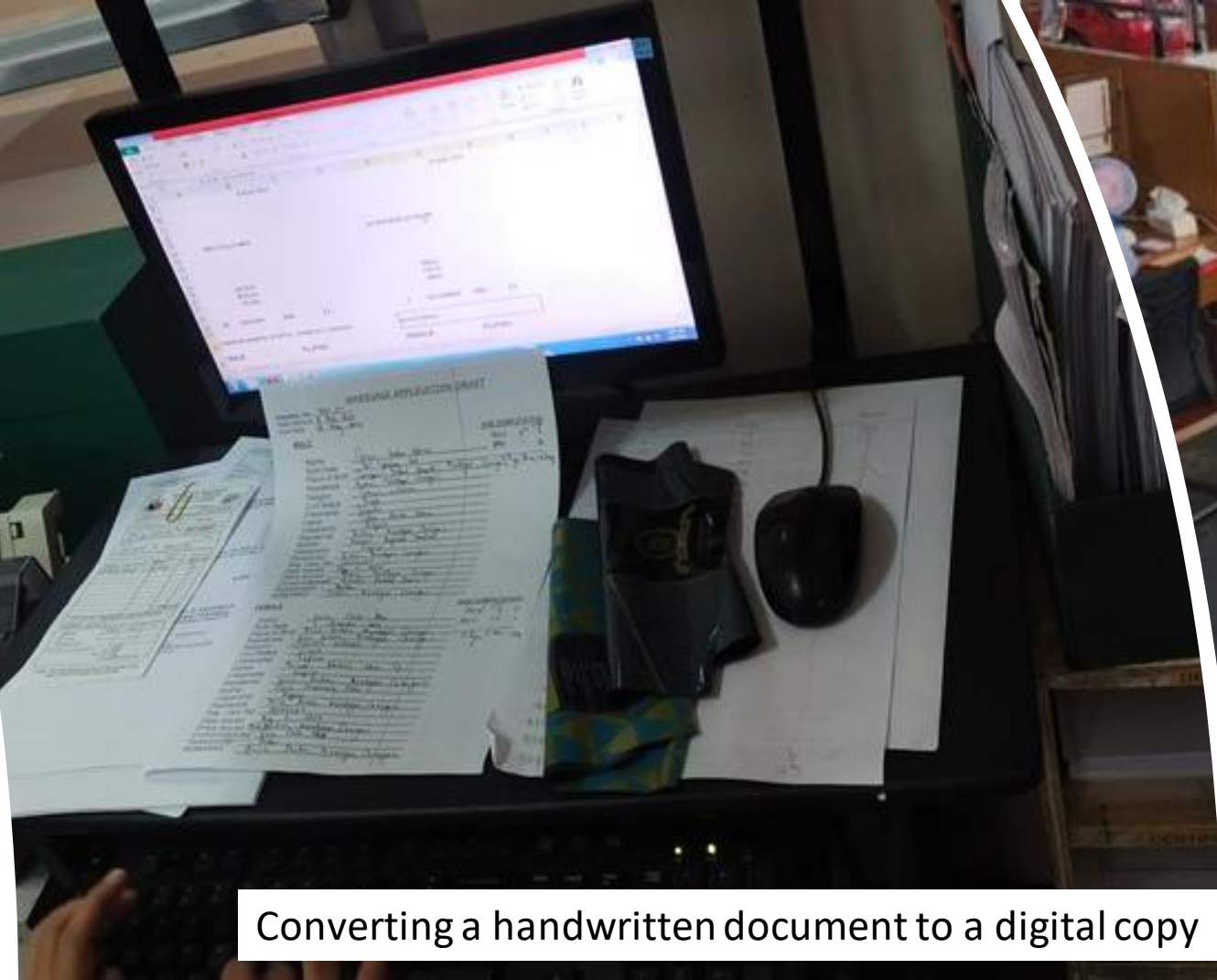
Lean Thinkers view of any activity
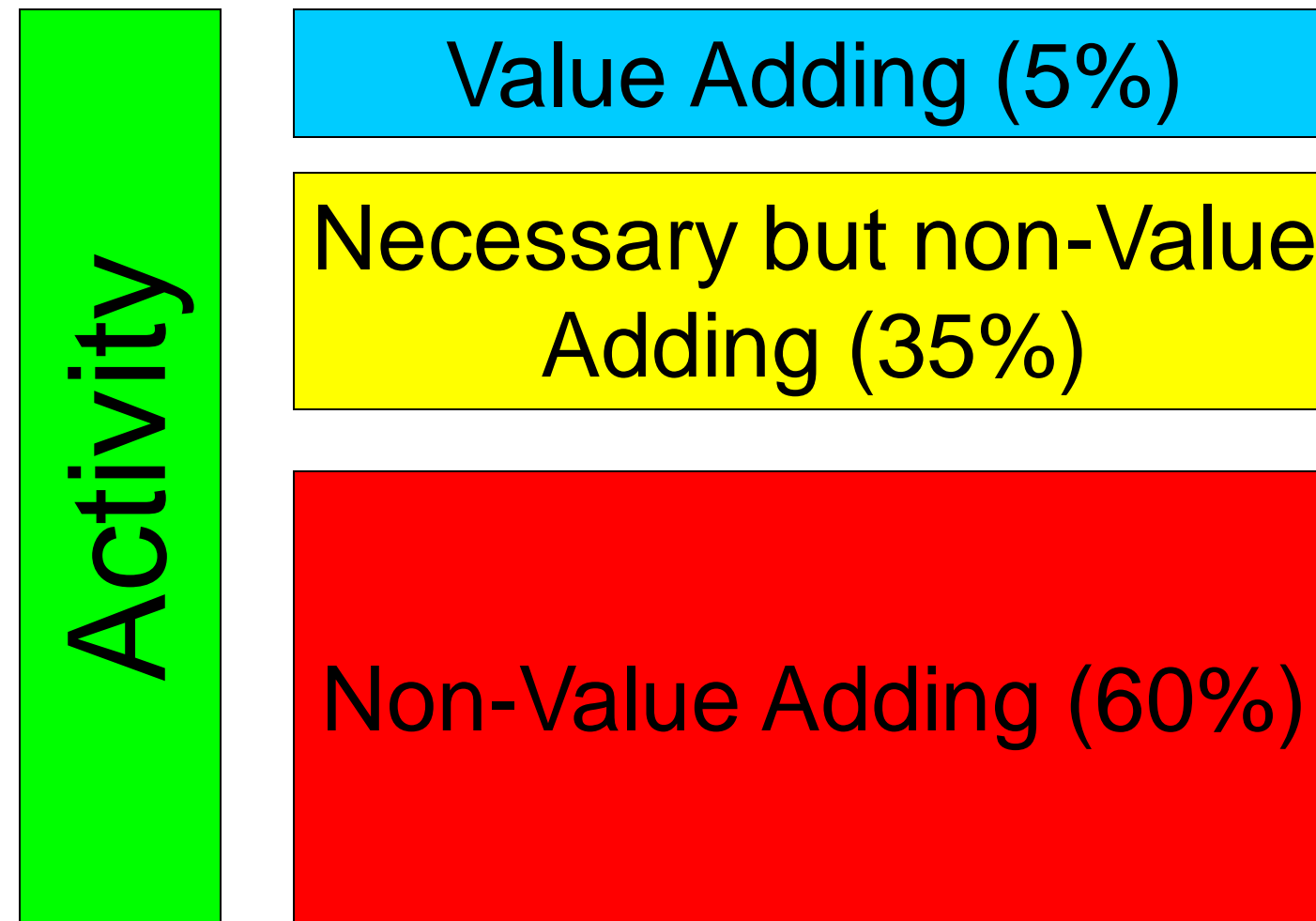
Time and Motion Study Key Findings in the Philippines

Key Findings (Performance)

The following is the potential range of improvement in customer experience time per sector involved in the study:

Sector	Potential Range of Percentage (%) Improvement in Customer Experience Time
Local Government Sector	41.94% – 73.47%
Financial Sector	33.56% – 60.94%
Social Protection Sector	47.53% – 78.56%

Key Findings (Outcome)

1. **PhilSys will enable the efficient delivery of services (or assistance) to the intended clients (beneficiaries, constituents, customers).**

   - RPs can quickly and accurately verify their customer's identity.

   - RPs can take advantage of the verified information from PhilSys to eliminate the need to capture information multiple times from Clients.

   - RPs can reduce incidents of erroneous client data from multiple encoding.

   RP = Relying Parties. These are institutions or organizations given access to PhilSys

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Key Findings (Outcome)

2. Digital transformation initiatives of Relying Party can be enabled by PhilSys, specifically on innovating customer experience.

3. RPs can maximize the full benefit of PhilSys integration by improving both their processes and IT infrastructure.

4. RPs can enjoy quick wins by using PhilSys check to authenticate their client without the need for further documentation.

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Overview of TMS Methodology
Case study: Application & Issuance of New Business Permit

Define the High-Level Process Scope: Application and Issuance of New Business Permit

SUPPLIER	INPUT	PROCESS	OUTPUT	CUSTOMER
Applicant City Treasury Office	• Application Form • Documentary Requirements	Application and Issuance of Business Permit	Business Permit	Applicant

START   **END**

| Accomplish application form and submit with other documentary requirements | → | Proceed to interview and document verification | → | Secure Zoning Assessment from MPDO and Building Inspection Assessments from Engineering Office | → | Secure Tax Order of Payment and settle amount due to the Treasury Office | → | Pay Fire & Safety Inspection Fee to Fire & Safety Sector | → | Receive Business Permit from the BPLO |

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Data Gathering Set-up

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Current Customer Journey Map
Application and Issuance of New Business Permit

Current Customer Journey Map
Application and Issuance of New Business Permit

Current Customer Experience Time: 1 Hour and 20 minutes

Observation 1: Applicants must go to the different offices and secure the required documents for a business permit.

- *Applicants must queue at each office, adding to the total experience time.*
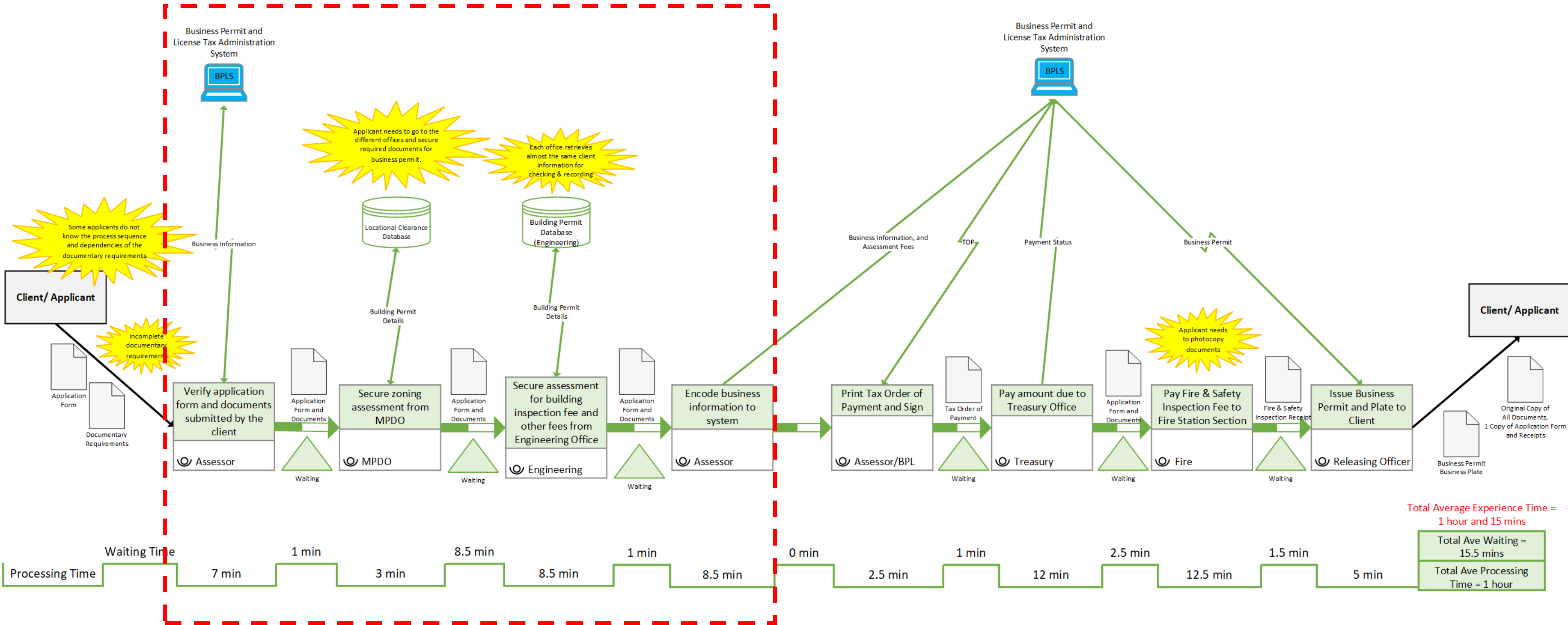
Observation 2: Each office retrieves almost the same client information for checking and recording

Current Process Flow

Municipal Engineering Office

Treasury Office

MPDO

BPLO

Photocopy Station

Bureau of Fire Protection
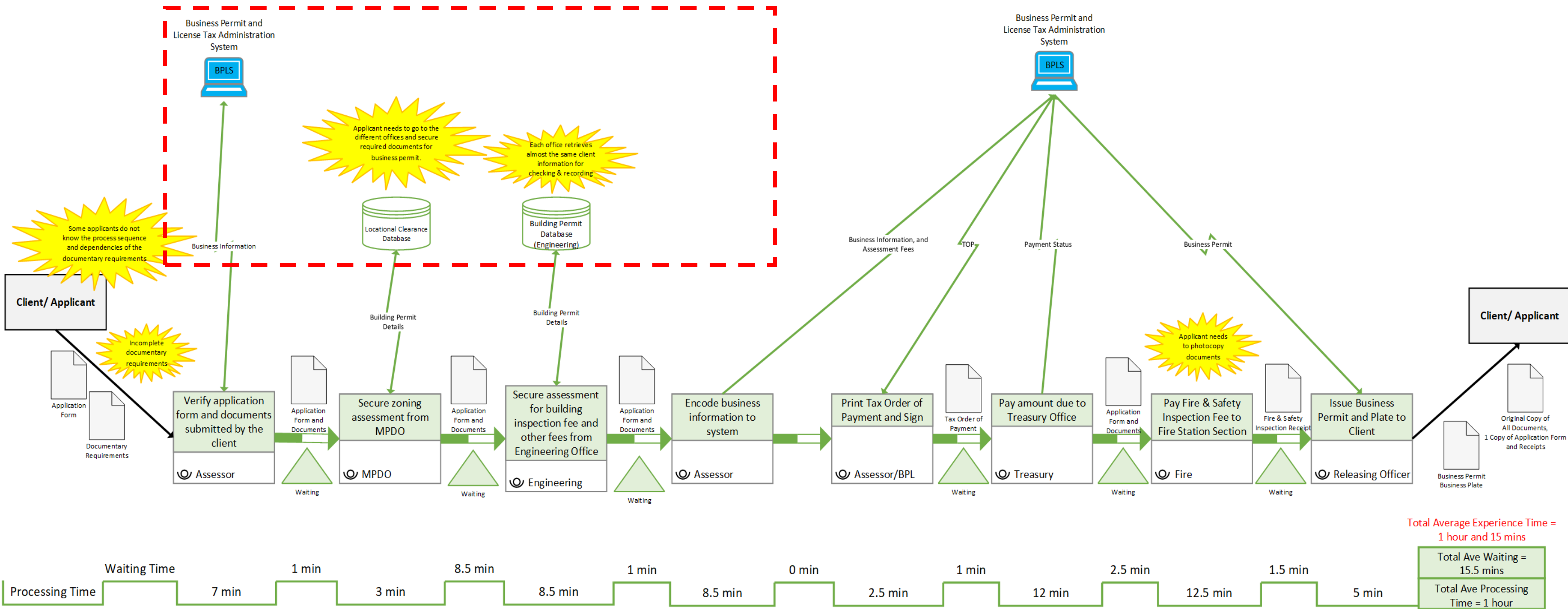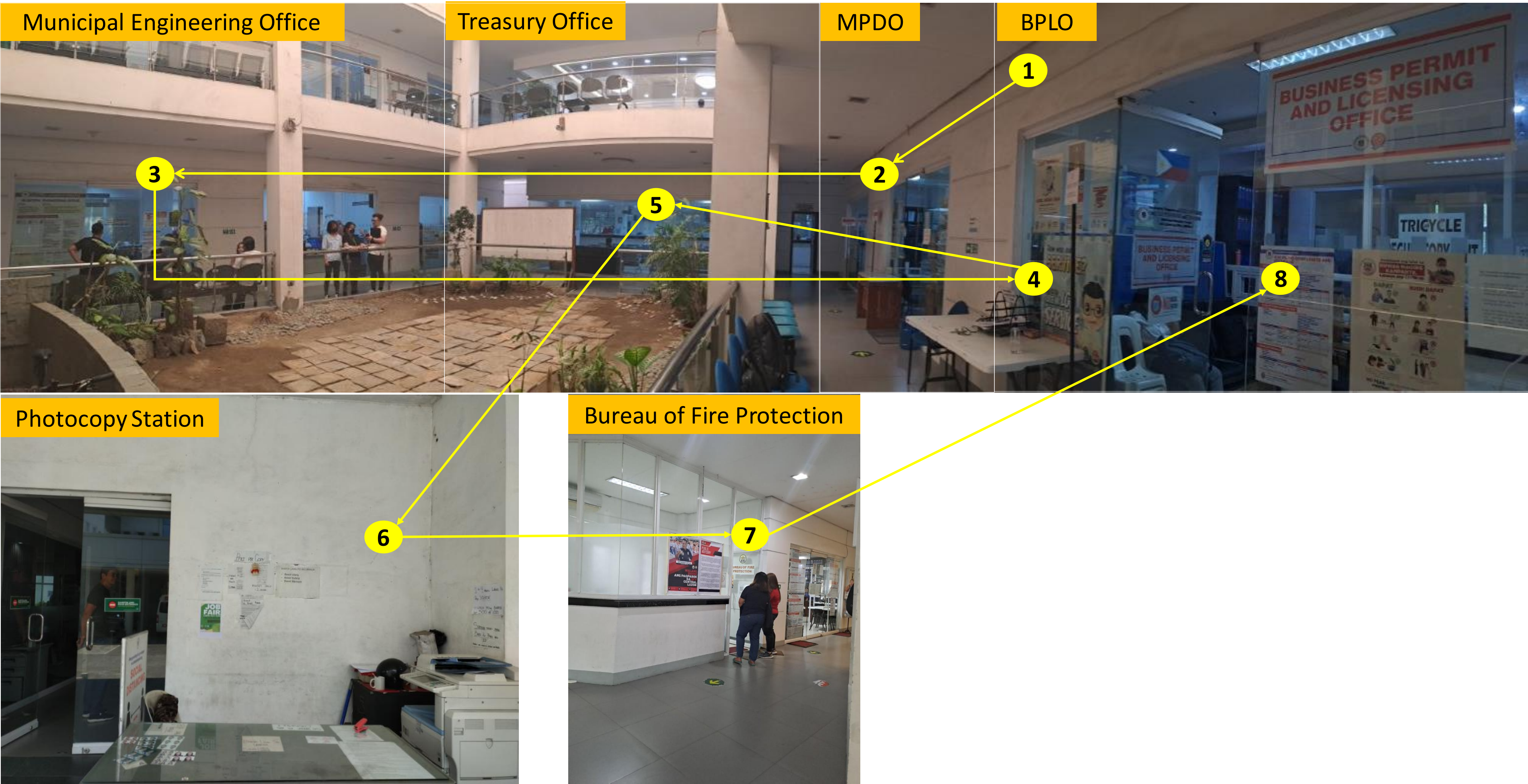
Where can PhilSys (National ID) be integrated?
Application and Issuance of New Business Permit Current Process
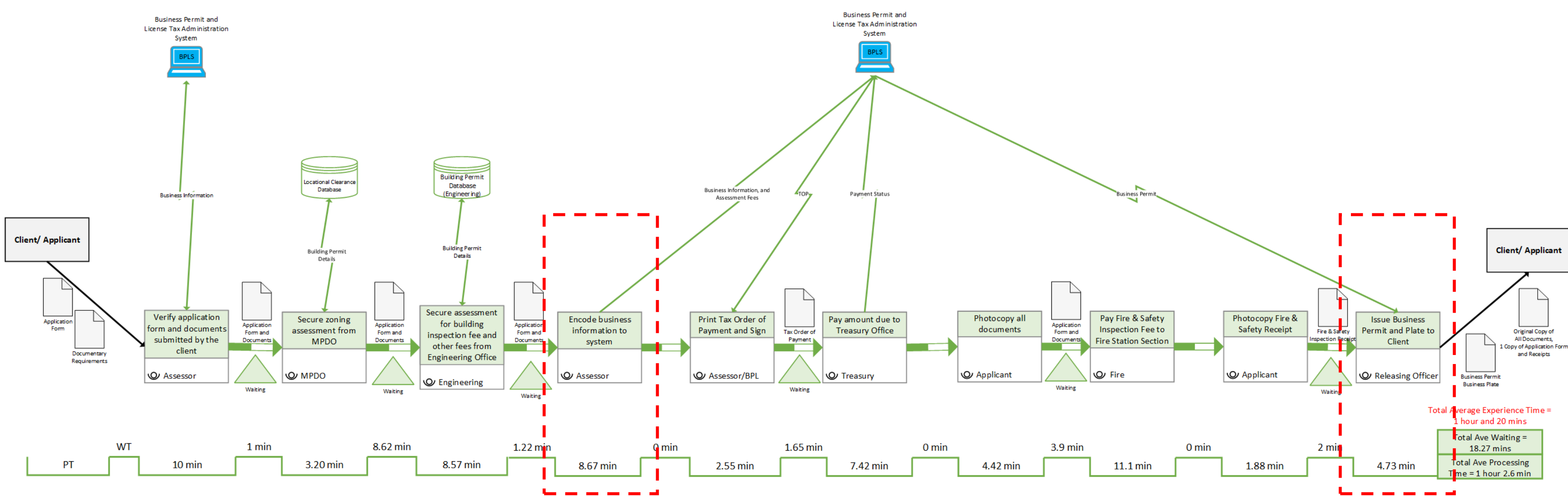
Co-creating the future state with stakeholders

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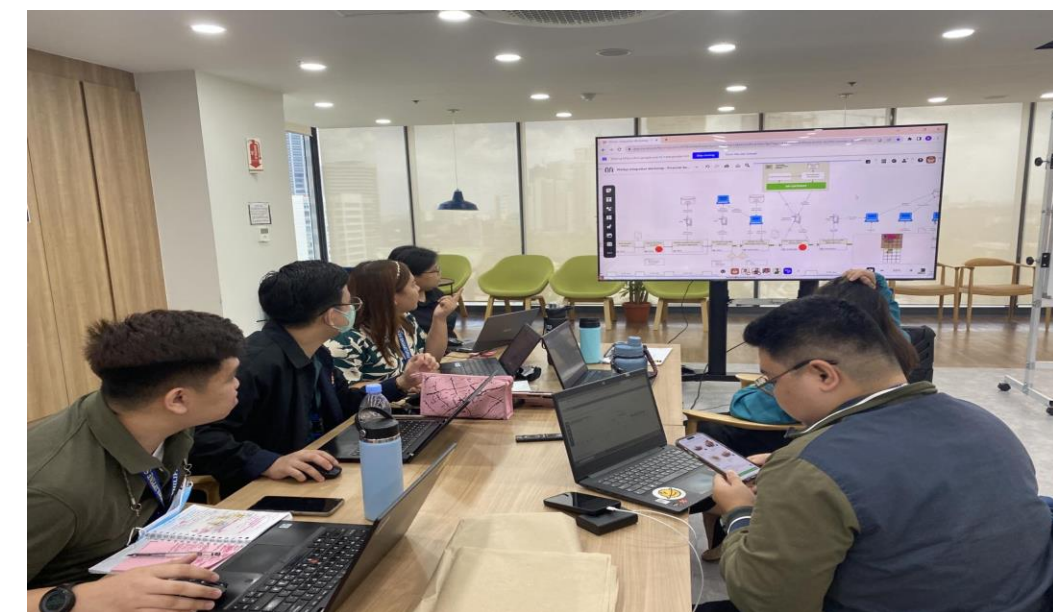
Proposed Process with PhilSys Integration - Application & Issuance of New Business Permit

Authenticate the identity of the business and the owner.

Encode other details and pay amount due.

Issue business permit

Identity of the owner/s have been authenticated during the DTI/SEC registration.

Municipal Offices
- Locational Clearance Database
- Building Permit Database (Engineering)
- Registered Business Database
- BFP Database

PHILIPPINE IDENTIFICATION SYSTEM
- PhilSys Database
- Authenticate Identity → Demographic Information
- **API GATEWAY**

- Barangay Clearance Database
- DTI Database
- SEC Database
- CDA Database

Barangay Business Clearance
Business Registration Information
Business Registration Information
Business Registration Information

Business Name & Address
Delinquent Account, BFP Negative List, Permit Status

New Business Application Database
New Business Application Information

Representative/Owner Demographic Information

BPLS

Representative/Owner QR Code/ Biometrics

Client/ Applicant

Application Form   Documentary Requirements

Phil ID/ e-Phil ID

Encode business name and address	Authenticate identity of representative/ owner using PhilSys	Validate information extracted from PhilSys
Assessor	Assessor	Applicant

Business Name & Address

Authentication Process

Municipal Offices
- Locational Clearance Database
- Table of Fees
- Registered Business Database
- BFP Database
- Building Permit Database (Engineering)

CTC and Fire Safety Inspection Fee are part of the table of fees

New Business Application Database

New Business Application Information (Updated)

Verified New Business Application Information

Assessment Fees

BPLS

Update Payment Status

Other Business Information

Generated Assessment Fees

Encode & Verify other business information needed	Print and Issue Tax Order Payment	Pay amount due to Treasury Office
Assessor/Applicant	Assessor	Applicant/MTO

Tax Order of Payment

Example: Capitalization, business area, No.of employees, monthly rental, Lessor's details, etc.

PHILIPPINE IDENTIFICATION SYSTEM
- PhilSys Database
- Authenticate Identity → Basic Authetication
- **API GATEWAY**

Yes/No

Business Permit Status (Claimed)

Representative/Owner QR Code/ Biometrics

BPLS

Business Permit

Perform Basic Authentication	Issue Business Permit and Plate to Client
Releasing Officer	Releasing Officer

Client/ Applicant

Business Permit Business Plate

Original Copy of All Documents, 1 Copy of Application Form and Receipts

Total Average Experience Time = 15.78 mins

Total Ave Waiting = 2.08 mins
Total Ave Processing Time = 13.70 mins

	Waiting Time		0 min		0 min		0 min		0 min		1.65 min		0.43 min		0 min	
Processing Time		1.12 min		0.28 min		0.25 min	1.72 min		1.22 min		7.42 min		0.57 min		1.13 min	

PhilSys Integration Impact on Total Customer Experience Time

Performance Measure	Current Performance	Expected performance of the proposed process	
	(h:mm:ss)	(h:mm:ss)	% Difference
Total Customer Experience Time	1:20:50	0:15:47	80%

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PhilSys Integration Impact on Cost per Transaction

Estimated Cost Performance of LGU A			
Cost Components	**Baseline**	**Proposed**	
		Expected	**% Difference**
Manpower	₱42.65	₱12.19	71.41%
Utilities	₱1.49	₱0.52	65.00%
Materials	₱13.00	₱12.14	6.65%
Total cost	**₱57.13**	**₱24.85**	**56.51%**

Estimated Cost Performance of Applicant			
Cost Components	**Baseline**	**Proposed**	
		Expected	**% Difference**
Customer time	₱72.19	₱14.59	79.79%
Utilities	₱0.00	₱0.00	0.00%
Transportation	₱24.00	₱24.00	0.00%
Materials	₱19.55	₱1.83	90.66%
Total cost	**₱115.74**	**₱40.41**	**65.08%**

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Presentation to the Relying Party
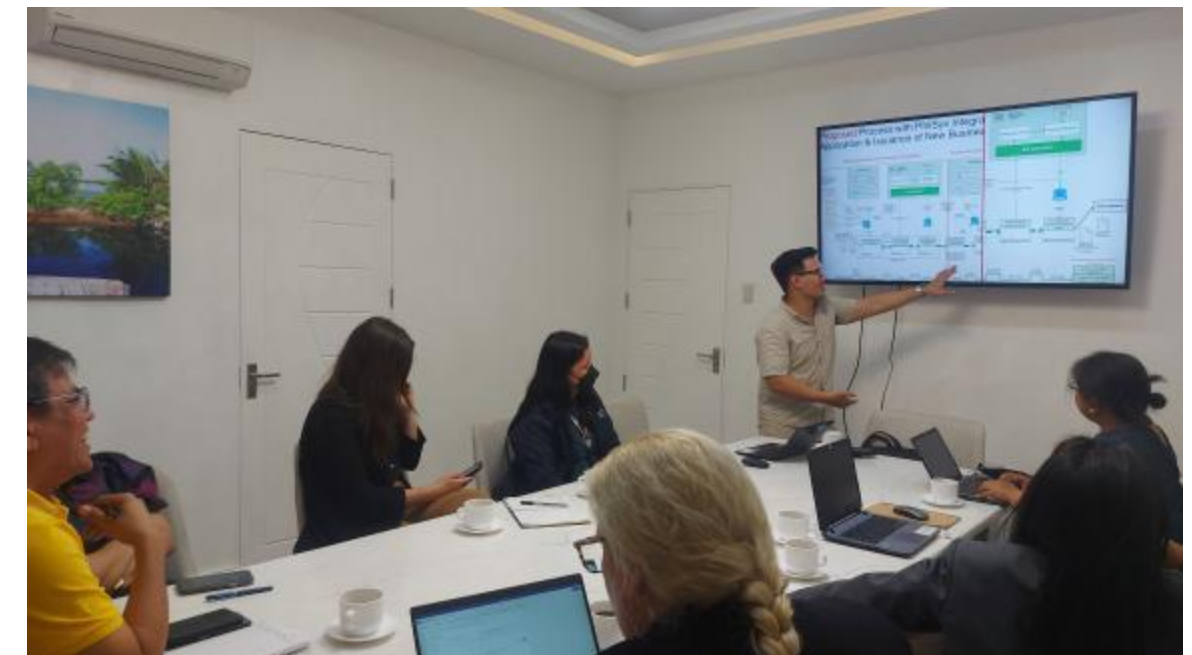
Application of TMS to other sectors

Sectors, Relying Party, and Use Case Involved in the Study

Sector	Relying Party	Use Case
Financial	Bank A	1. In-Branch Savings Account Opening 2. Digital Account Opening
	Bank B	1. In-Branch Savings Account Opening 2. Cash Agent Account Opening
Local Government	LGU A	1. Application and Issuance of New Business Permit 2. Application for Marriage License Process 3. Non-Marital Child or Children to Use the Surname of the Father Process
	LGU B	1. Application and Issuance of New Business Permit 2. Rice Subsidy
Social Protection	Social Program A	1. AICS Process
	Social Program B	1. Community Assembly Validation Process.

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Local Government Sector

Impact on Customer Experience Time

Local Government Unit	Process / Use Case	Current Process Performance (hh:mm:ss)	Proposed Process Performance (hh:mm:ss)	Percentage (%) Improvement
LGU A	Application and Issuance of New Business Permit	1:12:21	0:19:12	73.47%
	Rice Subsidy Process	3.72 Months	2.16 Months	41.94%
LGU B	Application and Issuance of New Business Permit	0:34:52	0:17:46	49.04%
	Application for Marriage License Process	1:11:51 (excluding 10 Days for Posting to the Public	0:32:50 (excluding 10 Days for Posting to the Public	54.31%
	Non-Marital Child or Children to Use the Surname of the Father Process	0:51:21	0:28:06	45.28%

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Impact on Cost for both Relying Party (RP) and Client

Local Government Unit	Process / Use Case	Current Cost Performance (Php)		Proposed Cost Performance (Php)		Percentage (%) Improvement	
		RP	Client	RP	Client	RP	Client
LGU A	Application and Issuance of New Business Permit	62.41	115.50	27.98	42.73	55.16%	63.00%
	Rice Subsidy Process	36.64	48.36	22.04	21.14	39.86%	56.29%
LGU B	Application and Issuance of New Business Permit	28.80	49.35	14.61	35.04	49.26%	29.00%
	Application for Marriage License Process	57.13	115.74	24.85	40.41	56.51%	65.08%
	Non-Marital Child or Children to Use the Surname of the Father Process	41.08	211.16	24.45	26.77	40.49%	87.32%

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Financial Sector

Impact on Customer Experience Time

Bank Name	Process / Use Case	Current Process Performance (hh:mm:ss)	Proposed Process Performance (hh:mm:ss)	Percentage (%) Improvement
Bank A	In Branch Personal Savings Account Opening Process	0:36:59	0:24:34	33.56%
	Digital Account Opening Process	24:17:44 (1 day waiting for activation code)	12:09:36	49.95%
Bank B	In Branch Regular Deposit Account Opening Process	0:29:07	0:11:22	60.94%
	Cash Agent Basic Deposit Account Opening Process	0:06:52	0:03:39	46.84%

Impact on Cost for both Relying Party and Client

Bank Name	Process / Use Case	Current Cost Performance (Php)		Proposed Cost Performance (Php)		Percentage (%) Improvement	
		RP	Client	RP	Client	RP	Client
Bank A	In Branch Personal Savings Account Opening Process	28.21	77.00	17.96	61.22	36.34%	20.48%
	Digital Account Opening Process	4.21	22.44	2.19	12.20	47.98%	45.63%
Bank B	In Branch Regular Deposit Account Opening Process	44.43	61.00	6.12	38.45	86.23%	36.96%
	Cash Agent Basic Deposit Account Opening Process	8.70	6.94	5.04	3.57	42.07%	48.56%

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Social Protection Sector

Impact on Customer Experience Time

DSWD Programs	Process / Use Case	Current Process Performance (hh:mm:ss)	*Proposed Process Estimated Performance Based on OpenG2P (hh:mm:ss)	Percentage (%) Improvement
Social Program A	Cash Outright Process (COR)	7:34:15 (excluding 4 days rescheduling time)	*1:37:22	78.56%
Social Program B	Community Assembly Validation Process	0:40:02	0:21:00	47.53%

*OpenG2P Assumptions:
1. Complete documents submitted in OpenG2P
2. No change in the payment process
3. Interviews and assessments are done in person.
4. Only OpenG2P is being used. (No CRIMS, and Google Sheets)

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Key takeaways from TMS

1. TMS helps in objectively identifying and quantifying the impact of PhilSys on the RP's processes.
2. Collaboration among stakeholders (Customers, RP/Process Owners, PhilSys, and WB) makes TMS work.
3. Pursuing TMS enables customers and process owners the opportunity to challenge legacy practices that are no longer necessary.
4. TMS opens the door for innovating our service processes and maximizing the impact of integrating the PhilSys.

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